





KEY INDICATORS
FOR ASIA AND THE PACIFIC
2015
46TH EDITION

SPECIAL CHAPTER

A SMARTER FUTURE
SKILLS, EDUCATION, AND GROWTH IN ASIA

ASIAN DEVELOPMENT BANK

ADB

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Foreword

The *Key Indicators for Asia and the Pacific 2015* (*Key Indicators 2015*), the 46th edition of this series, presents the latest available economic, financial, social, and environmental indicators for the 48 regional members of the Asian Development Bank. This issue of the *Key Indicators* presents in Part I a special chapter that examines skill development issues in Asia and the Pacific. Part II comprises of statistical tables and commentaries on progress on Millennium Development Goals (MDGs) in the region. Part III presents statistical indicators that capture economic, financial, social, and environmental developments. This year's *Key Indicators* also includes a new data series in Part IV—statistics generated by ADB on participation of selected Asian economies into global value chains.

The special chapter, "A Smarter Future: Skills, Education, and Growth in Asia" shows that developing Asia has done well at expanding access to education. The region now needs to focus more on the quality of education, and to ensure that its workforce has the skills to take the region through the economic transition to prosperity. To improve skills quality, the region needs to: base public financing on measurable educational outcomes, design curriculum content that is well matched to student capabilities and labor-market needs, make sure that curricula are delivered well, and ensure that the disadvantaged receive high-quality basic education. Above all, decisions in these areas must be guided by robust data so that monitoring, performance evaluation, and accountability of teachers and schools can be tracked, for achieving better learning outcomes.

Part II presents the latest data on indicators of MDGs and corresponding targets with short commentaries on progress toward achieving them. Across Asia and the Pacific, there has been spectacular progress in reducing extreme poverty, advancing universal primary education, and bridging gender gaps in primary schooling and providing access to improved drinking water. There has also been progress in the region toward reducing hunger (particularly child malnutrition), and significantly reducing child and maternal mortality, although progress in these areas has fallen short of the MDG targets. While there is much cause for celebration regarding attainment of many MDG targets, there remains an unfinished agenda including the challenges posed by inequality and the threat of climate change. As a follow up to the MDGs, the Sustainable Development Goals (SDGs), adopted by 193 United Nations members in September 2015, provide a post-2015 global agenda for the next 15 years. *Key Indicators* will initiate tracking the progress on the SDGs from its next issue.

Part III contains regional tables that present indicators across eight themes: People; Economy and Output; Money, Finance, and Prices; Globalization; Transport and Communications; Energy and Electricity; Environment; and Government and Governance. In 2014, economic growth accelerated in just over half of Asia and Pacific economies, with the region now accounting for more than 40% of global gross domestic product, in purchasing power parity terms, and about one-third of the world's merchandise exports. Quality of life, as measured by the Human Development Index, continued to improve in most of the region in 2014. But, rapid development and an expanding role in the global economy are also bringing

new challenges to the region. Asia and the Pacific now consumes more than 40% of the world's energy and is facing increased emissions of greenhouse gases and other pollutants, and the consumption of scarce resources. Furthermore, corruption is hindering development, with half of the region's economies falling into the bottom one-third of Transparency International's global corruption rankings.

Part IV presents statistics on selected member economies' participation in global value chains (GVCs). In an economic environment increasingly characterized by globally distributed production processes, traditional trade statistics need to be complemented with measures that capture the essence of cross-economy production arrangements. With trade in intermediate goods and services accounting for more than half of all international trade, the need for substantive quantitative information on inter-sectoral and bilateral transactions to illuminate policy and research issues is more pronounced than ever. Recognizing the importance of in-depth trade statistics, a number of key GVC-related statistics have been generated by ADB for selected economies of Asia and are introduced in this edition.

We appreciate the continued cooperation of a number of statistical partners in our regional member countries that have provided most recent data from their official sources and a host of international agencies from whom the data in many tables of the publication are sourced. We hope *Key Indicators* will remain a valuable resource for information on development issues and data for a wide variety of audience, including policy makers, development practitioners, government officials, researchers, students, and the general public. As always, we welcome feedback from our users on both the content and structure of the publication, which can be e-mailed to keyindicators@adb.org.

Takehiko Nakao
President

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Statistical Partners

The preparation and publication of *Key Indicators for Asia and the Pacific 2015* would not have been possible without the support, assistance, and cooperation of the partners in the regional members of the Asian Development Bank (ADB) and in international, private, and nongovernment organizations. These partners, who shared their data, knowledge, expertise, and other information, help provide ADB, policy makers, and other data users a better understanding of the performance of countries around Asia and the Pacific region, so that better policies can be formulated to improve the quality of life of people in the region.

REGIONAL MEMBERS

Afghanistan	Central Statistics Organization (http://cso.gov.af/en) Da Afghanistan Bank (http://www.centralbank.gov.af) Ministry of Finance (http://mof.gov.af/en)
Armenia	Central Bank of Armenia (https://www.cba.am/en) National Statistical Service of the Republic of Armenia (http://www.armstat.am/en)
Australia	Australian Bureau of Agricultural and Resource Economics and Sciences (http://www.daff.gov.au) Australian Bureau of Statistics (http://www.abs.gov.au) Australian Dept. of Industry and Science (http://www.industry.gov.au) Reserve Bank of Australia (http://www.rba.gov.au)
Azerbaijan	Central Bank of the Republic of Azerbaijan (http://en.cbar.az) State Statistical Committee of the Republic of Azerbaijan (http://www.stat.gov.az)
Bangladesh	Bangladesh Bank (http://www.bb.org.bd) Bangladesh Bureau of Statistics (http://www.bbs.gov.bd) Ministry of Finance (http://www.mof.gov.bd/en)
Bhutan	Ministry of Finance (http://www.mof.gov.bt) Ministry of Labor and Human Resources (http://www.molhr.gov.bt) National Statistics Bureau (http://www.nsb.gov.bt) Royal Monetary Authority of Bhutan (http://www.rma.org.bt)
Brunei Darussalam	Autoriti Monetari Brunei Darussalam (http://www.ambd.gov.bn) Department of Economic Planning and Development (http://www.depd.gov.bn) Ministry of Finance (http://www.mof.gov.bn/)
Cambodia	Ministry of Economy and Finance (http://www.mef.gov.kh) National Bank of Cambodia (http://www.nbc.org.kh) National Institute of Statistics (http://www.nis.gov.kh)

China, People's Republic of	National Bureau of Statistics (http://www.stats.gov.cn/english)
Cook Islands	Cook Islands Statistics Office (http://www.mfem.gov.ck) Ministry of Finance and Economic Management (http://www.mfem.gov.ck)
Fiji	Bureau of Statistics (http://www.statsfiji.gov.fj) Reserve Bank of Fiji (http://www.reservebank.gov.fj)
Georgia	Ministry of Finance of Georgia (http://www.mof.ge) National Bank of Georgia (http://www.nbg.gov.ge) National Statistics Office of Georgia (http://www.geostat.ge)
Hong Kong, China	Census and Statistics Department (http://www.censtatd.gov.hk) Hong Kong Monetary Authority (http://www.hkma.gov.hk)
India	Central Statistical Organization (http://mospi.nic.in) Ministry of Finance (http://finmin.nic.in) Reserve Bank of India (http://www.rbi.org.in)
Indonesia	Bank Indonesia (http://www.bi.go.id/web) Badan Pusat Statistik-Statistics Indonesia (http://www.bps.go.id) Ministry of Energy and Mineral Resources (http://www.esdm.go.id) PT Pertamina (Persero) (http://www.barata.co.id)
Japan	Bank of Japan (http://www.boj.or.jp/en) Economic and Social Research Institute (http://www.esri.go.jp) The Institute of Energy Economics, Japan, The Oil Information Center (http://oil-info.iccj.or.jp/) Japan Statistics Bureau (http://www.stat.go.jp/english) Ministry of Economy, Trade and Industry (http://www.meti.go.jp) Ministry of Finance (http://www.mof.go.jp)
Kazakhstan	Agency of Statistics of the Republic of Kazakhstan (http://www.stat.gov.kz) National Bank of Kazakhstan (http://www.nationalbank.kz)
Kiribati	Kiribati National Statistics Office (http://www.spc.int/prism/kiribati)
Korea, Republic of	Bank of Korea (http://bok.or.kr/eng/engMain.action) Ministry of Strategy and Finance (http://english.mosf.go.kr) Statistics Korea (http://kostat.go.kr)
Kyrgyz Republic	National Bank of the Kyrgyz Republic (http://www.nbkr.kg) National Statistical Committee of the Kyrgyz Republic (http://www.stat.kg)

Lao People's Democratic Republic	Bank of the Lao PDR (http://www.bol.gov.la) Lao Statistics Bureau (http://www.lsb.gov.la) Ministry of Finance (http://www.mof.gov.la)
Malaysia	Bank Negara Malaysia (http://www.bnm.gov.my) Department of Statistics (http://www.statistics.gov.my) Ministry of Finance (http://www.treasury.gov.my)
Maldives	Department of National Planning (http://planning.gov.mv) Maldives Monetary Authority (http://www.mma.gov.mv) Ministry of Finance and Treasury (http://www.finance.gov.mv)
Marshall Islands, Republic of the	Economic Policy, Planning and Statistics Office (http://www.spc.int/prism/country/mh/stats)
Micronesia, Federated States of	Office of Statistics, Budget and Economic Management, Overseas Development Assistance and Compact Management (http://www.sboc.fm)
Mongolia	Bank of Mongolia (http://www.mongolbank.mn/eng) National Statistical Office of Mongolia (http://en.nso.mn)
Myanmar	Central Statistical Organization (https://www.csostat.gov.mm) Ministry of National Planning and Economic Development (https://www.mnped.gov.mm)
Nauru	Ministry of Finance and Economic Planning (http://www.naurugov.nr) Nauru Bureau of Statistics (http://www.spc.int/prism/country/nr/stats)
Nepal	Central Bureau of Statistics (http://cbs.gov.np) Ministry of Finance (http://www.mof.gov.np) Nepal Rastra Bank (http://www.nrb.org.np)
New Zealand	Ministry of Business, Innovation and Employment (www.mbie.govt.nz) Reserve Bank of New Zealand (http://www.rbnz.govt.nz) Statistics New Zealand (http://www.stats.govt.nz)
Pakistan	Ministry of Economic Affairs and Statistics (http://www.ead.gov.pk) Ministry of Finance (http://www.finance.gov.pk) Pakistan Bureau of Statistics (http://www.pbs.gov.pk) State Bank of Pakistan (http://www.sbp.org.pk)
Palau	Bureau of Budget and Planning, Ministry of Finance (http://palaugov.org/executive-branch/ministries/finance/budgetandplanning)

Papua New Guinea	Bank of Papua New Guinea (http://www.bankpng.gov.pg) Department of Treasury (http://www.treasury.gov.pg) National Statistical Office (http://www.nso.gov.pg)
Philippines	Bangko Sentral ng Pilipinas (http://www.bsp.gov.ph) Bureau of Local Government Finance (http://www.blgf.gov.ph) Bureau of the Treasury (http://www.treasury.gov.ph) Department of Budget and Management (http://www.dbm.gov.ph) Department of Energy (http://www.doe.gov.ph) Philippine Statistics Authority (http://www.psa.gov.ph)
Samoa	Samoa Bureau of Statistics (http://www.sbs.gov.ws) Central Bank of Samoa (http://www.cbs.gov.ws)
Singapore	Department of Statistics (http://www.singstat.gov.sg) International Enterprise Singapore (http://www.iesingapore.gov.sg) Ministry of Finance (http://www.mof.gov.sg) Ministry of Manpower (http://www.mom.gov.sg) Ministry of Trade and Industry (http://www.mti.gov.sg) Monetary Authority of Singapore (http://www.mas.gov.sg)
Solomon Islands	Central Bank of Solomon Islands (http://www.cbsi.com.sb)
Sri Lanka	Central Bank of Sri Lanka (http://www.cbsl.gov.lk) Department of Census and Statistics (http://www.statistics.gov.lk)
Taipei,China	Central Bank of China (http://www.cbc.gov.tw) Directorate-General of Budget, Accounting and Statistics (http://eng.dgbas.gov.tw)
Tajikistan	National Bank of Tajikistan (http://www.nbt.tj) State Statistical Committee of Tajikistan (http://www.stat.tj)
Thailand	Bank of Thailand (http://www.bot.or.th) Ministry of Finance (http://www2.mof.go.th) National Economic and Social Development Board (http://eng.nesdb.go.th) National Statistical Office (http://web.nso.go.th)
Timor-Leste	Central Bank of Timor-Leste (http://www.bancocentral.tl) Ministry of Finance (http://www.mof.gov.tl) General Directorate of Statistics (http://www.statistics.gov.tl)

Tonga	Ministry of Finance and National Planning (http://www.finance.gov.to) National Reserve Bank of Tonga (http://www.reservebank.to) Department of Statistics (http://www.spc.int/prism/tonga)
Turkmenistan	Central Bank of Turkmenistan (www.cbt.tm/en) The State Committee of Turkmenistan on Statistics (http://www.stat.gov.tm)
Tuvalu	Central Statistics Division (http://www.spc.int/prism/tuvalu)
Uzbekistan	Cabinet of Ministers (http://www.gov.uz/en/government) Central Bank of Uzbekistan (http://www.cbu.uz) Ministry of Finance (http://www.mf.uz) State Committee on Statistics (http://www.stat.uz)
Vanuatu	Department of Finance and Treasury(https://doft.gov.vu) Reserve Bank of Vanuatu (http://www.rbv.gov.vu) Vanuatu National Statistics Office (http://www.vnso.gov.vu)
Viet Nam	General Statistics Office (http://www.gso.gov.vn) Ministry of Finance (http://www.mof.gov.vn) State Bank of Viet Nam (http://www.sbv.gov.vn)

INTERNATIONAL, PRIVATE, AND NONGOVERNMENT ORGANIZATIONS

Association of Southeast Asian Nations
Australian Institute of Petroleum
CEIC Data Company Ltd.
European Bank for Reconstruction and Development
Food and Agriculture Organization
International Development Association
International Energy Agency
International Labour Organization
International Monetary Fund
International Telecommunication Union
Interstate Statistical Committee of the Commonwealth of Independent States
Organisation for Economic Co-operation and Development
Pacific and Virgin Islands Training Initiatives, Graduate School USA
Secretariat of the Pacific Community
Transparency International
UNESCO Institute for Statistics
United Nations Children's Fund
United Nations Department of Economic and Social Affairs
United Nations Development Programme
United Nations Economic Commission for Europe

United Nations Economic and Social Commission for Asia and the Pacific
United Nations Educational, Scientific and Cultural Organization
United Nations Environment Programme
United Nations Human Settlements Programme
United Nations Population Division
United Nations Statistics Division
United Nations World Tourism Organization
United States Census Bureau
United States Bureau of Economic Analysis
World Bank
World Health Organization
WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation
World Trade Organization

Guide for Users

The *Key Indicators for Asia and the Pacific 2015 (Key Indicators 2015)* has the following structure. The Highlights section presents key messages from various parts of the publication. Part I contains a special chapter that varies every year and deals with a topic on key policy issues, measurement issues, or development challenges. This year's special chapter discusses A Smarter Future: A Smarter Future: Skills, Education, and Growth in Asia.

Part II comprises tables on indicators for the Millennium Development Goals (MDGs). The indicators are presented according to the United Nations revised MDG framework, which was expanded in January 2008 to include new targets for full and productive employment and decent work for all, access to reproductive health, access to treatment for HIV/ AIDS, and protection of biodiversity, as agreed on by member states at the 2005 World Summit. The tables contain indicators associated with each MDG target.

Part III consists of 100 regional trends and tables grouped into eight themes: People; Economy and Output; Money, Finance, and Prices; Globalization; Transport and Communications; Energy and Electricity; Environment; and Government and Governance. Each theme is further divided into subtopics. The tables contain indicators related to a subtopic.

The MDGs and themes in Parts II and III start with a brief analysis of key trends of selected indicators. The accompanying statistical tables are presented for 48 economies of Asia and the Pacific that are members of the Asian Development Bank (ADB). The term "country," used interchangeably with "economy," is not intended to make any judgment as to the legal or other status of any territory or area. The 48 economies have been broadly grouped into developing and developed members aligned with the operational effectiveness of ADB's regional departments. The group "Developed members" refer exclusively to Australia, Japan, and New Zealand. The 45 developing members are further grouped into five, based on ADB's operational regions—Central and West Asia, East Asia, South Asia, Southeast Asia, and the Pacific. Economies are listed alphabetically in each group. The term "regional members" used in some tables refers to all 48 regional members of ADB, both developing and developed. Indicators are shown for the most recent year or period for which data are available and, in most tables, for an earlier year or period (usually 1990 or 1995).

Part IV contains select indicators for depicting certain Asian economies' participation in global value chains and their sector specific comparative advantage in terms of exports. The technical note in the appendix to Part IV provides a succinct exploration of the accounting framework and estimation methodology used to produce the indicators.

Finally, Part V defines the indicators in the MDGs and regional trends and tables. The publication is also available on ADB's website at www.adb.org/ki-2015 with individual statistical tables of the 48 regional members.

Data for the MDG indicators, regional trends and tables, and country tables are obtained mainly from two sources: ADB's statistical partners among its regional members, and international statistical agencies. Data obtained from the regional members are comparable to the extent that the regional members follow standard statistical concepts, definitions, and estimation methods recommended by the United Nations and other applicable international agencies. Nevertheless, regional members invariably develop and use their own concepts, definitions, and estimation methodologies to suit their individual circumstances, and these may not necessarily comply with recommended international standards. Thus, even though attempts were made to present the data in a comparable and uniform format, they are subject to variations in the statistical methods used by regional members, so that full comparability of data may not be possible. These variations are reflected in the footnotes of the statistical tables or noted in the Data Issues and Comparability sections. Moreover, the aggregates for developing and regional members shown in some tables are treated as approximations of the actual total or average, or growth rates, due to missing data from the primary source. No attempt has been made to impute the missing data.

Fiscal Year

The data cutoff date for this issue is **July 2015**.

Twenty-four regional members have varying fiscal years not corresponding to the calendar year. Whenever the statistical series (for example, national accounts or government finance) are compiled on a fiscal year basis, these are presented under single-year captions corresponding to the period under which most of the fiscal year falls, as follows:

Regional Members	Fiscal Year	Year Caption
Afghanistan	21 December 2013–20 December 2014	2014
Cook Islands (after 1990)	1 July 2012–30 June 2013	2013
Brunei Darussalam (after 2002) Hong Kong, China India Japan Myanmar New Zealand Singapore	1 April 2014–31 March 2015	2014
Indonesia (until 1999)	1 April 1999–31 March 2000	1999
Australia Bangladesh Bhutan Nauru Pakistan Samoa Tonga	1 July 2013–30 June 2014	2014
Taipei,China (until 1999)	1 July 1999–30 June 2000	2000
Nepal	16 July 2010–15 July 2011	2011
Lao People's Democratic Republic (after 1992) Marshall Islands, Republic of the Micronesia, Federated States of Palau Thailand	1 October 2011–30 September 2012	2012

Key Symbols

...	Data not available at cutoff date
–	Magnitude equals to zero
0 or 0.0	Magnitude is less than half of unit employed
*	Provisional/preliminary/estimate/budget figure
I	Marks break in series
>	Greater than
<	Less than
≥	Greater than or equal to
≤	Less than or equal to
na	Not applicable

Measurement Units

µg	microgram
kg	kilogram
km	kilometer
kWh	kilowatt-hour
kt	kiloton

Abbreviations

ADB	Asian Development Bank
ADB SDBS	Asian Development Bank Statistical Database System
AIDS	acquired immunodeficiency syndrome
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ATMs	automated teller machine
BOP	balance of payments
BRT	bus rapid transit
CAL	computer-assisted learning
CCT	conditional cash transfer
CBN	cost of basic needs
CDIAC	Carbon Dioxide Information Analysis Center
CIF	cost, insurance, and freight
CNG	compressed natural gas
CO_2	carbon dioxide
CPI	consumer price index
CPI	corruption perceptions index
CRRA	constant relative risk aversion
DAC	Development Assistance Committee

DIB	development impact bonds
DME	developing member economy
DOTS	Directly Observed Treatment Short Course
DRR	disaster risk reduction
DTS	dual training system
ECE	early childhood education
EFB	empty fruit bunches
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCOs	energy service companies
FAO	Food and Agriculture Organization
FC	food cost
FDI	foreign direct investment
FIZ	free industrial zone
FOB	free on board
FPI	food price index
FTZ	free trade zone
GAR	Global Assessment Report on Risk Reduction
GCF	gross capital formation
GDP	gross domestic product
GHG	greenhouse gas
GNI	gross national income
GPI	gender parity index
GRUMP	Global Rural Urban Mapping Project
HDI	human development index
HIV	human immunodeficiency virus
HRM	human resource management
IBT	increasing block tariff
ICP	International Comparison Program
IEA	International Energy Agency
ILO	International Labour Organization
IMF	International Monetary Fund
IQ	intelligence quotient
IRRI	International Rice Research Institute
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification
IT	information technology
ITU	International Telecommunication Union
IUCN	International Union for Conservation of Nature
JOLTS	Job Openings and Labor Turnover Survey
KHR	Cambodian Riel
KILM	Key Indicators of the Labour Market
Lao PDR	Lao People's Democratic Republic
LCU	local currency unit
LDC	least developed countries

LECZ	low-elevation coastal zone
LFS	Labor Force Survey
Ln	natural logarithm
LTS	Labor Turnover Survey
M&E	monitoring and evaluation
MDG	Millennium Development Goal
MIS	management information system
MPI	Multidimensional Poverty Index
NF	non-food cost
NPL	nonperforming loan
ODA	official development assistance
ODP	ozone-depleting potential
OECD	Organisation for Economic Co-operation and Development
PCE	per capita consumption expenditure
PIAAC	Program for the International Assessment of Adult Competencies
PICs	Pacific island countries
PISA	Programme for International Student Assessment
PLI	price level index
PPP	public–private partnership
PPP	purchasing power parity
PRC	People's Republic of China
PWT	Penn World Table
R&D	research and development
SABER	Systems Approach for Better Education Results
SD	standard deviation
SMEs	small and medium enterprises
SNA	System of National Accounts
SOC	Standard Occupational Classification
SPC	Secretariat of the Pacific Community
STEP	Skills Toward Employment and Productivity
TB	tuberculosis
TFR	total fertility rate
TIMSS	Trends in International Mathematics and Science Study
TVET	technical vocational education and training
UCT	unconditional cash transfer
UIS	UNESCO Institute of Statistics
US	United States
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	UNESCO International Centre for Technical and Vocational Education and Training
UNFPA	United Nations Population Fund
UN-HABITAT	United Nations Human Settlements Programme
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNODC	United Nations Office on Drugs and Crime
UNSD	United Nation Statistics Division
UNWTO	United Nations World Tourism Organization
US	United States
USAID	United States Agency for International Development
WDI	World Development Indicators
WDPA	World Database on Protected Areas
WEO	World Energy Outlook
WHO	World Health Organization
WRI	World Resource Institute
$PPP	purchasing power parity
3D	three dimensional

Unless otherwise indicated, "$" refers to United States dollars.

KEY INDICATORS FOR ASIA AND THE PACIFIC 2015

HIGHLIGHTS

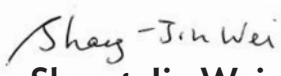
This issue of *Key Indicators for the Asia and the Pacific* comprises of four parts.

Part I of the publication is a special chapter, "A Smarter Future: Skills, Education, and Growth in Asia". The chapter emphasizes that developing Asia needs to scale up skills development to successfully manage its economic transformation and achieve a more prosperous and smarter future. Toward this goal, the region should make greater efforts to enhance the quality of education, while continuing to broaden access, to ensure its workforce has the full complement of skills—cognitive, noncognitive, and technical—needed for high growth. Systematic collection and sharing of credible, timely, and relevant information about schools, teachers, and students; attention to curriculum content; and emphasis on early childhood education will have large payoffs in improving the quality of education.

With the Millennium Development Goals (MDGs) set to expire by the end of 2015, the Sustainable Development Goals (SDGs) have been formally adopted as the post-2015 development agenda. Part II presents statistical tables and commentaries on the progress of the MDGs, highlighting that the region has reduced dramatically the number of poor living below $1.25 per day in 2005 purchasing power parity (PPP) terms, alongside meeting several other targets. Greater inclusion, tackling climate change, enhancing educational quality, and improving access to sanitation facilities are some of the challenges that the region needs to overcome to end poverty in all its dimensions and promote sustainable development.

Part III presents statistical indicators across social, economic, and environmental dimensions. These indicators reinforce developing Asia's growing importance in the global economy with the region accounting for more than 40% of global GDP in PPP terms.

Part IV presents a new data series—statistics generated by ADB on selected economies' participation in global value chains. In an economic environment increasingly characterized by fragmented and globally distributed production processes, these measures complement traditional trade statistics by capturing the essence of cross-economy production arrangements.



Shang-Jin Wei
Chief Economist and Director General

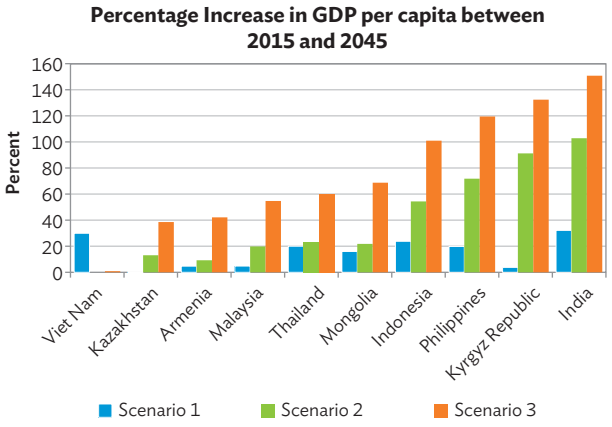
Part I: Special Chapter
A Smarter Future: Skills, Education, and Growth in Asia

1. While progress in the spread of education is noticeable, shortfalls in the quantity and, especially, quality of education constrain skill development and growth.

- **Developing Asia has made large strides in expanding educational access to education.** Average years of schooling nearly doubled from 3.9 in 1970 to 8.0 in 2010. Over 1990–2012, literacy grew from 79% to 87% and gross enrollments in secondary and tertiary education rose from 62% to 81% and from 15% to 27%, respectively. These gains have been the result of conscious efforts of both governments and households to invest in education, perhaps the most important channel through which individuals acquire skills.

- **Skills remain weak in many parts of the region, due to gaps in both the quantity and quality of education provided.** In some economies, as many as 90% of high-skilled occupations in which tertiary education is important are filled by people with, at most, a secondary education. This points to the need to continue efforts to expand the *quantity* of education. But, perhaps more importantly, the *quality* of education (the level and relevance of skills in this chapter's terminology) needs to improve. As revealed by international tests of cognitive skills that schooling is intended to provide, in 10 of 15 regional economies that participated in recent PISA and TIMSS tests (measuring critical cognitive skills in reading, mathematics, and science among students aged 14–15), more than 30% of participants had scores below the level corresponding to the minimum basic cognitive skills needed for functioning efficiently in the workplace (a score of at least 400). Very few students—less than 1% in five developing Asian economies—had top-end skills that allow individuals to solve complex problems and think strategically (captured by scores above 600 on PISA/TIMSS). Many Asian schools are also not providing students with good noncognitive skills. Employer surveys often cite this as a major "missing skill" in their workers, in addition to certain types of technical skills.

- **A failure to raise the quality of education will have consequences for growth prospects.** Empirical analysis reveals a strong positive relationship between education and economic growth (controlling for initial income levels). However, for education to be growth promoting, it must be of sufficiently high quality that it builds cognitive skills. Empirical analysis suggests that the extra growth from raising the average years of schooling to 11.6 years—the average in economies of the Organisation for Economic Co-operation and Development (OECD) (Scenario 1 in the figure below)—will be relatively low. In contrast, growth could be far higher if economies focus on achieving basic cognitive skills that are similar to the average of OECD economies (Scenario 2: 85% of students achieve at least 400 on PISA/TIMSS). If economies can also develop a critical mass of students with top-end skills that go on to become innovators there will be an additional boost to growth (Scenario 3: 85% of students achieve at least 400; 15% achieve at least 600).



Note: Scenarios for the growth projections are: Scenario 1: Raise average years of schooling to OECD levels (11.6 years); Scenario 2: Raise share of students achieving 400 + on PISA/TIMSS to OECD levels (85%); Scenario 3: Raise share of students achieving 400 + and 600+ on PISA/TIMSS to OECD levels (85% and 15%, respectively).

2. Toward more effective skill development systems

- **In principle, many factors can matter for improving the quality of education.** Policymakers have to decide on a number of issues, including: How should public finances be allocated across different levels and types of education to deliver better educational outcomes per dollar of investment? Is it teacher skills or motivation that is the greater constraint to enhancing learning outcomes? What role can information play in helping to improve educational outcomes? How can the public sector invest to catalyze educational investments by families and firms? Answering such questions relies crucially on data and evidence.

- **This study compiles a new database on how economies across the region manage their education systems.** A database of over 150 indicators has been developed to compare and contrast educational inputs and practices followed by 67 economies globally for managing their basic education systems. For 23 economies from developing Asia, the database also includes indicators for technical and vocational education and training (TVET) and higher education. The indicators reveal considerable variations in inputs and practices across economies. Three economies in developing Asia—the Republic of Korea; Singapore; and Taipei,China—have consistently better practices in virtually all areas considered. In particular, these economies are dedicated to collecting detailed information that is important to effectively manage schools and teachers and ensure that their incentives are aligned with better learning outcomes of their students. Some lower-income economies such as Viet Nam also rank high in many areas.

- **Some features of education systems are better predictors of learning outcomes than others.** To determine whether some practices matter more for skill development, this study examines the relationship between performance on the international PISA and TIMSS tests and indicators for basic education using the global sample of 67 economies. Analysis reveals that economies with better cognitive skills are those that are committed to collecting quality information, particularly on learning outcomes; that have curricula emphasizing critical thinking and matched to student capabilities (through remedial and enrichment courses); and that invest in early childhood education.

- **The importance of collecting information on learning outcomes emphasizes that data are an essential basis for making evidence-based policy decisions and imposing accountability.** Closing the gap between the economies with the best practices in the collection and provision of educational information and the economies with relatively weak practices could raise average PISA/TIMSS test scores of the latter by as much as 16%. Timely, credible, and relevant data allow governments to decide among alternative investments on the basis of evidence and hold schools and teachers accountable to learning outcomes. Providing information to parents on measures of student and school performance on

standardized tests also improves test scores, as this information can empower families to demand better educational quality. It can also enable families to make more informed skill investment decisions. Indeed, families are likely to invest more in their children's education when they are assured of its quality.

- **Good curriculum content needs to be matched to student capabilities to improve student learning and help develop transferable labor market–relevant skills.** Closing the gap between the best and relatively weaker performers on curriculum content could raise average test scores of the latter by as much as 10%. When the curriculum is too hard or too easy, students may learn very little. Additionally, basic education curricula, especially at the secondary level, should focus on developing skills that are highly transferable, whether they are cognitive, noncognitive, or technical. In particular, basic digital, financial, and marketing skills may be important technical skills that could help, independent of the occupation one may ultimately enter.

- **Early childhood education has large payoffs to skill development by building the capacity to learn later in life.** In fact, this brings some of the largest gains in tests of cognitive skills. On the PISA/TIMSS tests of 14-15 year olds, for example, test scores are 9% higher for students who started school before age 5 rather than 7, but are only 2% higher for those who started at age 6. Given the scientific evidence that early education builds the capacity to learn, its benefits continue to accrue over the long term. Moreover, as lower-income families have difficulties in financing education, there is a strong case for public financing of early childhood education. Nevertheless, a good number of developing economies in Asia are lagging behind on the indicator for early childhood education. Early childhood investments targeted at the most disadvantaged may also be critically important in ensuring greater educational access and ensuring that the best and most promising students have a better opportunity to enter higher levels of education.

- **Public educational expenditures are necessary, but not sufficient to improve learning outcomes.** While public educational expenditures as a percentage of GDP vary considerably across economies they are not systematically associated with higher test scores. This suggests that how public finances for education are utilized and invested matters as much as the amount of finance. In particular, public finances need to be directed at different levels and types of education so as to yield better educational quality per dollar of investment.

- **Our analysis does not cover all potentially important issues due to the absence of good data that are essential to building hard evidence.** Some important questions on skill development beyond the scope of our analysis include TVET systems and the use of technology in education. For example, what are effective models for TVET and higher education that can better guarantee successful skill and labor market outcomes? Under what conditions can technology serve as a democratizer of education that creates more equity in educational inputs? A review of recent literature points to some important issues for future research.

    - **For TVET there is a strong need to get curriculum design and delivery right.** As the costs of public secondary TVET are higher than public secondary general education (some estimates suggest 20%–40% higher), there is a need to ensure that either the benefits from returns are also high or to focus on methods for reducing the costs. Offering curricula that develop foundational skills in addition to technical skills so graduates have pathways into higher

levels of education, and hiring teachers with relevant industry experience are examples of promising approaches being implemented in the region. To control costs, the use of technology that can simulate technical processes (such as a virtual-reality welding simulator) and cost-sharing arrangements with industry are being tried.

- **Technology could provide alternatives when teacher effort and skills are low and aid in cost reductions.** When combined with high-quality content that is customized to a level and pace that match student capabilities, technology can enhance educational quality by countering variations in teaching quality and in lower costs of educational delivery. Blended learning, which replaces some traditional classroom time with online interactive content to reduce costs paid for instruction when curricula are more standardized, is one form gaining traction in higher education for developed economies, as it has been shown to have minimal adverse consequences for student learning outcomes.

- **Families and firms also need to be involved in the region's skill development agenda.** This will be vital for developing the skills that will underpin the region's path to prosperity. Families play a significant role in the process of skill development by ensuring that their children attend school and taking an active role in their studies. Firms matter as well, and estimates for developed countries suggest that a sizable portion of skills acquired over the lifetime are learned on the job. But the type of firm in which a worker is employed matters, too. Formal firms using modern technologies and human resource management practices not only demand more skilled workers, they typically also do a better job in developing further the skills of their workers. Finally, competitive product and labor markets and a pro-investment business climate encourage such firms and practices. All these areas lie outside the domain of education policies, but governments with ambitious skill development agendas should not ignore them.

Part II: Millennium Development Goals

2015 is a milestone year being the closing year of the Millennium Development Goals (MDGs) agenda. The eight MDGs and associated 21 targets on poverty, education, gender equality, child mortality, maternal health, disease, the environment, and global partnership, adopted in September 2000 have guided the development agenda in the last 15 years. Across the Asia and Pacific region, the greatest success has been in reducing extreme poverty, considerable advancement toward enrollment of girls and boys in primary education, and in providing safe drinking water. There has also been good progress in reducing hunger, particularly child malnutrition, and in reducing the deaths of children and mothers, but not sufficient enough to meet the MDG targets.

Despite encouraging progress in attaining many MDG targets, there remains an unfinished agenda due to uneven progress across countries, within countries, and across targets. Emerging issues of rising inequalities and climate change are posing new challenges. While more primary age children are going to school, greater efforts are needed to ensure that they complete primary schooling with quality education, and move on to secondary school. Though gender gaps have narrowed, gender inequalities persist in education, employment, and political empowerment. The fight against HIV/AIDS, malaria, tuberculosis, and other diseases has saved many lives, but more needs to be achieved to tackle the disease burden. While forest cover has gone up slightly, carbon dioxide emissions have continued to increase rapidly. Access to safe drinking water has improved rapidly in the region, but progress on access to improved sanitation has been less satisfactory.

As the MDGs era comes to a close, the world has already committed itself to 17 Sustainable Development Goals (SDGs) and 169 targets adopted in September 2015 defining a new global agenda for the next 15 years. The SDGs aspire for an inclusive agenda that promises to leave no one behind and integrates the economic, social, and environmental elements of sustainable development. The MDGs brought data at the center stage of monitoring progress on goals and have provided many lessons for monitoring the progress of the SDGs. Availability of better and more disaggregated data to measure more inclusive development outcomes in the post-2015 era will be a necessity for the success of SDGs.

MDG 1: Eradicate Extreme Poverty and Hunger

- Extreme poverty target has been achieved in most economies in developing Asia with around 950 million people lifted out of extreme poverty between 1990 and 2011, leading to cutting down the proportion of people living on less than $1.25 (2005 purchasing power parity) per day by more than two-thirds.

- Employment opportunities are improving in the Asia and Pacific region with employment-to-population ratios increasing in many economies, but a large workforce remains in low-paying vulnerable jobs in the informal sector in many developing economies.

- The proportion of workers living in extreme poverty is falling, suggesting progress in generating more decent jobs.

- Prevalence of hunger, as measured by the proportion of children under 5 years of age moderately or severely underweight, continues to decline, but remains a serious problem in many economies, with majority of the developing Asian economies unable to meet the hunger target.

MDG 2: Achieve Universal Primary Education

- Significant strides have been made in having primary age children attend school with the region's net enrollment ratio rising from 86% in 1990 to 95% in 2013.

- Among developing economies where primary age boys had an advantage over girls for schooling in early 1990s, these gaps have narrowed considerably, with some economies now having gaps slightly in favor of girls.

- Number of out-of-school children of primary school age fell from around 45 million in 1990 to 17 million in 2013. Much of this reduction was achieved by a reduction in the number of out-of-school girls from 31 million to 8 million during the same period.

- In only 13 out of 36 economies of developing Asia, 95% or more pupils who started grade 1 are able to reach the last grade of primary schooling, implying continued constraints in achieving universal primary education.

- Since 1990, literacy rates have improved in the region, with gaps falling in literacy rates between young males and young females.

MDG 3: Promote Gender Equality and Empower Women

- Substantial progress has been achieved in narrowing down the gender gaps in education with gender parity having been achieved in almost all economies of developing Asia at the primary level. From around 86 girls enrolled per 100 boys in primary education in 1991 in developing Asia, gender parity has been achieved in the enrollments in 2013.

- Gender gaps have also reduced at the secondary and tertiary levels, with parity ratios exceeding 1.0 in many economies, implying higher enrolment among girls than boys in these economies.

- While women's access to paid employment in the nonagriculture sector is increasing, it is still low in some developing economies with shares below 20%.

- In terms of political empowerment of women, the proportion of parliamentary seats held by women has increased between 1990 and 2015. However, conditions are far from parity: in a dozen economies of South Asia, Southeast Asia, and the Pacific, the proportions remain below 10%.

MDG 4: Reduce Child Mortality

- Developing Asia has made substantial progress in reducing under-5 mortality by more than half from 90 deaths per 1,000 live births in 1990 to 36 in 2015, but the region is still behind the MDG target to reduce under-5 mortality by two-thirds of the 1990 rate.

- Deaths of children under the age of 1 year have also reduced substantially, with the infant mortality rates reduced by more than half from 66 to 29 deaths per 1,000 live births between 1990 and 2015.

- Measles vaccination increased significantly with 84% of the children in developing Asia receiving at least one dosage of measles vaccination in 2013 as against 73% in 1990.

MDG 5: Improve Maternal Health

- Developing Asia's maternal mortality ratio declined by more than half, from 344 in 1990 to 133 per 100,000 live births in 2013, but fell short of the MDG target of three-quarters reduction.

- In more than half of the developing economies of Asia (23 out of 42), more than 95% of the births were attended by skilled health personnel, while in a quarter of economies (11 out of 42) at least a quarter of the births were unattended in recent years.

- In three-fourths of developing economies (35 out of 45), the adolescent birth rate has fallen during the MDG period. In 14 economies, there are at least 50 births per 1,000 women in the age group 15 to 19 years.

MDG 6: Combat HIV/AIDS, Malaria, and Other Diseases

- In the Asia and Pacific region, the prevalence of HIV among the population aged 15–49 years has declined in economies with the highest rates of infection, but has risen in other economies.

- Access to antiretroviral drugs for those with advanced HIV infection has increased in the region, especially in economies with high prevalence rates; however, access to this therapy is still well below the needs.

- About half of the 26 reporting economies have made significant progress in halting the incidence of malaria and associated death rates. In the other economies, malaria remains a severe problem where either the incidence is over 5,000 or the associated death rate is at least 10 per 100,000 population.

- The incidence and prevalence of death rates associated with tuberculosis have declined in the region, with almost all economies having achieved or are on track to meet the target.

MDG 7: Ensure Environmental Sustainability

- Forest cover has slightly increased from 21.9% in 1990 to around 22.6% in 2015 in the Asia and Pacific region for the MDG period, with 17 economies recording increases in the proportion of land covered by forests since 1990.

- The region's carbon dioxide emissions have more than doubled since 1990, with increasing per capita emissions of carbon dioxide in 36 out of 47 of the region's economies. But per capita emissions remain well below those of developed economies.

- The proportion of people who do not have access to improved drinking water sources has declined to 7% from 29% during the MDG period, with two-thirds of the economies having achieved the MDG target on access to improved drinking water.

- The progress in access to improved sanitation facilities has been less impressive in the region, with more than a third of the population still deprived of clean sanitation facilities.

- From 1990 to 2014, the proportion of the urban population living in slums has declined in all reporting economies of the region, with India, Indonesia, and Viet Nam achieving reductions by more than half from 1990 baselines.

MDG 8: Develop a Global Partnership for Development

- Net official development assistance (ODA), as percentage of gross national income (GNI), exceeded 0.7% for only five OECD Development Assistance Committee countries in 2014 and net ODA to least-developed countries as a proportion of their GNI has declined in most landlocked and small island economies.
- Access to mobile-cellular phones has risen phenomenally in the Asia and Pacific region, with 3.7 billion mobile subscriptions in 2014 compared with 1.6 million in 1990 and 222 million in 2000.
- Internet access has also increased significantly in the region, but there are wide gaps across economies with more than one-third of the economies in the Asia and Pacific region still having internet access below 20%.

Part III: Region at a Glance

More than half of the world's population lives in the Asia and Pacific region. The region is also home to six of the 10 most populous economies in the world, and 12 of the 23 most populous cities. In 2014, gross domestic product (GDP) growth accelerated in just over half of Asia and Pacific economies. Asia and the Pacific now accounts for more than 40% of global GDP, in purchasing power parity terms, and about one-third of the world's merchandise exports.

Quality of life, as measured by the Human Development Index, continues to improve in most of the region. Inflation generally remained low across Asia and the Pacific in 2014 as declining energy prices eased pressure on consumer prices. Average time taken to start a business and the cost of registering a new business have also been declining across the region. In an increasing number of economies, the services sector has become an important contributor to growth as structural changes and declining labor intensity in agriculture and manufacturing have channeled more workers into services.

Rapid development and an expanding role in the global economy are also bringing new challenges to the region. Asia and the Pacific now consumes more than 40% of the world's energy and is also facing increased emissions of greenhouse gases and other pollutants, alongside increased consumption of scarce resources. Furthermore, corruption is hindering development, with half of the region's economies falling into the bottom one-third of Transparency International's global corruption rankings.

The Regional Trends and Tables are grouped into eight themes, each of which has a brief analysis of key trends of selected indicators highlighting important recent developments:

People

- Asia and the Pacific accounts for nearly 55% of the global population and six of the world's 10 most populous economies. The region's population is forecasted to reach 5.3 billion by 2050. India's population is expected to surpass that of the People's Republic of China (PRC) in the next 7 years.

- Population growth and fertility rates have slowed in most economies. The region's population is aging, which will have major implications for economic growth. An aging population will tend to lower labor force participation and increase age dependency with a larger part of the population becoming economically inactive yet continuously requiring social services.

- The rate of urbanization is increasing in most of the region. Asia is home to 12 of the world's 23 biggest cities and eight of the 10 most densely populated cities.

- Based on the United Nations Development Programme's Human Development Index, about half of developing member economies are in the "medium human development" category, and all but two have shown improvements in quality of life indicators since 2000.

Economy and Output

- In purchasing power parity terms, Asia and the Pacific generated more than 40% of global GDP in 2014. The PRC and India accounted for nearly 70% of the region's output.

- GDP growth accelerated in slightly more than half of the region's economies in 2014.

- The role of services has expanded in about 80% of the Asia and Pacific region since 2000 and now generates for at least half of GDP in nearly two-thirds of the region's reporting economies.

- Between 2000 and 2014, the share of agriculture in GDP fell in all but seven of the region's 47 reporting economies. During the same period, the share of industry in GDP rose in slightly less than half of the region's economies.

- Between 2000 and 2014, or the latest year for which data are available, investment spending as a share of GDP increased in two-thirds of the region's reporting economies, household consumption spending as a share of GDP declined in two-thirds of the region's reporting economies, government consumption expenditure relative to GDP increased in slightly more than half of the region's reporting economies, and gross domestic saving as a share of GDP increased in more than two-thirds of the region's reporting economies.

Money, Finance, and Prices

- Inflation generally remained low across Asia and the Pacific in 2014 as declining oil prices took pressure off of consumer prices.

- The exchange rates of 35 out of 44 regional currencies depreciated against the US dollar in 2014.

- Growth in the money supply slowed in most of the region's economies.

- The ratio of nonperforming loans to total gross loans declined in about half of the reporting economies in the region between 2013 and 2014.

- Stock market performances were largely positive across the region in 2014.

Globalization

- The Asia and Pacific region accounted for about one-third of the world's merchandise exports in 2014, up from about one-quarter in 2001. At the same time, merchandise export growth slowed and merchandise import growth was negative in the region in 2014.

- Intraregional trade comprised the majority of the region's exports and imports in 2014.

- The share of GDP generated by remittances of migrant workers has increased in more than three-quarters of the region's economies since 2000.

- More than 60% of the region's economies recorded current account deficits in 2013–2014, or the most recent 2 years for which data are available.

- External debt, as a percentage of gross national income, fell in more than half of the region's economies between 2000 and 2013.

Transport and Communications

- The share of Primary and Class I roads in highway networks in Asia and the Pacific increased from 12% to 32% between 2004 and 2012.

- The number of vehicles has surged in the region. Nineteen economies have at least 100 vehicles per 1,000 people. The increase in the number of registered motor vehicles in many developing economies has been accompanied by a relatively high incidence of fatal road accidents.

- The region's rail networks are heavily concentrated in three economies—the PRC, India, and Japan.

- The number of mobile phone subscriptions per 100 people rose in all but three economies in Asia and the Pacific between 2010 and 2014.

- Fixed broadband internet penetration rates have increased throughout the region, but remain low in many economies.

Energy and Electricity

- Per capita electricity consumption rose by at least 200% in 16 developing member economies between 1990 and 2012, or the first and last years for which data are available.

- Asia and the Pacific accounts for more than 40% of global energy demand.

- Most economies in the region rely on energy imports. The four biggest energy users—the PRC, India, Japan, and the Republic of Korea—have all increased their dependence on energy imports since 2000.

- Six economies in Asia subsidize fossil fuels by more than 25% of the supply cost. At the same time, energy efficiency—as measured by GDP per unit of energy use—improved in 24 out of 30 economies between 2000 and 2012.

Environment

- Asia's economic development has led to increased emissions of greenhouse gases.

- Between 2000 and 2012, almost half of the economies in the region expanded the amount of land devoted to agriculture.

- Four of the 10 economies with the highest rates of deforestation in 2012 were located in Southeast Asia.

- The percentage of agricultural nitrous oxide emissions as a share of total nitrous oxide emissions increased in nearly two-thirds of the region's economies between 1990 and 2010, while the percentage of agricultural methane emissions as a share of total methane emissions decreased in three-quarters of the region's economies between 1990 and 2010.

Government and Governance

- All economies in Southeast Asia, a majority of economies in South Asia and Central and West Asia, and about half of the economies in East Asia and the Pacific ran fiscal deficits in 2014.

- Government expenditure decreased relative to GDP in the majority of economies in East Asia, South Asia, and Southeast Asia in 2014; and increased in a majority of economies in the Pacific and all but one economy in Central and West Asia.

- Government spending on health and social security and welfare increased as a percentage of GDP in most economies between 2000 and 2014.

- Among developing member economies, the average time required to start a business has fallen from 47 days in 2005 to 26 days in 2014. The average cost of starting a business among all developing member economies—in terms of per capita gross national income—was more than halved between 2005 and 2014.

- Only eight out of 32 developing member economies in Asia scored 50 or higher on a scale of 0 (highly corrupt) to 100 (very clean) in Transparency International's 2014 Corruption Perceptions Index.

Part IV: Global Value Chains

As production processes are increasingly fragmented and distributed across economies, a growing amount of trade is taking place within so-called global value chains (GVCs). Traditional trade statistics do not fully capture the increasingly complex trade relationships across economies. To better understand these, it has become necessary to examine the export structure of an economy in terms of foreign and domestic value added components of trade, as well as "double counted" components brought about by back and forth trade in intermediate goods and services. The resulting statistics—which we refer to as GVC statistics—can provide crucial information for policy making. ADB has increased the granularity of existing GVC statistics and extended them to cover more Asian economies.

- Asian economies participation in GVCs exceeds that of most other regions. In 2011, foreign value added as a share of exports was 19% in Asia and the Pacific, slightly below the level of Europe, but above that of North and South America.

- The extent of GVC participation varies widely across Asian economies. In the Republic of Korea and Taipei,China, the share of foreign value added in exports was 30% in 2011, while the developing member average was 19%.

- Closely associated with GVC development, regional economies' back-and-forth trade increased between 2000 to 2011, led by the Republic of Korea and Taipei,China.

- Indirect exports, as measured by the value added contributed by a sector to the exports of other sectors, account for about half of the total value added of regional members' exports.

- Specialization in export industries varies widely across Asian economies: East Asia leads in medium- and high-technology manufacturing; Indonesia and Viet Nam in the primary sector; and India, the Philippines, and Thailand in business services.

- The revealed comparative advantage indicator, in value-added-terms, confirms the comparative advantage of Japan; the Republic of Korea; and Taipei,China in medium- and high-technology industries. In low-technology industries, the PRC, the Philippines, Thailand, and Viet Nam show a clear comparative advantage. Primary industries hold an advantage in Indonesia and Viet Nam.







PART I–SPECIAL CHAPTER

A Smarter Future

Skills, Education, and Growth in Asia

Section 1. Introduction

The development of skills—part of human capital—is an essential driver of economic growth and inclusion. Skills raise the productivity of workers, help build innovative capacity that sets the basis for developing and acquiring new technologies, and makes workers more adept at exploiting them. Skills can also improve economic growth by developing a more cohesive society that is less prone to socioeconomic disruptions such as crime.

What types of skills are critical to better match labor market demands? How can the public sector improve the relevancy of cognitive, noncognitive, and technical skills (Box 1.1) given that there are limited public finances that cannot expand to fulfill all needs? This special chapter aims to answer these two questions for developing Asia—a region that has seen burgeoning growth in demand for skills.

The chapter takes a holistic approach to skill development. This draws on two key facts: that public financing is limited; and, that to make financially efficient investments that improve the quality and relevancy of skills, policy makers must make decisions based on evidence. This means identifying the skills in demand relative to the types of skills or education being supplied. Moreover, to invest efficiently, it is important to determine the right mix of investments between different levels of education (early childhood, basic and upper secondary, and tertiary), different types of education (general or technical), and how to target investments (disadvantaged groups, teachers, etc.). It also requires developing policies around the primary actors and the incentives they face to invest and enhance skills. These actors include school managers, teachers, individuals, families, and firms.

Structure of the special chapter

Section 2 shows that developing Asia has made substantial progress in increasing educational attainment. However, for economies to continue to grow and transform, they will need to pay more attention not only to the *quantity*, but also the *quality* of education to ensure that education delivers more relevant types of skills for labor market demands. To meet the demands not just of current labor markets, but those of the future as well, education must work on developing broad-based quality cognitive and noncognitive skills.

Section 3 lays out three primary elements to guide skill development: financial efficiency, educational delivery, and educational access (taken up further in sections 5, 6, and 7). They are based on good governance in education, which means making evidence-based policy decisions and facilitating practices that improve school and teacher accountability. Original work documents skill development systems for the three elements, across 23 Asian economies, using over 200 indicators. Our findings suggest that good governance that collects timely, credible, and relevant information on education—particularly measuring critical skills—and providing information to parents on school and student performance is crucial.

Section 4 emphasizes that evidence-based policy decision making and implementing accountability should be top priorities to enhancing learning outcomes. Accountability is inherently tied to developing better human resource management practices in schools that align school manager and teacher incentives with learning outcomes. Above all, however, there must be attention and commitment to collecting quality information.

Section 5 starts with the premise that, to achieve financial efficiency, public investments that complement rather than substitute for private investments are required. This means making investments where there are clear social returns, including providing education earlier. Section 6 shows that educational delivery requires curriculum

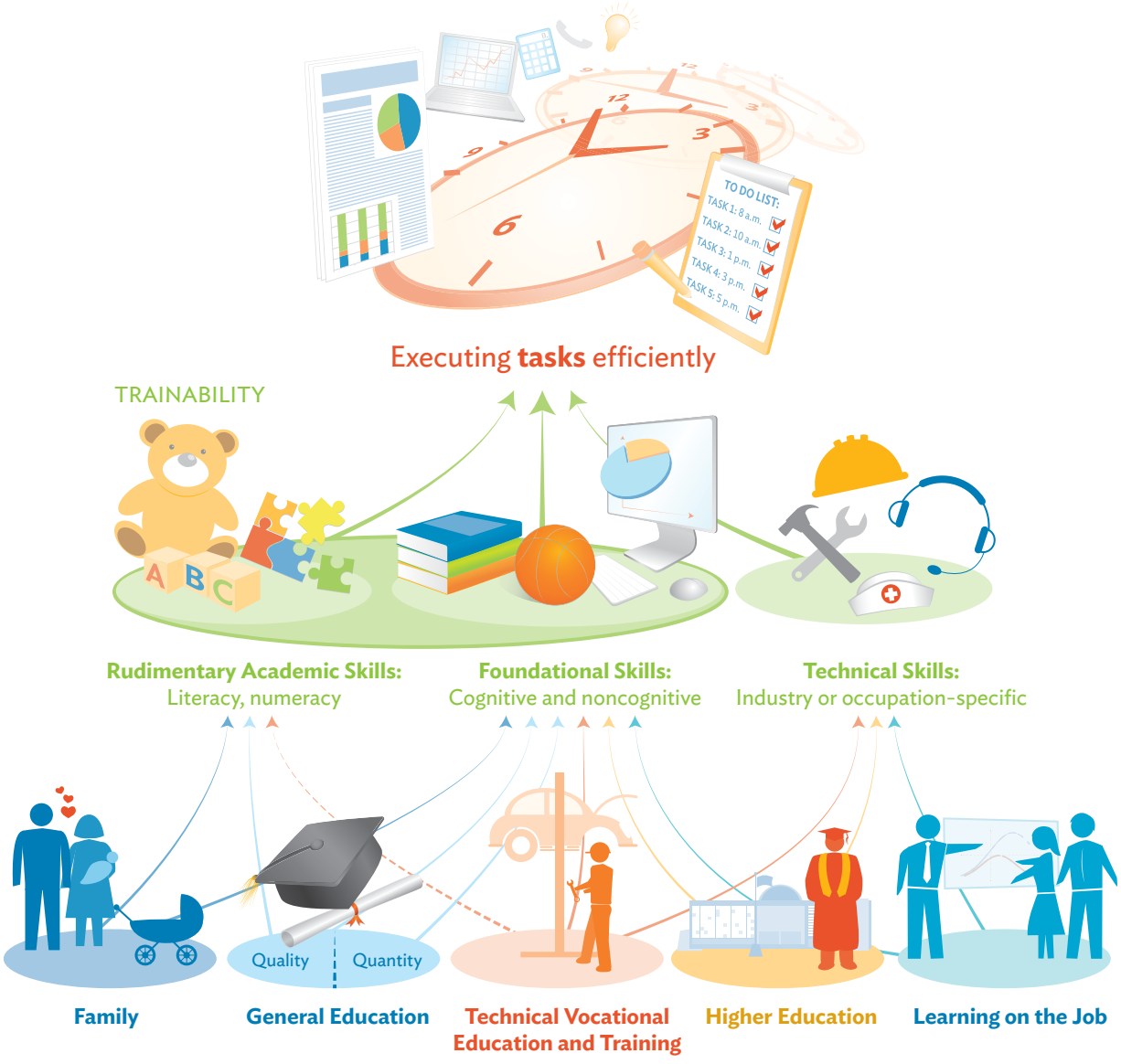
Box 1.1: Skills, Tasks, and Skill Formation

Understanding *skill development* and its role in generating shared prosperity depends on careful and consistent use of language. Box figure 1.1 shows the connections between skills, tasks, and the inputs into the formation of skills—family, education, and the job.

Skills provide individuals with the ability to execute tasks *efficiently*, i.e. a worker executes the task quickly and accurately, with little supervision. Because all but the most menial of jobs entrust workers with multiple tasks, workers must possess multiple skills. The tasks required of a worker depends on the goods and services they help produce. Hence, the skills demanded from a country's workforce depend on the structure of goods and services produced by the economy.

Tasks are the actions that workers must complete for their firm to produce goods and services. The variety of tasks that even a single worker executes can be very broad. Tasks include, for example, interacting with customers, designing a solution to an engineering problem, maintaining classroom discipline, cleaning a floor, stitching a collar, writing an email, or supervising employees.

Box figure 1.1: Skills, Tasks, and Skill Formation



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Box 1.1: Skills, Tasks, and Skill Formation *(continued)*

This special chapter defines skills as **nontechnical** or **technical**. Nontechnical skills comprise mainly **foundational skills** (which in turn consist of cognitive and noncognitive skills) and include basic literacy and numeracy for learning and for undertaking more complex operations—to learn and function in a workplace environment. These skills are transferable as they are not specific to an occupation.

Cognitive skills are the thinking skills that enable individuals to learn, solve problems, and create new knowledge. They require conscious intellectual effort such as thinking, reasoning, and remembering. They include memory, comprehension, application, analysis, synthesis, evaluation, reasoning, perception, and intuition. Critical cognitive skills are best developed early in life.

Noncognitive skills—also known as soft skills or socio-emotional skills—are the character traits that enable a person to function effectively at work, in school, and in society. They are features of an individual's personality, temperament, and attitude. They include interpersonal skills, as well as motivation, integrity, persistence, self-discipline, adaptability, creativity, self-control, conscientiousness, and grit. Less consciously delivered than cognitive skills, noncognitive skills require intellect, and are highly prized in work environments that require teamwork and other forms of human interaction. While important to develop early on, they are generally considered more malleable later in life than cognitive skills (Heckman, Stixrud, and Urzua 2006).

Technical skills encompass the knowledge and capabilities that enable workers to perform specialized tasks that are specific to occupations or industries. They can range from the more basic operations of assembling parts to the complexities of building robotics or diagnosing diseases.

General education is crucial in skill development. A high-quality education is one capable of delivering a wide range of foundational skills and of delivering rudimentary academic skills quickly.

Technical vocational education and training (TVET) is provided to workers before they begin work or to help in re-skilling. It is focused on the acquisition of technical skills, and typically involves a high degree of supervised practice. TVET may be preferable to learning on the job when the technical skills required are cheaper to provide prior to labor market entry (for example, because errors during production are too expensive) or are useful to a wide range of employers. TVET is sometimes accompanied by remedial education to help students who received a low-quality general education to acquire the missing foundational skills.

Higher education is designed to build higher-order skills. Nontechnical and technical skills can be developed through higher education. However, in contrast to TVET that typically focuses more on basic technical skills, it is typically aimed at developing the innovators, leaders, and strategic thinkers of the future.

Low-quality education can create a **trainability gap** leading to shortages of other skills—technical and otherwise. Technical skills build on rudimentary and foundational skills. Workers who can read, write, and do arithmetic, and possess both the cognitive skills needed to process new information and the noncognitive skills needed to manage the social process of vocational skill acquisition, are more trainable. **Trainability** allows workers to acquire more technical skills through **learning on the job**. Trainable workers not only pick up technical skills more quickly, but use their strong foundational skills to acquire more complex cognitive skills. A large part of cognitive and technical skills, with estimates in the range of 20%–60%, can be developed on the job, once sufficient foundational skills have been built (Yamaguchi 2012; Heckman, Lochner, and Taber 1998).

Families also play a large role in developing skills. Many foundational skills are acquired and practiced in the home and before children are old enough to attend school (e.g. Barnham, Macours, and Maluccio 2013; Helmers and Patnam 2011). Some studies have found that supportive families contribute as much as 30% to all skill development (Heckman, Stixrud, and Urzua 2006). Family circumstances also exert a sizable influence on the types of education, jobs, and training that children and workers can access.

content to be matched to student capabilities and complemented by effective teaching, traditionally from skilled and motivated teachers. Section 7 claims that to overcome barriers to educational access, targeted financial aid that is complemented by the right type of information is needed to ensure that the optimal choices in skill investments are made.

Section 8 recognizes that the skills that raise greater productivity go beyond the education and training system. Many skills can be learned on the job, requiring governments to focus on the demand side to ensure that skills developed through educational investments are fully utilized and workers can continue to learn on the job.

Section 9 provides some parting messages—particularly the importance of developing broader commitment not just from policy makers, but also practitioners, researchers, students and families, and firms.

Section 2. Skills, Education, and Economic Growth

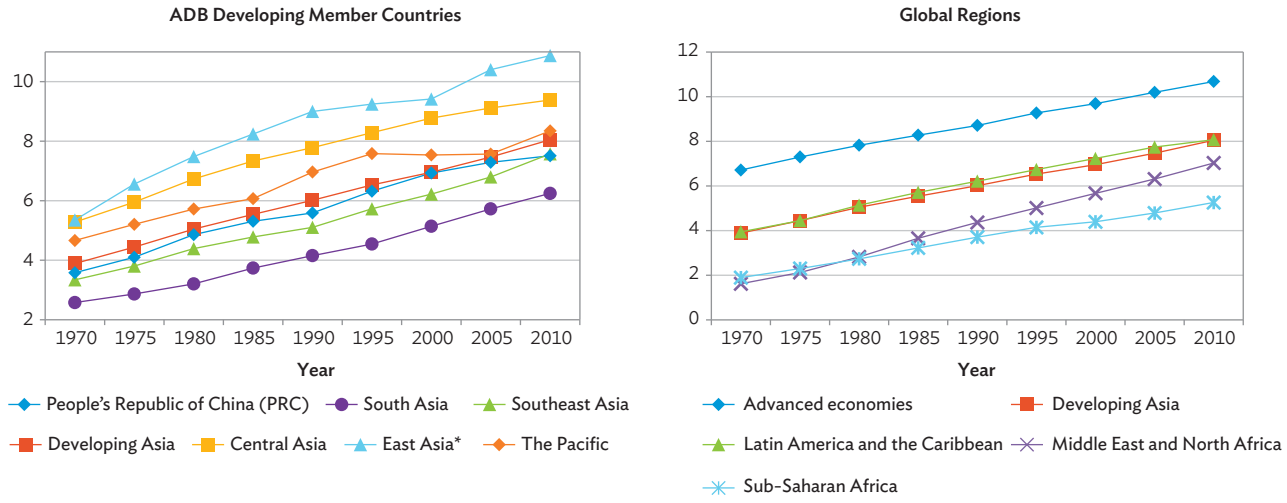
2.1 Asia has made progress on expanding education, but challenges remain

Developing Asia has made significant progress in expanding educational attainment over recent decades driven by Asia's educational investments that amounted to $1.2 trillion by governments and $690 billion by households in 2014 alone.[1] Average years of schooling have nearly doubled across the region, rising from around 4 years to 8 years between 1970 and 2010 (Figure 2.1, left panel). The region has also dramatically increased rates of enrollment and levels of education during the past few decades. Literacy rates have climbed from 79% to 87%, and gross secondary and tertiary enrollment rates have surged from 62% to 81% and 15% to 27%, respectively, between 1990 and 2012.[2] A number of Asian economies have also seen increasing shares of youth aged 15 to 29 in secondary general or tertiary education (Figure 2.2).

Notwithstanding these improvements in educational attainment, Asia's agenda on education and skill development is far from complete. Asia still remains behind more advanced economies in educational attainment (Figure 2.1, right panel). For the region to continue along the path of economic or structural transformation its workers need to have more sophisticated skills, many of which come from greater quantities of education and more specialized education.[3]

Using a framework that maps jobs (occupations) to the skills and education they need (Box 2.1), a large share of the region's workforce continues to be engaged in low-skilled agriculture (Figure 2.3). Because most farm work continues to rely on traditional and labor-intensive technologies, employment in many parts of Asia is still predominantly in low-skilled occupations where a quality primary education is typically sufficient (Figure 2.4).

Figure 2.1: Average Years of Schooling



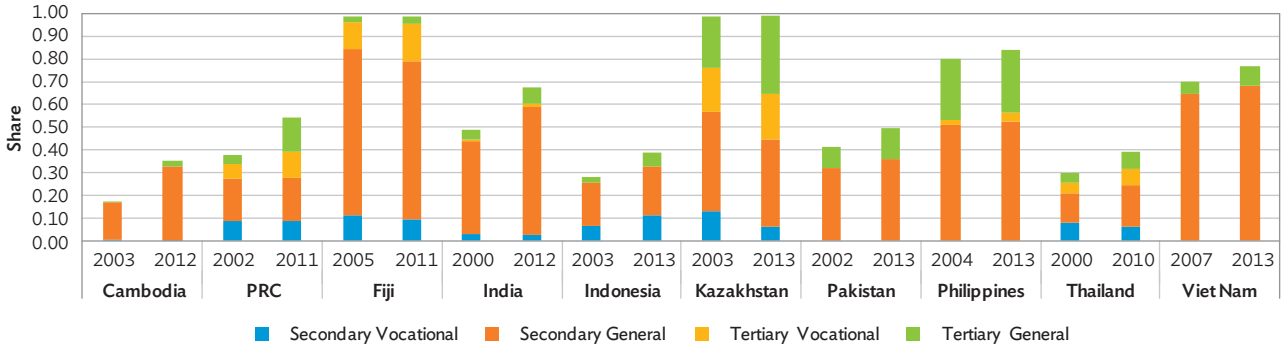
* Excluding the PRC.
Source: Barro-Lee Dataset (1970–2010).

1 ADB estimates. See Appendix 4 for detailed methodology.

2 ADB estimates for Asian economies using Barro-Lee databases.

3 A process central to economic development and entailing a reallocation of resources to more productive sectors and firms, diversification of production baskets, and use of new technologies, among other aspects. For a detailed discussion of structural transformation, see *Key Indicators for Asia and the Pacific 2013*.

Figure 2.2: Share of Secondary Educated and Above, Age 15–29



PRC = People's Republic of China.
Source: ADB estimates using data from labor force surveys.

However, with economies in the region aspiring to hasten the process of structural transformation, more advanced cognitive and noncognitive skills—involving greater abstract thinking, writing and communication tasks in addition to working in teams—as well as technical skills are needed. For jobs in high-productivity sectors, such as manufacturing and many services, a quality secondary or tertiary education degree is especially important.

This importance is seen clearly in the case of financial, education, and business service industries: the share of the tertiary educated employed in these high-skill service industries tends to be far higher than in other industries. The exception is in economies with extremely high rates of educational attainment (Figure 2.5). In other industries, including modern (or formal) manufacturing, workers can get by with less education. However, a good quality

Box 2.1: The Link between Occupations, Tasks, Skills, and Education

To ground the discussion, the following framework maps occupations in an economy to the tasks they entail, the skills needed to execute these tasks proficiently, and the maximum education believed to be necessary for acquiring those skills (Box table 2.1.1). The occupation-to-education mapping is determined by documentation from the International Labour Organization (ILO) of what education is needed (in these broad occupational areas) to be productive when education delivers quality skills (ILO 2012a). This mapping is applied to a set of economies in Asia representing over 80% of the labor force and covering at least one economy in each of the five Asian subregions.

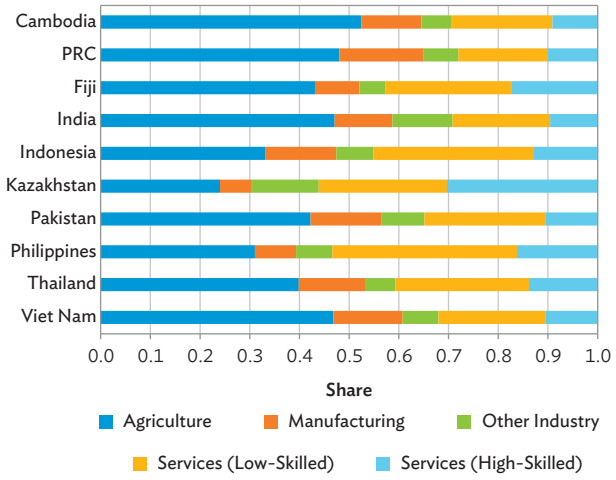
The mapping helps define labor-market qualification mismatches that arise when workers find themselves in jobs that require more—or fewer—qualifications than needed, known as *underqualification* or *overqualification* (or a "vertical" mismatch). A *technical qualification mismatch* is a "horizontal" mismatch when the field of training is not aligned with the field of training needed for the job.

Box table 2.1.1: Mapping Occupations and Tasks to Skills and Education

Occupation (by category)	Tasks	Skills	Max. level of education	Wage ratio (to low-skilled)
High-skilled managerial	Problem solving, interpersonal, industry specific	Cognitive, noncognitive, technical	Tertiary	3.0
High-skilled professional/technical (e.g. engineers, medical doctors, lawyers)	Problem solving, industry specific	Cognitive, technical	Tertiary	2.2
Middle-skilled routine (e.g. machine operators, drivers, clerks)	Routine, industry specific	Basic cognitive, basic technical	Secondary vocational	1.2
Middle-skilled nonroutine (e.g. service or sales)	Nonroutine, interpersonal, basic problem solving	Basic cognitive, noncognitive, basic technical	Secondary vocational/general	1.6
Low-skilled (e.g. agricultural laborers, cleaners, helpers)	Physical, routine	Basic cognitive	Primary	1.0

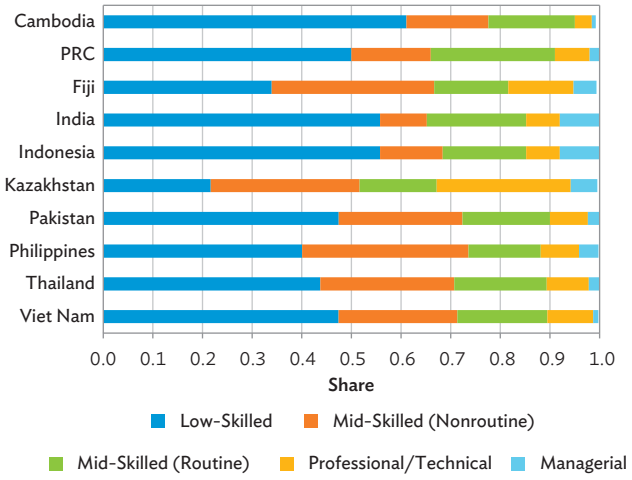
Notes: ISCO-08 occupation groups at 1 digit: 1= High-skilled managerial; 2/3 = High-skilled professional/technical; 4, 7, 8 = Middle-skilled routine; 5, 6 = Middle-skilled nonroutine; 9 = Low-skilled; except for 2-digit codes: 83 = Middle-skilled nonroutine; 63 = Low-skilled.
Source: ADB Analysis of World Bank STEP hourly earnings urban Asian sample; Mapping by ILO of International Standard Classification of Occupations 2008 (ISCO-08).

Figure 2.3: Share of Employment by Industrial Sector



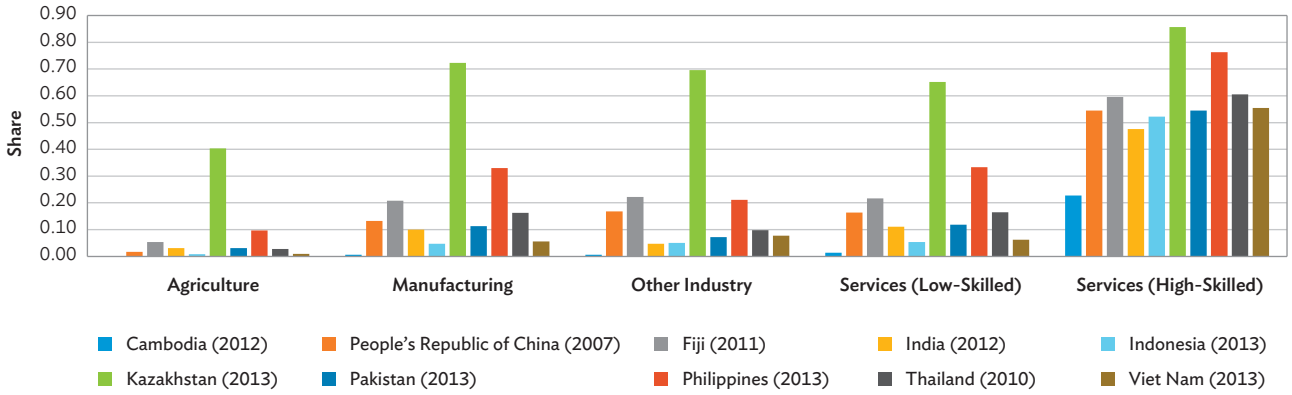
PRC = People's Republic of China.
Notes: Only latest survey year available for each country is used. ISIC Rev. 4 industry groups. Agriculture = 1–3; Manufacturing = 10–33; Other Industry = 41–43; Services (Low-Skilled) = 49–56, 94–98; Services (High-Skilled) = 58–93, 99.
Source: ADB estimates using labor force surveys. Data for the PRC is based on published survey results from the Tabulation on the 2010 Population Census of the People's Republic of China.

Figure 2.4: Employment in Occupations Remains Predominantly Low-Skilled



PRC = People's Republic of China.
Source: ADB estimates using labor force surveys. Data for the PRC is based on published survey results from the Tabulation on the 2010 Population Census of the People's Republic of China.

Figure 2.5: Industrial Structure and the Share of Secondary or Tertiary Educated Workers Employed



Note: See Figure 2.3 notes for ISIC Rev. 4 industry groups.
Source: ADB estimates using data from labor force surveys.

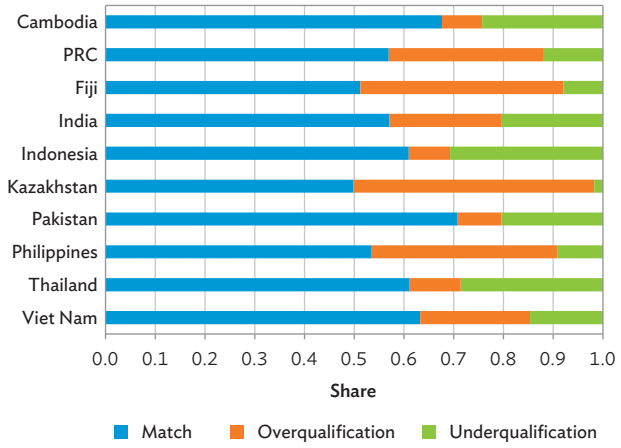
secondary education is still essential, especially for the production of more sophisticated products (Felipe, Mehta, and Rhee 2014).

Under- and overqualification

The data reveal the simultaneous presence of under- and overqualification (as defined in Box 2.1). In some economies (Cambodia, Indonesia, Pakistan, and Thailand), underqualification is more prevalent; in others (Fiji, Kazakhstan, and the Philippines), overqualification (Figure 2.6).

From a skill development perspective—and in the context of an economy's prospects for rapid growth and structural transformation—underqualification is more important as it points to shortages in the skills needed and possible constraints to economic growth. This is especially likely when a high share of individuals in high-skilled

Figure 2.6: Qualification Mismatches

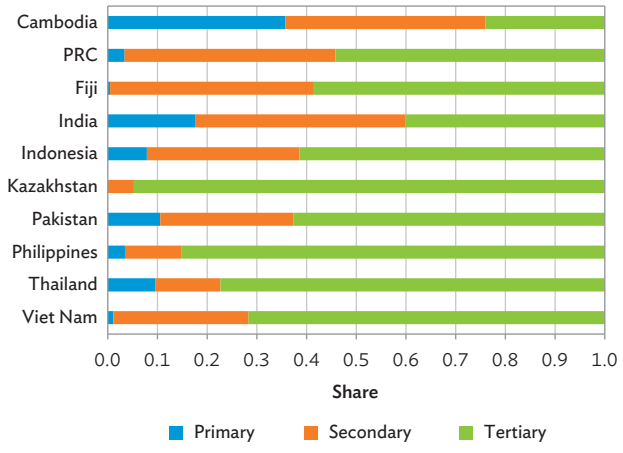


PRC = People's Republic of China.
Note: Only latest survey year available for each country is used.
Source: ADB estimates using data from labor force surveys.

occupations have only at most a primary or secondary education. Cambodia and India appear especially susceptible to this type of underqualification (Figure 2.7). Many of the high-skilled occupations where underqualification is particularly severe are in managerial as opposed to professional occupations.

One issue in education, however, is whether it generates the *relevant* skills. This means that students must have learned enough of the right type of skills to achieve better labor market outcomes.

Figure 2.7: Education Share in High-Skilled Occupations



PRC = People's Republic of China
Source: ADB estimates using data from labor force surveys.

In some occupations and industries, having a technical qualification is more critical than others. Which occupations require technical qualifications? Using labor force survey data, analysis of Indonesia, Thailand, and the Philippines suggests that it is high-skilled and a small set of middle-skilled routine occupations where specific technical skills are really necessary (Box 2.2). However, there are far more people unemployed or in other types of temporary wage jobs with the relevant level of education and technical qualification than employed in occupations needing specific technical degrees. The exceptions are health professionals, and those in teaching, business administration, and managerial occupations.

Nevertheless, overqualification and technical qualifications that go unused are a cause for concern if they reflect a poor education or weaknesses in the labor market to generate sustained demand for skilled workers.[4] While demand-side policies lie outside the domain of education policy, supply-side policies require gathering the right information to make informed educational investment decisions, which can generate efficiency gains in educational provision, helping ensure that the skills developed are actually utilized (Section 3).

2.2 Quality, not quantity, is the driver of economic growth

In the chapter so far, several references have been made to the quality of education. How is quality to be measured, and how much does it matter? These questions are examined in the context of the cognitive skills that general education is expected to provide and their relationship to economic growth.

Educational attainment—generally measured by years of schooling—is important to economic growth (Figure 2.8). However, a number of

4 Simultaneous over- and underqualification also arise because of search frictions and indicate scope for reallocation of labor that could eliminate the existence of underqualification in some economies.

Box 2.2: Identifying Technical Qualification Mismatches

The type of detail and timeliness required to identify technical qualification mismatches are largely missing in developing Asian economies (Box table 2.2.1).

Efficiency of public financing that emphasizes technical skills requires constant assessments of what skills are in demand. Surveys based on firm perception data (e.g. Manpower Group's Talent Shortage Surveys) are inadequate for identifying true skill shortages, making it difficult to develop effective skill policies as these surveys suffer from multiple biases.

First, these samples are typically nonrepresentative and focused entirely on large firms—atypical for most developing economies. Second, they rarely differentiate between *true* skill shortages (due to an absence of workers with the right skills) versus *reported* skill shortages (due to an unwillingness to pay higher wages or provide the right incentives to maximize worker effort). Third, most have only just started to distinguish between skills to ascertain whether the investment needed relates to transferable cognitive and noncognitive skills or to technical skills. The surveys that have asked firms about skills tend to reveal that noncognitive skills are more often the "missing" skills than cognitive or specific technical skills.

More objective data would combine annual labor force survey data that contain the supply of workers with specific education and technical training with data that reflect firm employment demands such as vacancy rates for specific occupations. These could then be complemented by micro-level worker and firm data for critical occupations such as the World Bank STEP data that get more at the issue of "missing" skills, whether cognitive, noncognitive, or technical.

Given that this type of data rarely exist, the following approach is taken to identify technical qualification mismatches:

First, the concentration of education and fields of training in given occupations are examined. This provides a perspective on the degree of reliance that an occupation has on a specific type of technical training and education. Second, if an occupation is highly reliant on a technical field of training (say, more than 10% of workers in that occupation) and if the number of unemployed and temporarily employed workers with the right technical qualifications is small (relative to the share of permanently employed workers in that occupation), the occupation is identified as "potentially" more constrained in technical skill supply.

Some drawbacks, however, are that identification depends on the degree of detail that the data has on occupation, education, and training, and the extent to which permanent employees in occupations actually reflects skill demands.

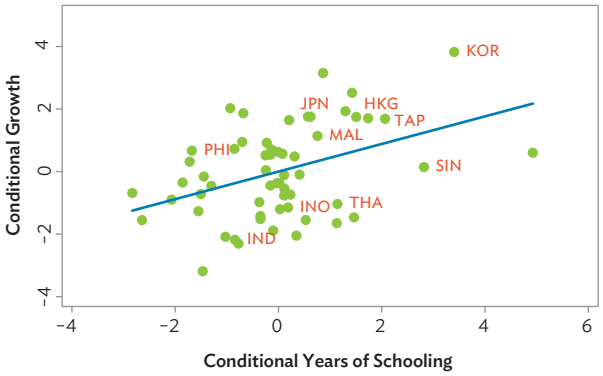
Box table 2.2.1: Data Collection Across Countries

	Labor force data				Enterprise data				
	Collection rate[a]	Occupational code detail[b]	Industrial code detail[c]	Field/ Education major information[d]	Collection rate[a]	Vacancy information[e]	Occupational code detail[b]	Occupation groups[f]	Industrial code detail[c]
United States	●	●	●	○	●	●	●	●	●
Republic of Korea	●	◐	◐	◐	●	●	○		●
Armenia	●	○	○	○	●	○	○		◐
Cambodia	◐	◐	◐	○	○	○	○	◐	◐
China, People's Rep. of	◐	◐	◐	◐					
India	○	◐	●	◐	◐	○	○	◐	●
Indonesia	●	◐	◐	◐	◐	○	○	◐	●
Pakistan	●	○	○	◐	○	○	○	◐	●
Philippines	●	○	○	◐	●	●	○	◐	◐
Thailand	●	◐	◐	◐	◐	○	○	●	◐
Viet Nam	●	◐	◐	○	◐	○	○	○	●

● = first best practices ◐ = second best practices ○ = third best practices. Blank = no information exists.

Note: See Appendix 4 for detailed methodology.
a. Collection rate: dark blue = quarterly or monthly collection; blue = biannual or annual collection; light blue = less than annual.
b. Occupational code detail: dark blue = 5–6 digit level; blue = 2–4 digit level; light blue = no collection or 1 digit.
c. Industrial code detail: dark blue = 5–6 digit level; blue = 2–4 digit level; light blue = no collection or 1 digit.
d. Field/Education major information: dark blue = 50+ majors/ tech fields; blue = 10–49 majors/tech fields; light blue = broad level or no collection.
e. Vacancy information: dark blue = data collection on vacancy; light blue = no data collected.
f. Occupational groups: dark blue = data collected on more than 4 categories; blue = collected on 3–4 categories; light blue = data collected on fewer than 3 categories.
Source: Various labor force and enterprise surveys.

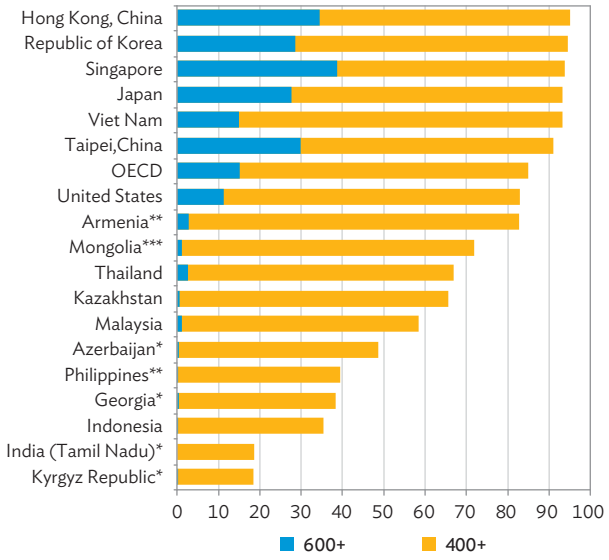
Figure 2.8: Growth and Years of Schooling, 1970–2010
(Conditional on initial GDP per capita)



Coefficient = .39, se = .102, t = 3.822

HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KOR = Republic of Korea; MAL = Malaysia; PHI = Philippines; SIN = Singapore; TAP = Taipei,China; THA = Thailand.
Note: See Appendix 1 for detailed methodology.
Source: ADB estimates using data from Penn World Table Version 8.1 and Barro-Lee Dataset (1970–2010) using approach by Hanushek and Woessmann (2008).

Figure 2.9: Test Scores across Asian and OECD Economies



Note: OECD estimate includes Republic of Korea, Japan, and United States.
Source: PISA 2009* and 2012; TIMSS 2003**; TIMSS 2007***.

developing Asian economies have not been able to translate educational investments into quality skills (Figure 2.9)—a large share of the population have not achieved basic skills as evidenced by the share of the students scoring below 400 on international PISA and TIMSS tests (Box 2.3). This is one reason why educational investments have sometimes fallen short of expectations to drive higher growth within economies (Pritchett 2001; 2006).[5]

It is educational quality not quantity that really matters for economic growth. Controlling for a country's average level of cognitive skills as proxied by international PISA and TIMSS science and mathematics test scores—the effect of years of education on growth disappears while skills strongly predicts growth (Figure 2.10; Hanushek and Woessmann 2008).

However, this does not mean that science and mathematics should be the sole focus of economies aiming to develop greater economic growth. Many important cognitive and noncognitive skills could

5 Moreover, the effect of average years of schooling on average growth between 1960 to 2000 versus 1970 to 2010 finds that the predicative power of years of schooling to explain growth has weakened.

Box 2.3: Measuring Cognitive Skills across Countries

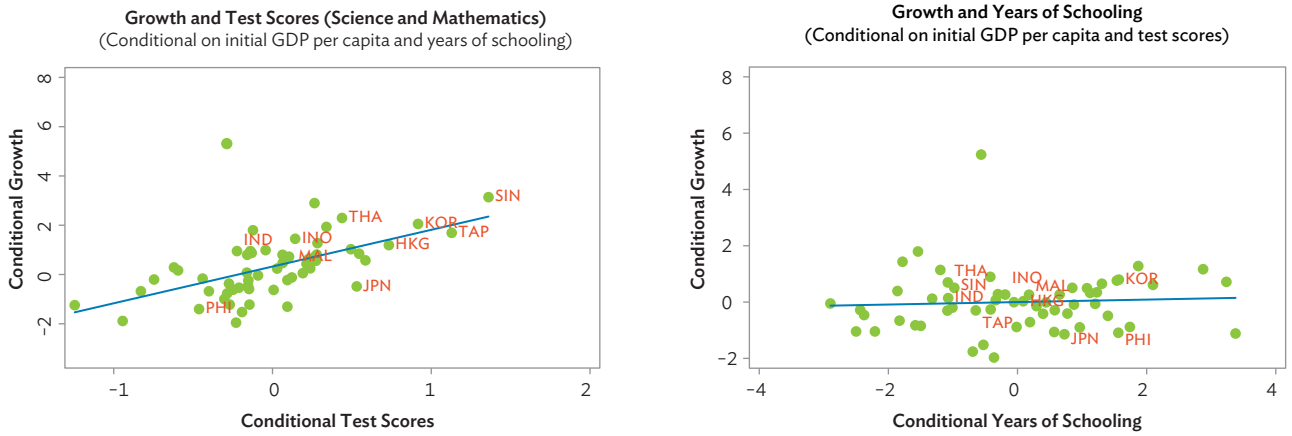
The Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) are two tests aimed at revealing the knowledge of students around the world. They are run every 3 or 4 years.

PISA tests students at age 15, while TIMSS tests 4th and 8th grade students (mean age 10–11 and 14–15 across economies). Both tests are modeled similarly and use similar scales to measure competencies on a 1,000-point scale with a mean 500 and standard deviation of 100. Scores around 400 (Level 2) should demonstrate that a student has reasoning skills and can do simple mathematical or science procedures. Hanushek and Woessmann (2015) consider this as representing the basic level of skills needed to function adequately in a modern economy. A student who scores above 600 (Level 5) has top-level skills and demonstrates ability to solve complex problems, reason, and strategize.

Test measures have several limitations. First, the tests are only based on the student population rather than all individuals age 15. This is problematic in economies where a large share of the population is no longer in education at age 15 (e.g. in Viet Nam this share is one-third). This could result in upward bias in estimated cognitive skills. Second, test questions could have cultural or socioeconomic biases that can influence test results (e.g. Wuttke 2007). Third, the underlying psychometric model for scoring test results could be flawed in the assumptions that various questions are equally difficult across countries (Kreiner and Christensen 2014). Nevertheless, these tests remain some of the best internationally comparable measures of cognitive skills across countries.

be developed through other coursework outside mathematics and science, but have remained difficult to capture due to the absence of standardized measurement. For example, a liberal arts education could have an important role in fostering critical logic and reasoning skills that generate workers who are more adaptable to evolving workplace tasks (Box 2.4). In addition, noncognitive skills have been shown to improve a variety of economic and noneconomic outcomes (OECD 2015).

Figure 2.10: Growth, Skills and Years of Schooling, 1970–2010



Coefficient = 1.491, se = .23, t = 6.484

Coefficient = .141, se = .091, t = 1.541

HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KOR = Republic of Korea; MAL = Malaysia; PHI = Philippines; SIN = Singapore; TAP = Taipei,China; THA = Thailand.

Note: See Appendix 1 for detailed methodology.

Source: ADB estimates using data from Penn World Table Version 8.1, Barro-Lee Dataset (1970–2010), and PISA and TIMSS science-mathematics test scores (2000–2012), using approach by Hanushek and Woessmann (2008).

Box 2.4: The Value of a Liberal Arts Education

A science and mathematics education is crucial, but the importance of a liberal arts education, which studies philosophy, politics, literature, and history among other topics, should not be overlooked. Whether as a degree in college or a liberal arts course integrated into the curriculum of science and mathematics in basic education or higher education, it has the potential to impart learning that fosters creativity, develop observational acuity, hone communication skills, and sharpen analytic thinking—skills needed in the knowledge economy.

As technology moves ahead and computers become exponentially more efficient than humans in performing more routine tasks, the skills needed in the knowledge economy will be innately human. While valuable, technical skills will no longer be enough to ensure long-term career stability or success. In a survey of chief executive officers and other executives in the US, 93% of respondents agreed that a candidate's ability to think critically and communicate ideas effectively is more important than their choice of college major. Fifty-five percent of employers surveyed agreed that having both field-specific knowledge and a broad range of skills (that exposure to a liberal arts education can provide) is crucial for long-term success in a chosen field (Hart Research Associates 2013). Analysis of career earnings show that those with liberal arts degrees in the US have higher earnings at peak earning ages (56–60) than professional and preprofessional degrees and earn significantly more after attaining advanced degrees (AACU 2014).

A rising number of educational institutions in Asia, which have in the past been dominated by highly structured curricula with science and math subjects being of prime importance, have slowly begun to expand liberal arts courses and relax the rigid structure of their curricula. Students are increasingly having more freedom to choose courses that pique their interest.

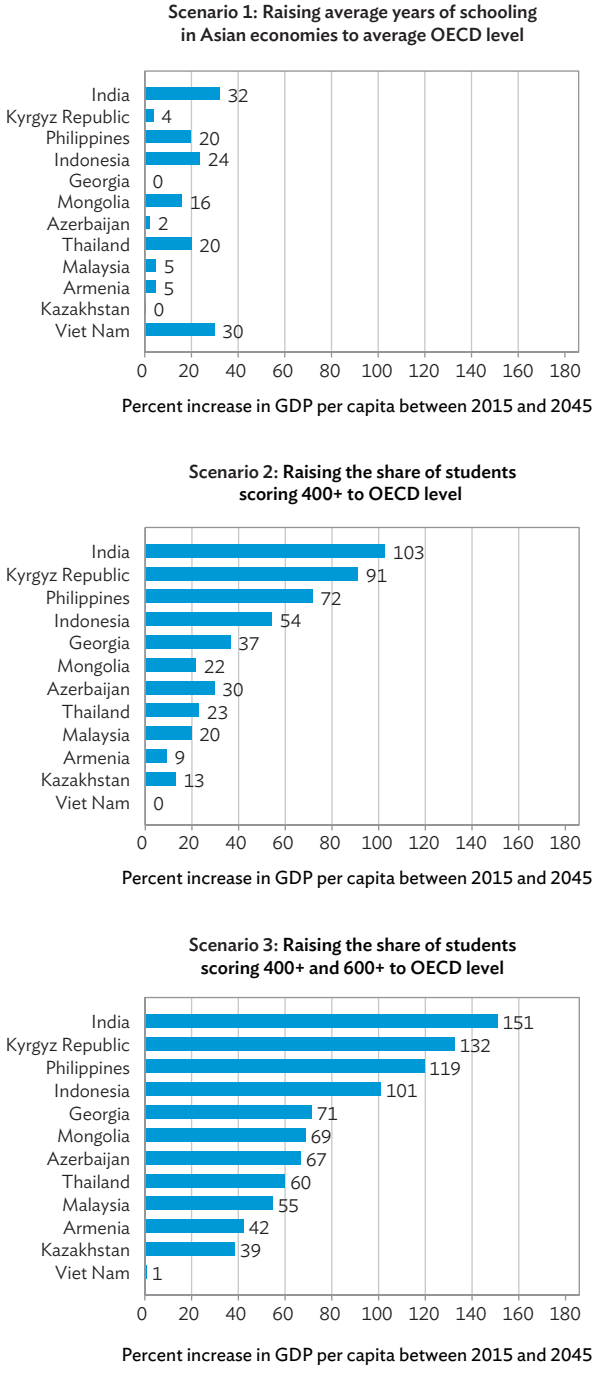
The People's Republic of China (PRC) and Thailand are among the countries that have developed partnerships with liberal arts colleges in the US to offer a more broad-based education to students. New York University Shanghai, in the PRC, was formed as a partnership between New York University and East China Normal University, and provides students with 2 years of core education in liberal arts. In Thailand, Mahidol University, originally established as a medical school, partnered with the College of Liberal Arts of De La Salle University in the Philippines to offer student and faculty exchange programs. By laying a foundation that places equal emphasis on liberal arts and scientific methods, these colleges aim to produce graduates who are creative and critical thinkers who can be productive members and leaders in technologically advanced economies.

Yet it is not just average skills that matter, but also top-end skills. Building a critical mass of highly educated and skilled workers provides increased returns to economic growth, especially in times of fast-paced technological change (Squicciarini and Voigtlander 2014). A larger mass of highly educated workers has positive spillovers, resulting in the least educated having greater wage growth than those with higher levels of education (Moretti 2004).

Across countries, those that have developed higher-level cognitive skills, as captured by the share of science-mathematics test scores over 600 on the PISA or TIMSS, have higher economic growth (Hanushek and Woessmann 2008). Projections imply that if developing Asian economies focus on achieving levels of basic skills that match those in OECD economies (Scenario 2) rather than focusing on ensuring greater access that raises years of schooling to OECD levels while maintaining current skill levels (Scenario 1), growth could be substantially higher (Figure 2.11). Moreover, by focusing on top-end skills where at least 15% of the population achieves test scores over 600, similar to OECD economies, growth could be at least 30% higher than just focusing on improving basic skills (Scenario 3).

The challenge for developing Asian economies will not only be to improve the quality of basic education, but also to build a higher education system that can foster and develop more of the top-end and highly technical skills. The Republic of Korea; Singapore; and Taipei,China, which had significant growth, built a system of high-end universities with close links to industry. These economies have a disproportionate share of universities that rank in the global top 500 compared with their university-aged population. In contrast, Asia's low- and middle-income economies, which account for more than half of the global population, have only 36 universities in the top 500, suggesting a lack of quality, higher

Figure 2.11: Growth Projections to 2045 from 15-Year Reform Policies for Education and Skills



Notes: Projections assume that educational reforms take 15 years and another 40 years to fully replace the entire labor force with new skills. Scenario 1 simulates raising the average years of schooling in Asian economies to average OECD level (11.6 years). Scenario 2 simulates raising the share of students with scores above 400 to OECD level (85%). Scenario 3 simulates raising the share of students with scores above 400 and 600 to OECD level (85% and 15%, respectively). See Appendix 1 for detailed methodology.

Source: ADB estimates following Hanushek and Woessmann (2011).

education institutes to develop a critical mass that can drive skill and human capital competitiveness.[6]

Thus economies hoping to achieve faster economic growth should start focusing more on ensuring that education is delivering quality and relevant skills. This requires them to understand what types of skill gaps exist—noncognitive, cognitive, or technical—in matching educational supply to labor market demands and to invest in quality education that can better develop the critical skills not just to meet current labor market needs, but those of the future as well.

2.3 The future of skill demand

Though the pace has varied, many economies in Asia have experienced increases in both the demand and supply for mid- and high-skill occupations relative to low-skill ones. The most successful have been economies in East and Southeast Asia that have managed to shift more of their production and employment toward modern manufacturing and high-skilled services which incorporate automation into their production processes, reducing the burden on labor to perform routine tasks, and integrating themselves into the global economy.

To a considerable extent, these shifts have mirrored earlier ones in today's developed countries where technological change saw small artisanal workshops being replaced by large plants employing workers who operated purpose-built machinery. Often, these workers were unskilled farm laborers who could learn to become machine operators with some basic training and move into the ranks of medium-skilled laborers (Goos 2013).

The continued relevance of this process of skill upgrading, however, is being called into question. Technological change involving the growing use of computers and automation in production are increasingly associated with job polarization in developed countries where employment has shifted away from middle-skilled routine jobs into low- and high-skilled jobs. This has occurred because routine tasks carried out by medium-skilled workers in manufacturing and services have increasingly been displaced by computers and automated processes and offshored—when firms have relocated particular tasks to firms and workers in other countries with lower wages (e.g., Autor and Dorn 2013; Blinder and Krueger 2013; Goos, Manning, and Salomons 2014).[7]

So far, low wages and openness to trade have helped make Asian economies the beneficiaries of these changes. Nevertheless, more attention will need to be paid to how new technologies influence the demand for different types of skills in these economies. Recent work finds that the peak share of employment in manufacturing over the course of economic development has declined even as peak shares of manufacturing output have stayed the same (Felipe, Mehta, and Rhee 2014; Rodrik 2015).

Computerization and automation likely have already had some role to play in dampening the demand for workers, at least in manufacturing. More recent advances could seriously alter the mix of skills, and not just in manufacturing. For example, cloud computing and 3D printing are new technologies that are potentially disruptive forces in services and manufacturing. Cloud technologies provide an avenue for highly skilled workers in developing economies to market their skills abroad and obtain a higher wage premium without leaving their home countries.[8]

6 QS World University Rankings list for 2014/2015: 18 in the PRC, 7 in India, 2 in Thailand, 5 in Malaysia, 2 in the Philippines, 2 in Indonesia; *US News* lists 27 in the PRC, 4 in India, 1 in Malaysia, and 1 in Thailand.

7 The process of offshoring has been made possible in part by improvements in information and communications technologies.

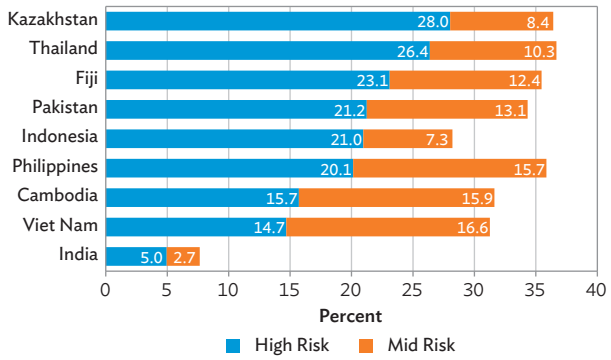
8 Cloud computing technologies enable employers to pull together teams of skilled workers that can transcend geographic boundaries. Cloud technologies create transparency in the production process allowing team members to visualize their contribution to the overall project and easily track the inputs of others. As employers in developed economies are increasingly adopting these technologies, they have the potential to open up opportunities for the most skilled workers in developing-country labor markets.

Similarly, the use of 3D printing and robotics is still nascent, but can alter the manufacturing sector by significantly reducing production costs of smaller and more customizable products making it more efficient for production to be relocated closer to the sources of demand (McKinsey Global Institute 2013). This could alter skill demands by placing more emphasis on engineers, graphic designers, and printing operators and largely eliminate the need for workers who conduct simple routine tasks.[9]

It is difficult to predict how evolving trends in technology could change the nature of occupations and ultimately the skills in demand. In the context of the US, some researchers have predicted that many low- and middle-skilled occupations entailing the execution of routine tasks may face job destruction in the coming future (Frey and Osborne 2013). Applying these authors' estimates of probabilities of job destruction to all regular wage employment—capturing employment where there is reasonable stability that the worker will remain employed within that firm in the near future–to the labor force survey data, estimates suggest that anywhere from 5% to 28% of all jobs are at high risk for job destruction (Figure 2.12).

However, if the history of technological change over the last two centuries is a guide to the future—the green revolution that displaced workers from farming is one example[10]—occupations involving mastery of new tasks that complement the technologies will arise as replacements for older occupations. Moreover, "efficiency effects" may occur that enable more efficient and profitable provision of goods or services resulting in a larger number of total employees hired even while the number of employees required to carry out specific sets of tasks declines.

Figure 2.12: Percent of Employment Facing Possible Job Destruction



Notes: Only latest survey year available for each country is used. Mappings from standard occupational classification (SOC) codes 2010 to ISCO-08 at 3- or 2-digit level used. Employee weights used. Only regular employees assumed to be at risk for job destruction.

Source: ADB estimates using Frey and Osborne (2013) computerization probabilities and data from labor force surveys.

The case of automated teller machines (ATMs) and (human) bank tellers in the US is illustrative (Bessen 2015). Introduced in the US in 1971, ATMs reduced the number of bank tellers and other support employees required to manage a bank branch. However, the number of bank tellers tended to increase between 1980 and 2010 even with the dramatic increase in the use of ATMs. One factor responsible was that, while the number of employees to operate a bank branch declined (from about 20 in 1988 to a little over 13 in 2004), banks used the decline in the cost of opening a new branch to expand the number of their branches. This expansion in output ensured that demand for human tellers continued to increase.

In the face of all these changes and uncertainties about how new technologies will play out, what, if any, lessons are there for skill development policy?

First, the example of cloud computing implies that new technologies likely will increase the

9 Traditional manufacturing has specific tooling requirements creating upfront fixed costs and material waste that adds to variable costs. In comparison, 3D printing machines can easily create new and customizable products through simple changes in digital designs.

10 As Autor (2014) points out, 41% of the US workforce in 1900 was employed in agriculture. This share had fallen to 2% by 2000 largely due to the productivity gains resulting from the Green Revolution. He states: "It is unlikely however that farmers at the turn of the 20th century could foresee that 100 years later, healthcare, finance, information technology, consumer electronics, hospitality, leisure and entertainment would employ far more workers in agriculture."

demand for skilled workers who can solve highly complex tasks and think creatively and innovatively. Thus developing Asia must ensure that it has an educational system that can produce a critical mass of workers with these top-end skills.

Second, while many routine tasks might be susceptible to automation, many middle-skilled jobs involve the execution of a mixture of routine and nonroutine tasks, including interpersonal interaction, problem-solving, flexibility, and adaptability (Autor 2014). Medical-support, many skilled trade and repair, marketing, and even modern clerical occupations fit this bill. Such jobs are likely to continue to exist and performing them well will require not only some specific technical skills (including digital skills) but also solid foundational cognitive and noncognitive skills.

The main essence is that economies that invest in providing high-quality education will likely be the least affected by disruptive innovations—and will be better placed to exploit them—because solid foundational skills are the basis for adapting to new opportunities and technical tasks driven by these shifting occupational demands.

Section 3. Enhancing Skill Development

Developing Asian economies have dramatically increased their educational attainment over the past few decades, though some have fallen short in delivering high-quality and relevant cognitive and noncognitive skills for today's labor market. To take skill development to the next stage, policy makers will need to commit to policies that weigh the trade-offs involved and make critical decisions on where to invest—effectively and efficiently.

More specifically, education policies must be guided by three (interlinked) elements:

(i) *Financial efficiency* recognizes that public finances are limited and skill needs are many and diverse. Improving financial efficiency requires difficult choices to be made, such as how much to invest in early childhood development and how to balance investments across general and technical education. It can help improve educational quality in terms of skill gains per dollar of public investment by making them complementary to private investments, targeting investments to earlier ages, targeting to more disadvantaged groups, figuring out how to balance investments in technical education versus general education, and identifying ways to reduce the costs of educational provision with no detriment to learning outcomes.

(ii) *Educational delivery* entails attention to the details of curriculum content that are well matched to student skills, and to curriculum delivery, whether through enhancing teacher effort and skills or using alternatives to reduce variations in content and delivery of educational provision.

(iii) *Educational access* involves mitigating traditional barriers in costs to access through constructing buildings and other infrastructure, designing programs that eliminate credit and informational market failures, and complementing these programs with small nudges to enhance and optimize skill-investment decisions by families and individuals (i.e. behavioral aspects).

Implementing these elements effectively is fundamentally about good governance. This requires making *evidence-based* policy and investment decisions and imposing *accountability* by setting concrete targets for educational inputs, skill development, or labor market outcomes. It is also important to align the educational system with school and teacher incentives through rewards or punishments based on performance using clear and specified targets.

Crucially, information that collects quality data is at the heart of both. To show this, key features of skill development systems and their relationship to measures of cognitive skill outcomes are discussed.

3.1 Skill development systems in Asia

Developing Asian economies differ widely in how they design and manage their skill development systems. Context matters, but are some approaches more effective at developing skills than others? How much do the three elements above really matter?

In tackling these questions the approach involves systematically documenting different types of skill-investment programs and policy priorities in various economies that capture aspects of financial efficiency, educational delivery, and educational access. Crucially, an attempt is made to describe the extent to which economies make an effort to collect the data that underlie evidence-based policy making and accountability—the essence of good governance.

3.2 Capturing key features of skill development systems

To identify relevant indicators, a vast literature of empirical studies was referenced that provided rigorous evidence of programs and policies that work.[11] The evidence on optimal design features, including cross-country analysis and impact evaluations that identified causality between policies and improved skill-development outcomes, with a primary focus on literature that used test scores as the primary outcome of interest was reviewed.

Based on this literature, a questionnaire was constructed comprising 200-plus indicators—for which no standardized objective information exists across economies—to capture variations in quality and breadth of policy implementation at the country level. Quality is represented by numerical values. For 77 economies, 67 of which had taken the PISA or TIMSS test within the last 15 years, this questionnaire was filled out for areas that are related to delivery of skills in basic education.

For 23 developing member economies (DMEs) the entire questionnaire was assessed for basic and upper secondary, TVET, and higher education, as well as learning on the job to gauge current levels of institutions, investments, and policies governing these levels of education compared with to the top DMEs that have achieved quality delivery in these areas—namely the Republic of Korea; Singapore; and Taipei,China (Table 3.1). This set of DMEs covers 95% of Asia's population.[12] However, because of the absence of concrete outcomes, particularly for TVET and higher education, there is especially a need to develop research further in these areas.

The questionnaire was filled out through reviews of UNESCO, World Bank SABER, government documents, and consultations with independent country experts when insufficient information was available. Indicators from the questionnaire were combined with important objective indicators such as educational financing as a share of GDP and enrollment rates that are reported in World Development Indicators (WDI) and UNESCO databases. The questionnaire and key indicators are broadly described in Appendix 2.

3.3 What matters for skill development?

To answer this question, the aim was to identify indicators that were significant predictors of higher internationally comparable science-mathematics test scores, as measured by the PISA/TIMSS. To ensure that these indicators are not explained by a country's income or current stock of human capital, both GDP per capita and average years of schooling for those aged 15–65 in 2010 were controlled for in the regressions. Multiple pairwise regressions were run to try and ensure that some indicators were not just a proxy for other indicators. Our findings should not be interpreted as causal, however, but are more suggestive, viewed as a starting point to arrive at more concrete policy priorities and investments that appear to work across economies and institutional contexts.

A rank ordering of basic education indicators associated with greater test score outcomes suggests that improving information practices through quality data collection for evidence-based policy decisions, targeting, and accountability is key. This also includes providing information directly to parents on school and student performance that allows them to improve private skill investment decisions and to hold schools and teachers accountable. By improving informational practices from the economies with the least developed practices to the three economies with the most developed practices in developing Asia

11 See, e.g., Glewwe et al. (2013) and Murnane and Ganimian (2014) for detailed literature reviews of primary and secondary education. However, a much broader review was conducted which is included throughout the remainder of the chapter.

12 These economies were selected for the following reasons: PISA/TIMSS test scores existed and therefore allowed us to relate indicators for basic education to test score outcomes; skill development programs have already been carefully documented and secondary information was easy to access; and ADB has major operations in these economies and therefore documentation may help to inform future discussions.

Table 3.1: Education and Skill Development Checklist
In comparison to average of High-Income Asian Developing Member Economies (Korea, Republic of; Singapore; Taipei,China)

Level	Area	Topic	Indicator #	Central Asia	South Asia	Southeast Asia	East Asia	The Pacific
National								
	Financial efficiency	Public educational expenditure as % of GDP	1	●	●	●	●	●
	Data and information	Information for evidence-based policy decisions	46	●	●	●	●	●
	Financial efficiency	Targeted funding for early childhood education	4	●	●	●	●	○
	Financial efficiency	Emphasizing technical education	1	●	○	●	●	○
	Learning on the job	Competitive markets	3	●	●	●	●	
	Learning on the job	Firm training investments	1	●	○	●		●
	Learning on the job	Matching workers to jobs	4	●	●	●	●	●
	Learning on the job	Gender equality	1	●	●	●	●	●
Basic and Upper Secondary Education								
	Data and information	Information	43	○	○	●	○	●
	Financial efficiency	Public-private partnerships	11	●	○	●	○	○
	Educational delivery	Curriculum content	16	●	●	●	●	●
	Educational delivery	Teacher certification, wages, incentives	19	●	○	●	○	●
	Educational delivery	Technology and software usage	1	○	○	○	○	○
	Educational access	Financial aid	3	●	●	●	●	●
	Educational access	Counseling and mentoring	4	○	○	●	○	●
	Educational access	Rural–urban parity	2	●	●	●		
	Educational access	Gender equality	2	●	●	●	●	●
Technical Vocational Education and Training								
	Data and information	Information	28	○	○	○	○	○
	Data and information	Public-private partnerships	4	○	○	○	○	○
	Data and information	Curriculum content	17	●	●	●	●	●
	Educational delivery	Teacher certification, wages, incentives	18	○	○	○	●	●
	Educational delivery	Technology and software usage	4	○	○	○	●	○
	Educational access	Financial aid	5	●	○	●	○	○
	Educational access	Rural–urban parity	2	●	●	●	●	●
	Educational access	Gender equality	1	●	●	●	●	○
Higher Education								
	Data and information	Information	27	○	○	○	○	○
	Financial efficiency	Public-private partnerships	4	○	○	○	○	○
	Educational delivery	Teacher certification, wages, incentives	16	○	○	○	●	○
	Educational access	Financial aid	3	○	○	●	●	●
	Educational access	Gender equality	1	●	●	●	●	●
		PISA score (science-mathematics)	**1**	**401**	**347**	**427**	**441**	
		Average years of schooling (15–65)	**1**	**11.2**	**7.2**	**7.6**	**8.7**	**10.3**

● = Indicator is within 90% ● = Indicator is within 50% ○ = Indicator is below 50%. Blank = No information exists for indicator.

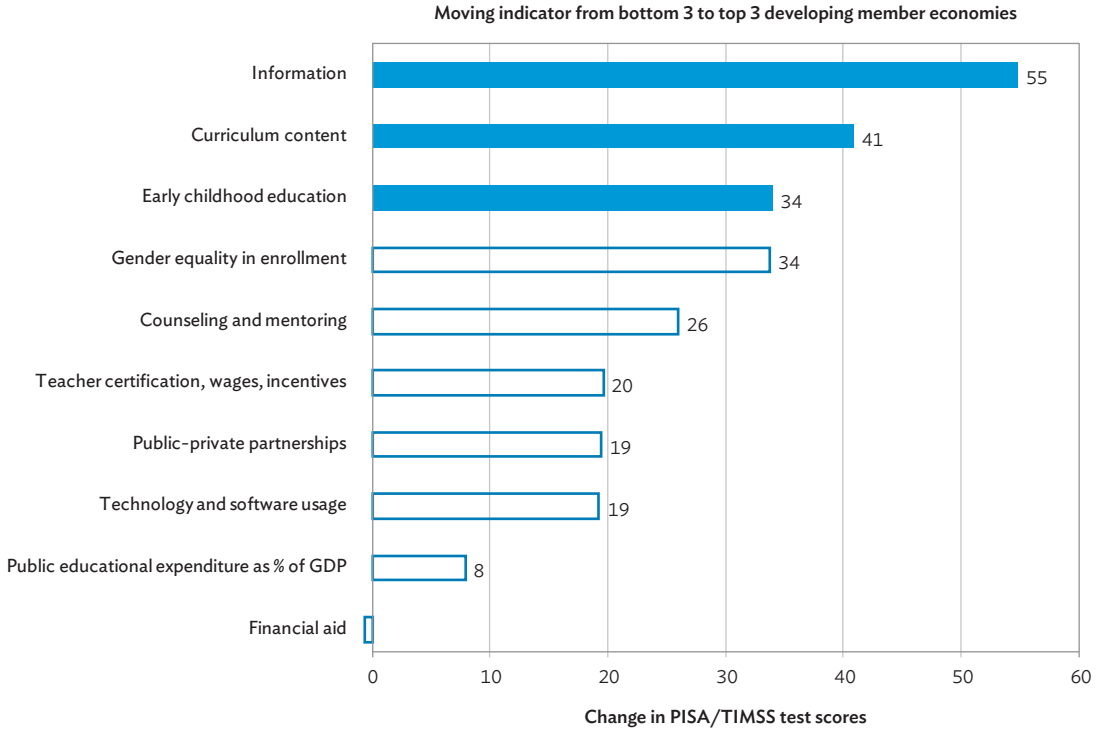
Note: Central Asia (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan); South Asia (Bangladesh, India, Pakistan, Sri Lanka); Southeast Asia (Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, Viet Nam); East Asia (Mongolia, the PRC); Pacific (Fiji).
Source: ADB estimates.

(Singapore; the Republic of Korea; Taipei,China) test scores could rise by 55 points or 0.55 standard deviations (Figure 3.1; SD is explained in Box 3.1).

Also important is curriculum content adjusted to match a student's capabilities through provision of remedial and enrichment courses and fostering critical problem-solving and noncognitive skills while emphasizing basic digital and financial skills. Implementing practices of the best Asian economies in this area could raise average test scores by as much as 41 points. Investing in programs that target early childhood education—programs that are provided at a broad level nationally and start earlier—could result in a 34-point increase in skill outcomes (Figure 3.1).

Notably, greater educational financing as a share of GDP has little bearing on skill differences across economies. This suggests that while financing is necessary to fund different educational inputs, it is not sufficient to obtain *better* skill outcomes. More attention must be paid to how educational finances are spent on different types of inputs and allocated among different levels, types of education (general and technical), and targeted to different disadvantaged groups. Public–private partnerships (PPPs), financial aid, and technology usage also are never consistently a determinant of better skill outcomes across economies. Moreover, teacher quality—certification, wages, and incentives that help in recruiting better teachers—are not a significant determinant of better skills. This is perhaps because institutional context matters a lot to ensure these types of inputs are effective and must be complemented by other types of inputs. However, while complementary inputs may be necessary for certain investments to be effective, none of the interaction effects between different indicators came up as significant in the data.

Figure 3.1: Importance of Skill Development Policies for Basic Education to Mean Test Scores (controlling for GDP per capita and years of schooling, 15–65)



Notes: Information comprises data for evidence-based policy decisions (National) and information for basic and upper secondary education. Solid columns significant at 10% at least 8 out of 15 times. See Appendix 2 for details.
Source: ADB estimates.

Box 3.1: Comparing the Effects of Interventions on Skills using Standard Deviations

Standard deviations (SDs) can provide a comparison of the effectiveness of project interventions independent of differences in the type of skill test administered. Conceptually, a one-SD improvement in test scores (assuming they are normally distributed) would be equivalent to moving a student's rank from the 33rd to the 66th percentile.

Box table 3.1.1 shows a range of estimated impacts from interventions. Financial accountability, school accountability, and scripted curriculum have shown significant effects in improving test score outcomes. If all interventions had equivalent costs per student, technology usage and school accountability are the most cost effective. Nevertheless, costs associated with quality implementation often differ and alter the relative trade-offs between these different types of educational investments.

Box table 3.1.1: Estimated Impacts of Interventions

Intervention	SD Skill Change	Source
Financial accountability	0.35	Ferraz, Finan, and Moreira (2012)
School accountability	0.23–0.42	Bloom et al. (2015)
Teacher accountability	0.17–0.27	Duflo, Hanna, and Ryan (2012); Lavy (2015)
Public accessibility of information	0.10–0.31	Andrabi, Das, and Khwaja (2014)
Educational vouchers	0.23	Muralidharan and Sundararaman (2015)
Contract teachers	0.15–0.22	Muralidharan and Sundararaman (2013); Duflo, Dupas, and Kremer (2015)
Remedial Education	0.28	Banerjee et al. (2007)
Technology usage (computer-assisted learning)	0.12–0.47	Banerjee et al. (2007); Lai et al. (2012); Huang et al. (2014); Mo et al. (2014a)
Scripted curriculum	0.31–0.33	He et al. (2007)
Classroom reorganization	0.26	Li et al. (2014)

Many regions have observed gaps in their information collection policies, design of curriculum content, and funding for early childhood education (Table 3.1, above). Taking a closer look at the data in various developing Asian economies, it was found that 17 out of 20 economies still have scope to raise their investment to close gaps with the top three DMEs in informational practices.[13] All 20 economies examined could also improve their curriculum development. 18 out of 20 economies could also improve their attention and funding for early childhood education relative to the top three DMEs.

A balanced view of the indicators recognizes that the indicators are limited by the ability to adequately capture the quality of various policies and investments. For example, teacher certification, wages, and incentives are captured by share of teachers trained, an indicator of relative wages compared with other professional jobs and whether teachers receive compensation based on their performance. This, however, could be insufficient as a proxy to capture important aspects of teacher skills and motivation. In particular, quality of human resource management practices and performance-based pay could fundamentally matter, but are difficult to capture by the indicators created. Financial aid is captured by conditional cash transfer, school-feeding, and scholarship programs for basic education, but has still not been developed to better capture quality dimensions of these programs in terms of targeting.

Future extensions to these indicators therefore will aim to improve the precision of the indicators along quality dimensions. However, the difficulty in constructing indicators that adequately capture and describe quality could also point to the difficulty that economies face in design and implementation. For policies that are not consistent predictors of test scores across economies, undertaking rigorous evaluations before scaling up are likely far more important to ensure that these type of public investments are effective and result in real gains to critical skills.

13 The 20 referenced here do not include the top three DMEs (the Republic of Korea; Singapore; and Taipei,China).

Section 4. Evidence-based Policy Decisions and Accountability

Implementing financial efficiency, educational delivery, and educational access requires making evidence-based policy and investment decisions and imposing accountability. These are the essence of good governance. They require commitment by policy makers to develop concrete and clear targets and to support data collection practices and analysis. These in turn will inform decision-making and accountability practices, whether through administrator monitoring or publicly sharing information.

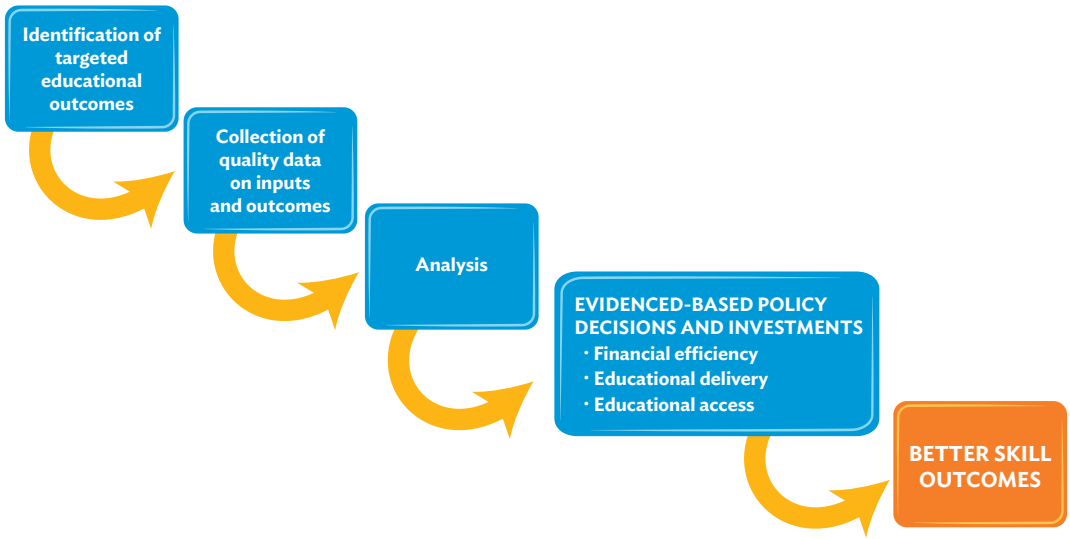
4.1 Evidence-based policy decisions

Evidence-based policy decisions formulate policy from rigorous research, rather than from advocacy, beliefs, or political priorities. They require having a clear theory of change that documents the mechanisms through which different investments and inputs subsequently lead to enhanced skill or educational outcomes. Key considerations include when to directly provide education, which types of skills to invest in, and how to make investments more effective such that it leads to greater gains in economywide skill outcomes (Figure 4.1).

For *financial efficiency* this relies on collecting the right data and information that can inform how to allocate finances to different types of investments (e.g. infrastructure, human resource management [HRM], direct provision of education), among different ages, over different types of skills (e.g. technical versus general), and deciding what types of programs could lead to cost reductions in educational provision while maintaining quality.

For *educational delivery* it is important to evaluate how to design quality curriculum content that teaches critical and relevant skills—cognitive, noncognitive, or technical—but also enables students to learn independent of their current ability level. It requires figuring out the best mode of instruction. This in turn involves evaluating the conditions under which teachers enhance student learning or whether alternatives, such as technology with quality content, may do better at delivering improved learning outcomes.

Figure 4.1: Quality Data is the Basis for Evidence-based Policy Decisions



Source: ADB.

For *educational access* it is critical to collect data that can help inform effective interventions that should be targeted at different disadvantaged groups to close gaps in educational outcomes. This includes understanding when gender biases, locational differences, or socioeconomic status precludes students and families from optimizing their skill investments.

4.2 Accountability

Accountability requires committed legislators, competent administrators, and enough funding to collect the right data to monitor and evaluate outcomes (Figure 4.2). Accountability is about developing mechanisms that hold people—educational officials, school managers, and teachers—accountable to identified performance targets, whether for finances, enrollment, educational attendance, or learning outcomes.

Collecting quality data is the essential basis for implementing accountability practices that enhance skills (Box 4.1). Accountability can work through two mechanisms: HRM practices, undertaken by competent administrators, to ensure that school managers and teachers are performing as expected; and publicly sharing information with parents and students who undertake actions that place social pressure on teachers and schools to improve educational delivery. When either type of accountability exists, school autonomy has the potential to provide an extra boost in delivering better skill outcomes at a lower cost.

The documentation in Section 3 suggested that many economies in Asia do not collect the right information and data needed to implement accountability practices, especially for TVET and higher education. Quality data collection is the first step toward enhancing skills that will allow economies to promote better HRM practices.

Box 4.1: Quality Assurance Mechanisms for Data Collection and Accountability

Accountability and collection of credible metrics require legislation that allows the overseeing institution to gather, collect, and audit educational institutions and punish noncompliance or misreporting. Legislation must state how institutions can use the data, and maintain the privacy and security of individuals and entities for which the data are collected.

Quality assurance practices involve activities before, during, and after data collection. Before, protocols must be set and staff responsible for data collection trained and retrained. During and after, monitoring practices must be followed and outliers identified.

Auditing can improve compliance. In Indonesia, a randomized experiment showed that increasing auditing from 4% to 100% decreased missing road expenditures by 8 percentage points, or 30% (Olken 2007). It is, however, costly. Audit probabilities and consequences of noncompliance should be set to optimize compliance in relation to the costs of auditing. The greater the benefits there are to noncompliance the greater is the need to raise the fines or probabilities of audits (Mookherjee and Png 1989). Cost efficiency dictates random auditing with strategies for auditing that differ with the probability that there has been misreporting (Ravikumar and Zhang 2012).

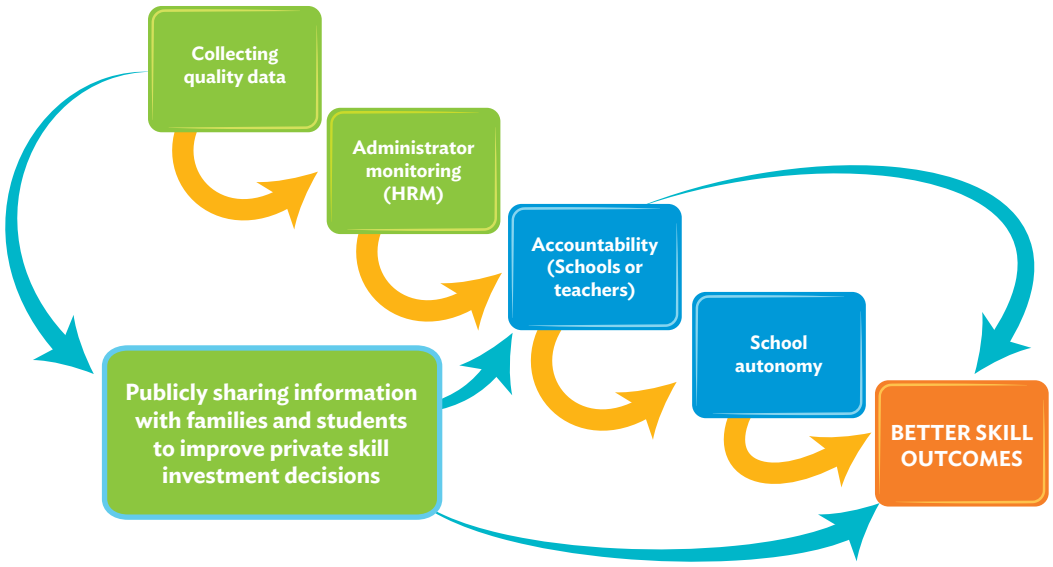
Auditors themselves should be audited if there are incentives for institutions to bribe auditors. Thus auditing should be randomized and unexpected, with mechanisms to ensure the integrity and credibility of the auditors that could punish auditors for noncompliance. There also should be a process for educational institutions to challenge audits that they think are unfair or biased.

Technology can help to enforce accountability, and to monitor and ensure quality of inspections. For example, requiring inspectors to film and document each of the audited facilities and how the facility was scored can ensure easier review and documentation of the inspection process and enhance compliance by the inspection team, as well as the quality of educational providers. This is a similar idea to making teachers photograph themselves to ensure school attendance in India (Duflo, Hanna, and Ryan 2012). An alternative is to get the community and students involved in monitoring and rating schools.

Human resource management practices

Quality HRM practices entail rewarding or punishing educational administrators, school managers, or teachers, based on targeted outcomes. Rewards could involve bonuses in pay, promotions, or additional training, while punishments could involve pay deductions or firing for failure to comply with performance targets.

Figure 4.2: Quality Data is the Basis for Accountability



Source: ADB.

Targeted outcomes can be as simple as ensuring there is no misuse of educational funds to maintaining levels of enrollment, retention, or attendance. In the most complex case, it is setting concrete targets for skill outcomes based on value added measures of teacher or school contributions to student skills. Across economies, a unit increase in school management practices was associated with a 0.23–0.42 SD increase in achievement—a magnitude far larger than investments in reducing class size or increasing school competition. In India, HRM scores, however, fell almost entirely outside of the distribution of school HRM scores in the US, with only 1.6% of schools scoring above the halfway point of the maximum possible score (Bloom et al. 2015).[14]

Holding administrators accountable to management of educational funds or teacher attendance is an issue possibly faced by many developing economies and is a simple form of HRM (Pritchett and Murgai 2007). Dealing with these two aspects can result in significant improvements in student outcomes. In Brazil, areas with minimal leakages had test scores that were 0.35 SD higher than areas with larger leakages (Ferraz, Finan, and Moreira 2012). In India, an experiment that monitored teacher attendance through cameras and paid salaries as a function of teacher attendance cut teacher absences by 21% and increased learning outcomes by 0.17 SD (Duflo, Hanna, and Ryan 2012).

The absence of accountability practices is one explanation for why evidence often finds no effect of teacher capacity building, textbooks, and additional resources on student outcomes in developing countries (Glewwe et al. 2013; Murnane and Ganimian 2014). It is also why there have been observed improvements in learning outcomes even when lower-cost, lower-skilled teachers have been used, but have been correctly incentivized and made accountable (e.g. Muralidharan and Sundararaman 2011a; Muralidharan and Sundararaman 2013).

14 Bloom and Van Reenen (2007) have pioneered an objective double-blind management practice survey that has been applied to education, as well as to public and private institutions. These indicators use open-ended questions covering 20 areas under broad areas of operations (adoption of best practices), monitoring (performance review, tracking, and dialogue), target setting (tracking meaningful outcomes such as skills and ensuring school and individual incentives are aligned with these target outcomes), and people talent management (which promotes, rewards, and dismisses teachers based on their performance, as well as promoting morale).

Providing incentives based on student skill outcomes

Yet HRM practices should go beyond monitoring of skill development inputs and instead provide rewards (or sanctions) to school managers or teachers based on learning outcomes. This requires careful construction of targeted outcomes to ensure that schools and teachers continue to face the right incentives over time, to optimize learning outcomes, and to make sure that all students have equal opportunity to receive a quality education.

Teacher accountability programs that reward teachers based on student performance can be low-cost and have widespread acceptance. In India, bonus payments amounted to only 3% of a teacher's annual salary, but increased test scores by 0.27 and 0.17 SD in math and language tests, and generated significant spillovers to science test results (Muralidharan and Sundararaman 2011a). Over 80% of teachers favored the bonus payment system that rewarded teachers based on student test performance in math and language tests, and viewed the bonus payment system even more positively once exposed to the program (Muralidharan and Sundararaman 2011b). These programs can have long-term and lasting skill development outcomes. In Israel, teacher accountability systems that paid teachers based on student achievement saw students matriculate into higher levels of education and improve their job earnings. It also helped reduce public spending on unemployment benefits (Lavy 2015).

Sharing information on school and teacher performance

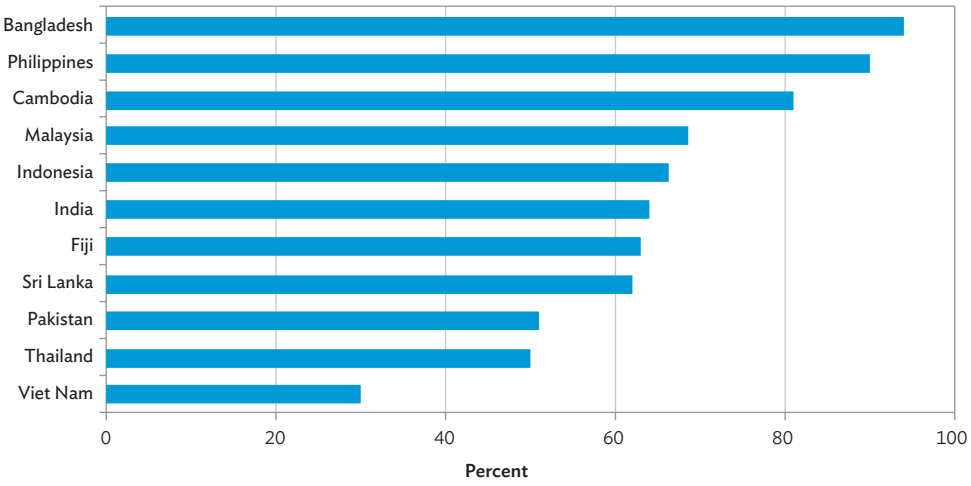
Improves private educational investments

Providing information to parents on school or teacher performance can align incentives for schools and teachers to improve performance and skill development outcomes without explicit accountability mechanisms imposed by formal institutions (Hastings and Weinstein 2008; Kane and Staiger 2002; World Bank 2004; Dranove and Jin 2010). Publicly providing information enables individuals to keep public services accountable and make more informed choices. To implement policies that share administrative information on a wide and detailed level requires legislation that ensures consumer protection and helps entities collect and share information without fear of repercussion.

Better information is useful, especially in developing economies where schools and teachers often provide after-school tutoring to students to supplement their income or where penetration of private education providers is high (Jayachandran 2014). The introduction of school accountability laws in the US, which mandated testing of students and public reporting of school report cards, has been important in improving skill outcomes (Rockoff and Turner 2010; Jackson 2010). Introducing these policies could be particularly effective in economies where quality is relatively unknown and there is sufficient penetration of private schools and school choice, creating competition to improve quality. Public information provision on measures that relate to quality outcomes could be effective for tertiary TVET in developing Asian economies where there are large shares of private providers that are competing for student enrollments, but where information on provider quality remains limited (Figure 4.3).

In Pakistan, a randomized experiment that provided information on school performance to families in markets with public and private education raised student achievement by 0.11 SD, while reducing private school tuition costs by 17%. Private school tuition likely declined because better schools were forced to spend more with little real return to learning outcomes, simply to differentiate themselves enough from competing schools (Andrabi, Das, and Khwaja 2014).

Figure 4.3: Private Provider Penetration in TVET (%)



Notes: Shown for latest year available—2013 for Pakistan and Sri Lanka; 2012 for Cambodia and the Philippines; 2011 for Bangladesh, Fiji, and Viet Nam; 2009 for Indonesia and Thailand; 2008 for Malaysia; and 2005 for India. Numbers are for tertiary TVET only.
Sources: ADB (2014), SEAMEO (2015), UNESCO (2011), PATVET (2012), World Bank (2005), UNEVOC (2008, 2009, 2012), NAVTTC (2012/2013).

The information that is provided must be clear, relevant, and have value added over what is already known. In the US, the publication of teacher ratings were found to result in higher quality students entering classrooms for teachers with better ratings, but also generated improvements in performance due to reputation concerns (Bergman and Hill 2015). If information has no value added it will have little impact on altering behavior or even distort choices from the optimum. In Chile, school rankings that used a mixture of enrollment, tuition levels, and socioeconomic composition could have been too difficult for families to discern, resulting in little change in enrollment or student performance (Mizala, Romaguera, and Urquiola 2007; Mizala and Urquiola 2013). Creating the right format and information to hold schools accountable, however, can be difficult. In India, a participatory community program to monitor school performance and allocate resources had no effect on student achievement or community involvement in schools (Banerjee et al. 2010).

Representative surveys of students, alumni, or firms provide an alternative way to gather information on educational providers without having to devise and enforce rules and regulations that ensure compliance. Surveys that ask firms to perform rankings of education institutions and programs they think are better at producing candidates that perform well and are considered for different occupations could provide valuable public information. Identifying ways to synthesize educational consumer ratings that optimally align incentives of educational providers with enhanced outcomes remains an important area for further development.

Educational vouchers

Complements public sharing of information and imposes greater accountability when there is school competition

Vouchers are certificates given to students or parents to pay for tuition, allowing for greater school choice. They are a solution that generates demand-side incentives for private educational providers to improve educational provision along price-quality dimensions when individuals and families have enough information on provider quality and there is competition among schools (Hanushek and Rivkin 2003; Andrabi, Das, and Khwaja 2014).

In India, a program that provided primary school students with vouchers through a lottery system had no differential effect on math or native language test scores between lottery winners and losers at either 2 or 4 years after program implementation. However, students who won the lottery and received a voucher attended private schools that exposed them to longer days, longer school years, and smaller class sizes, allowing them to be introduced to a more diverse set of subjects and classes that were better tailored to their level of skill. This resulted in lottery winners having scores 0.23 SD higher in English, Hindi, science, and social studies subjects. Voucher provision was also cost efficient, with private schools costing one-third as much as public schools, as they used teachers who had no formal training and therefore received lower pay (Muralidharan and Sundararaman 2015).

Vouchers in theory could play a large role in improving the development of relevant technical skills and labor market outcomes. In Kenya, TVET vouchers provided through a lottery to unemployed youth were found to improve educational attainment, but had no effect on earnings unless the voucher recipient was able to enter a wage job. However, private institutions that received more voucher recipients tended to expand course offerings in response to increased demand for certain types of training (Hicks et al. 2013). However, as evidence remains limited, further evaluations should be undertaken before making wide-scale investments in voucher provision.

School autonomy

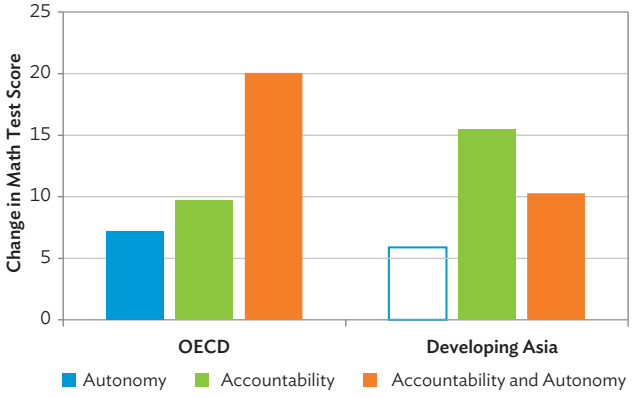
Recommended only if there is enough accountability

Greater autonomy—decentralizing decision making to schools—can improve student outcomes if schools are accountable. The premise is that schools are closer to operational realities and therefore have better information about how to effectively manage financial and human resources to improve student skill outcomes. School autonomy requires recruitment of school management that understands the value of quality management and has scope to remove teachers that are underperforming and hires better and more motivated teachers. Having school management that is accountable and incentivized is essential to generating better student skills (Bloom et al. 2015).

This does not mean that decentralizing decision making to improve autonomy will be effective everywhere. Cross-country evidence finds that these gains only materialize in economies with strong institutions. In contrast, more centralized policy and decision making is typically better under weaker institutions (Hanushek, Link, and Woessmann 2013). Our analysis largely confirms this point, as in economies with good governance and accountability, autonomy is significantly important in raising student test scores. In contrast, in developing Asian economies where governance is lower, accountability (through publicly sharing of information) is of primary importance, with autonomy having no significant effect on test score outcomes (Figure 4.4).

Improving information for school managers when there is sufficient autonomy and accountability can help generate gains in skills. For example, a study

Figure 4.4: Effects of School Accountability and Autonomy on Math Test Scores



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

in the US that gave school managers indicators of teacher performance based on class achievement on math and English tests found that it increased the probability of job separation for teachers with lower performance estimates, and led to small improvements in student achievement in subsequent years (Rockoff et al. 2012).

4.3 Data for evidence-based policy decisions and accountability

Data should be relevant, credible, accurate, and timely

Data are fundamental to making informed policy decisions that are effective and financially responsible. The level and detail of the data should be aligned with skill and learning outcomes. Ideally, the data should be able to inform how to allocate financing to different levels of education, different demographic groups, and specific skill areas that match labor market demands. They should enable evaluation of the effect of various educational inputs on critical educational outcomes. A detailed listing of key data to collect is in Appendix 3, and includes:

- Educational inputs (e.g. infrastructure, materials, curriculum content, teacher certifications and experience);
- Enrollment rates for different grades and in specific types of technical training by socioeconomic status;
- Skill measures (cognitive, noncognitive, technical) based on nationally or internationally standardized tests;
- Labor market outcomes (over time) in specific occupations by different types of education and technical training; and
- Skill and occupational demands by firms.

Imposing a national data collection system is more cost-efficient given the large fixed costs of buying and servicing hardware and in identifying relevant indicators. A centralized system also helps minimize duplication, facilitate aggregation, and can limit data distortions.

Nationally, regionally, and locally representative data are important to formulate policy decisions that determine investments in different types of education and skills training. Detailed industry-occupation data needs to be collected over time, while measures of skills are important to monitor what students are learning. Still, there is room for developing tests that can better measure critical cognitive, noncognitive, and technical skills and limit the number of teachers who focus on teaching to the test.

Although creating quality skill assessments from scratch is costly, developing economies can adapt from existing tests for core subjects. Psychometric testing or item response theory, which scores questions by degree of difficulty and can be executed through computer adaptive testing, requires fewer questions to gauge absolute cognitive learning and therefore serves as an approach that reduces some of the costs to test design.

Many developing Asian economies have substantial room to improve data collection practices for skill investment policy decision making. Many still do not collect sufficiently detailed data on schools and school performance, nor do they collect labor market information for making decisions on the types of technical skills to invest. Engaging in standardized international assessments (e.g. PISA, TIMSS and PIAAC—Box 4.2), which measure critical skills, also remains an important area for many Asian economies to gauge absolute skill development and assess their human capital competitiveness.

Data for accountability require a greater level of detail

Data for accountability should be more detailed than data used in broad national evidence-based, policy decision making. The process entails collecting detailed measures of teacher and school performance based on student skill measures (Appendix 3). The

Box 4.2: Measuring Different Types of Skills

Skill measurement is a growing business. Governments and firms are increasingly realizing that broad measures of educational attainment are insufficient for analyzing an individual's skills, capabilities, and capacity to learn. Globalization has driven the need to measure skills internationally, to better understand workforce competitiveness.

Cognitive

PISA and TIMSS are two types of internationally standardized tests that can be used to measure reading, mathematics, and science (see Box 2.3).

Noncognitive

Tests are increasingly measuring noncognitive skills, given recognition of their importance to enhance skill development and labor market outcomes. PISA 2012 and World Bank STEP in 2012–2013 are two of the tests that have collected measures of noncognitive skills, capturing openness to learning, conscientiousness, self-esteem, and work ethic. STEP uses measures based on self-reported assessments of the "big five" personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) that are believed to be essential to adapting and working in teams (World Bank 2014). Proxies for noncognitive skills are reflected through standardized assessments of teachers on student behavior, absences, suspensions, grades, and grade progression (Jackson 2013).

However, many achievement tests still do not adequately measure noncognitive characteristics such as grit, conscientiousness, self-control, trust, attentiveness, self-esteem, and self-efficacy, resilience to adversity, openness to experience, empathy, humility and tolerance, and ability to engage with society. These traits are often valued in the labor market and by society at large and therefore further investments should be made to measure these skills (Almlund et al. 2011).

Technical and workplace

Technical skills should be measured to capture current industry knowledge. Tests should capture individuals' ability to apply their knowledge in practical workplace situations for their occupation. The Program for the International Assessment of Adult Competencies (PIAAC) 2012–2016 survey measures an individual's ability to collaborate, plan, communicate, and negotiate—essential skills to navigate the workplace. These tests are still evolving, and greater effort is needed to measure critical technical skills, in addition to the more generalizable workplace skills.

right measures for accountability, however, must be carefully designed to measure inputs and adjust for differences in difficulty in achieving certain skill outcomes based on the student population, quality of infrastructure, and materials available. Without this information it will be impossible to construct the appropriate measure that aligns teacher and school incentives with enhanced skill outcomes, and may instead result in distortions to teacher and school incentives (Box 4.3).

Box 4.3: Designing Effective Accountability Metrics

Quality metrics for accountability should be designed to ensure they do not distort school or teacher incentives (Dranove and Jin 2010). The ideal metrics should represent the value added contribution of the school or teacher and capture the key skills (Chetty, Friedman, and Rockoff 2014). If metrics are narrowly defined, teachers and schools could focus too much on improving performance in measurable aspects to the detriment of other skill development.

Metrics need to account for challenges driven by locational conditions and disadvantaged students, and should be based on recent historical trends rather than a single point in time. Measures that use simple average levels of student outcomes on achievement tests create incentives for schools and teachers to "cherry pick" better and more innately intelligent students, which can magnify inequalities in educational provision (Kane and Staiger 2002). In the US, accountability was shown to have perverse effects by creating greater segregation and inequalities between different demographic groups even while it improved overall student achievement (Hanushek and Raymond 2005).

Deriving useful metrics from test scores is rendered problematic by many aspects. Fluctuations can occur between years that have little to do with actual school or teacher value added. For example, small schools may disproportionately end up at the top or bottom of the distribution, while proficiency-based schemes (that set targets for schools independent of the level and achievement of students) could encourage schools to focus on marginal students at the expense of higher-performing students. Even value added metrics that adjust for heterogeneity in student populations, but provide rewards based on performance changes, can cause distortions in incentives over time. If current performance makes it harder to improve performance in subsequent years, teachers and schools could become less responsive to incentives (Macartney 2014). Quality accountability metrics therefore should create long-term incentives for schools to provide quality instruction that enhances learning outcomes independent of the student population.

Section 5. Financial Efficiency

Public finances are limited. Given many skill needs, financial efficiency that delivers better educational quality per dollar of investment is one of the keys to enhancing the relevancy and level of skills.

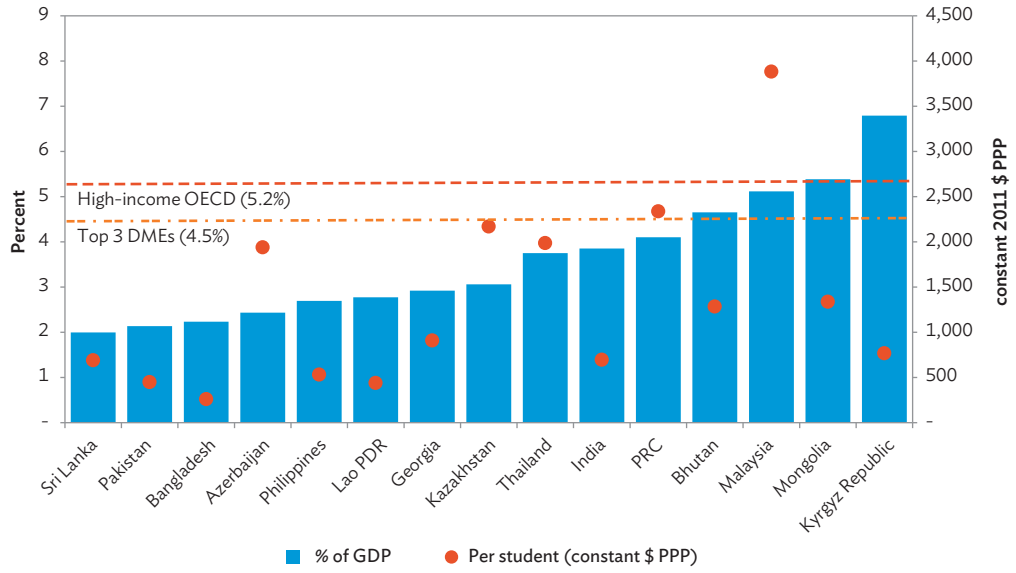
Absolute spending by developing Asian economies per student (at different levels of education) is well below that of OECD and other high-income economies. While some developing Asian economies ideally will spend more as a share of GDP to enhance skill development, financing will likely remain a major constraint (Figure 5.1). Thus, economies need to make choices about how to allocate financing and weigh issues of equity versus efficiency of skill investments, as expecting public financing to expand to meet all skill needs is unrealistic. The overarching premise is that policy-based evidence and accountability are essential for economies to achieve financial efficiency.

Financial efficiency relies on collecting the right data to inform how to target finances that complement private investments, identifying how to balance direct educational provision among different ages and different sets of groups, and the right mixture of education that will better meet labor market demands, in addition to undertaking programs that could lead to cost reductions while maintaining quality of educational provision.

5.1 Targeting public investments

Optimal public financing should not crowd out private investments. Policy makers should support investments that lead to high societal returns and do not substitute for private investments. Society benefits when individuals improve their skills and human capital. For example, improved human

Figure 5.1: Public Spending on Education



Lao PDR = Lao People's Democratic Republic; PRC = People's Republic of China.

Note: Shown for latest year available—2012 for Pakistan and the PRC; 2011 for Azerbaijan, Bhutan, top 3 DMEs (Singapore; Taipei,China; the Republic of Korea), high-income OECD, India, Kyrgyz Republic, and Sri Lanka; 2010 for the Lao PDR, Malaysia, and Mongolia; 2009 for Bangladesh and Kazakhstan; 2008 for Georgia, the Philippines, and Thailand.

Sources: ADB estimates using data from *China Statistical Yearbook 2013* and *2014*; Directorate-General of Budget, Accounting and Statistics (DGBAS). http://eng.stat.gov.tw (accessed March 2015); World Bank EdStats; and World Development Indicators Online.

capital reduces the probability of crime, time in unemployment, and can generate knowledge spillovers that improve aggregate labor productivity and innovation. However, individuals, families, and firms derive significant private benefits from additional skills as well (Moretti 2004; Lochner 2011).

Individuals derive benefits from better skills as it gives them the ability to market their skills to get higher wages, nonfinancial satisfaction, greater resiliency to economic shocks and, even improve prospects on the marriage market (Heckman, Stixrud, and Urzua 2006). Firms derive benefits from better skills as a greater number of skilled workers raises labor productivity, which in turn can lead to greater profits (Acemoglu and Pischke 1998).

The value of skill development becomes increasingly linked to private returns as individuals become older and more capable workers. This is why estimates of social returns tend to decline relative to the private returns for higher levels of education (Psacharopoulos and Patrinos 2004). Thus, public investments should be less focused on dedicating resources to direct financing of individuals to access education, especially beyond secondary education, with two exceptions: to improve supply in technical skill sectors where skill shortages could hinder economic growth, and to help disadvantaged individuals who have no marketable skills because a minimum standard of living is viewed as a basic human right and is critical to achieving a more equitable distribution of income.

Ideally, public financing that encourages greater investments in the number of years of education is based on evidence of how extra investments affect the quantity of skills developed and subsequent social returns to those investments. However, this is no easy task as the data demands to evaluate the returns to educational investments are hard to come by (Box 5.1).

Public investments that focus on classroom and building infrastructure, and on improving educational institutions and teacher skills are important investments that are more likely to complement private investments. It is estimated that in the US, government educational investments unrelated to school infrastructure and teacher quality can crowd out 20–30% of private parental investments (Abbott et al. 2013).[15] Public investments that are more complementary rather than substitutable to private individual and firm investments are listed in Table 5.1.

Table 5.1: Public Investments that are More Complementary, or More Substitutable, to Private Investments

More Complementary	More Substitutable
• Institutions (e.g. legislation, data collection for accountability, monitoring and evaluation (M&E), transparency) • Classroom and building infrastructure • Teacher quality (e.g. wages, incentives tied to recruitment, hiring practices, capacity building) • School management practices • Programs that counteract suboptimal family investments to children especially from disadvantaged backgrounds (particularly improved information for parents and students)	• Supplementary programs for children with good family backgrounds • Tuition payments for higher education • Firm training • Other fungible items that are mainly captured by individuals (e.g. paper, pencils, uniforms) • Equipment for technical skills

Source: ADB summary synthesis of the literature.

Earlier education

Efficient public financing that directly finances an individual's education should be targeted at earlier skill investments. Developing skills earlier has significant complementarities with life-long learning, subsequent wages, and other positive outcomes,

15 One way to ensure that financing is more complementary is through the provision of unanticipated grants. In India, unanticipated (rather than anticipated) grants to elementary schools that reduced crowding-out of private spending saw students having 0.07 SD higher test scores in mathematics at the end of the first year. However these gains were only temporary and largely eliminated by the end of the second year (Das et al. 2013).

Box 5.1: How Much is More Education Worth?

Apart from the private benefits to the individual, additional education confers positive externalities on society. Policy makers need to know this split before deciding on priorities.

Further education provides individual nonpecuniary benefits that reverberate throughout life. In the labor market, more educated workers generally suffer shorter unemployment durations and higher job satisfaction. Outside this, they make better decisions about health, marriage, and parenting.

Social benefits are manifold. First, low-skilled workers enjoy productivity spillovers from working with highly skilled colleagues, leading to higher wages. Second, higher parental education, especially that of the mother, are associated with better health outcomes for infants, suggesting intergenerational transmission of human capital. Finally, education reduces the likelihood of criminal activity and incarceration, which impose substantial costs on society (e.g., Lochner and Moretti 2004; Heckman, Stixrud, and Urzua 2006).

Information is crucial

Research that evaluates social and private returns to education is an important missing piece in the development debate in many countries. First-best analysis should rely on detailed panel data and initial skill measures of individuals over time—data that are currently beyond the scope of most developing Asian countries. The second best is for returns to be calculated using accounting methods typically requiring private and public costs of education, unemployment, tax returns, and welfare expenditures. When actual returns are far from perceived benefits, private individuals and the public sector underinvest or make investments that are wasteful.

Calculating returns

Accounting methods can be used to estimate social versus private individual returns, and require at a minimum estimates on public financing for education, private tuition costs, wages, labor market returns, tax contributions, and unemployment-linked costs to society (OECD 2013). These estimates reflect the fact that private returns exceed social returns and that the gap between private and social returns widens with the level of education. In Asia, social returns at primary and higher education were estimated at 16% and 11% respectively, and private returns at 20% and 18%, over the 1980s and 1990s (Psacharopoulos and Patrinos 2004). Nevertheless, the social returns are likely to be underestimated as they do not take into account externalities and spillovers derived from having a higher mass of skills in the economy.

The best approach to causally measuring social returns to education is by exploiting variations arising from policy experiments, such as compulsory schooling laws or wide-scale school-building programs. Randomized studies also provide a way to obtain causal estimates of the benefits of education and training and to ascertain whether public financing costs outweigh the benefits. Using local labor market conditions at the time the educational investments are made helps both to determine their true returns based on set demographic characteristics and to design public educational expansion and targeting policies (Carneiro, Heckman, and Vytlacil 2011).

Estimated private individual returns vary across labor markets, with estimated returns generally larger in developing than industrialized countries. Most studies that estimate the private individual returns to 1 year of schooling put them at 6%–13% (e.g. Duflo 2001). Macro estimates of years of schooling on long-term growth are far higher, at 27%–37% (Hanushek and Woessmann 2008), though these estimates assume that educational expansion is consistent, independent of the level of education.

Still, there is a need to better map earning profiles over longer periods to analyze employment and career trajectories over time. Optimal decision making requires access to reliable evidence—without it, people are far more likely to make poor choices and investments.

pointing to efficiency in earlier investments (Caucutt and Lochner 2012; Box 5.2). This is one area where there is more consistent evidence across economies.

Earlier education is of considerable importance for Asia. Starting education by age 4 versus age 7 or older results in test scores 0.41–0.49 SD higher, even after controlling for differences in socioeconomic status and background. This is significant given that most educational interventions often have effects that shift test scores by less than 0.2 SD. Moreover there is a clear nonlinear decline from starting at age 6 as opposed to age 4 (Figure 5.2).

Disadvantaged groups

Financing targeted at disadvantaged groups—especially for earlier childhood programs—is efficient because those from poorer backgrounds tend to have parents who do not have the aptitude, mental tools, or time to prepare their child for entry into school. Nevertheless, as targeted funding for the disadvantaged and financial aid does not come out strongly in the cross-country analysis, this points to the difficulty of adequately implementing and targeting programs nationally. Studies of early childhood education in developed economies

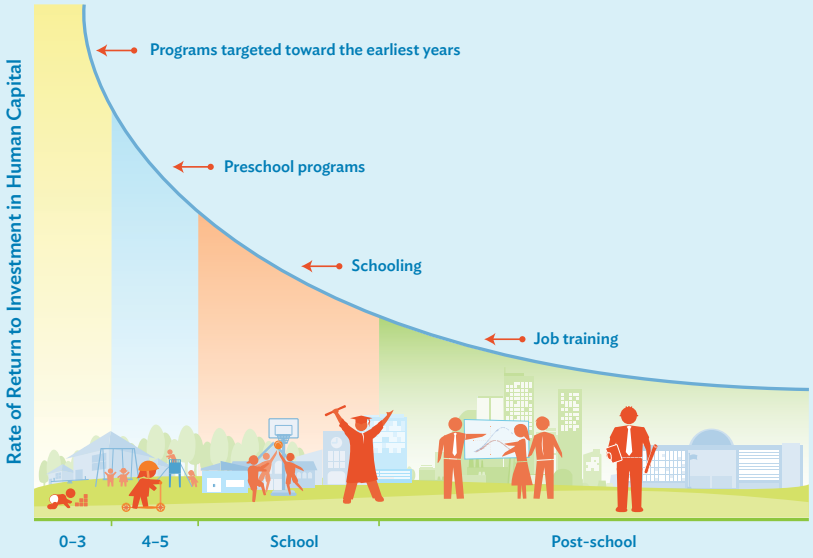
Box 5.2: Skill Formation over the Lifecycle

Certain stages in an individual's lifecycle are easier for developing critical cognitive and noncognitive skills, and should be considered to help ensure efficient financing of skills. While most rigorous studies are US based, studies in Asia generally support the applicability of these findings to the region.

Scientific and economic studies on the formation of skills have found that:

- Cognitive and noncognitive skills are easiest to develop at early ages with the ability to develop them declining with age. However, noncognitive skills remain easier to develop at later ages than cognitive skills (Kautz et al. 2014; Cunha, Heckman, and Schennach 2010). Per-dollar investments early are therefore estimated to have a much greater impact on human capital skill formation than later spending (Box Figure 5.2.1).
- Skill development is dynamic. Later skill investments complement and build on earlier skill investments (Cunha and Heckman 2007).
- Continued skill investments ensure that skills do not erode and that early investments result in long-term (not just short-term) development of skills (e.g. Rothstein 2010; Andrabi et al. 2011).
- Cognitive and noncognitive skills ensure more efficient formation of labor market–relevant technical skills (Cunha and Heckman 2007).
- Cognitive skill formation can enhance the formation of noncognitive skills and vice versa. Whether one or the other type is more important changes over time and by context: in the US, noncognitive skills were found to be important in the formation of cognitive skills (Cunha and Heckman 2008; 2009); in India, cognitive skills tended to influence the formation of noncognitive skills in adolescents (Helmers and Patnam 2011).

Box Figure 5.2.1: Returns to a Dollar Invested

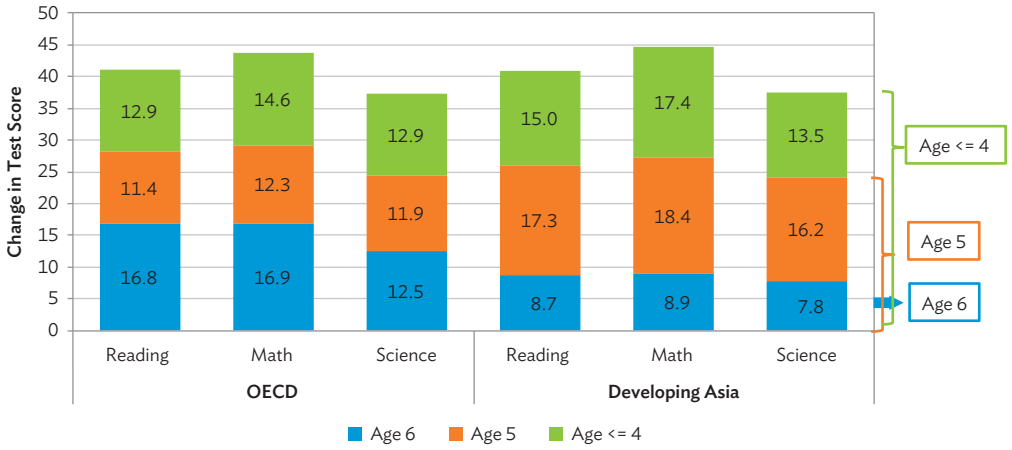


Source: Based on Heckman (2008).

find that those who benefit the most from early childhood education are children from low-income backgrounds and immigrant populations. Early childhood education programs are found to improve cognitive skills, educational attainment, and long-term adult outcomes (e.g. Germany: Cornelissen et al. 2012; US: Heckman 2006). Early interventions for the disadvantaged can mitigate the effects of adverse environments and have high rates of social and economic returns (Heckman 2006; Heckman and Masterov 2007).

The efficiency–equity trade-off becomes more complex as individuals become adults. From an efficiency perspective, public financing for older ages should target the most disadvantaged and promising students to help ensure they have access to higher education. From an equity perspective, implementing financing for nonformal training or remedial education could be important in helping unemployed individuals develop marketable skills to achieve a minimum standard of living. But these nonformal training programs can be difficult to implement, resulting in large variations in effectiveness (Box 5.3).

Figure 5.2: Benefits to Starting School a Year Earlier on Test Scores (Base = Age 7)



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

Box 5.3: Nonformal Training Programs—Difficult to Consistently Implement to Generate Benefits

Nonformal employment and training programs are targeted at poor and vulnerable workers as safety nets to teach marketable skills and decrease inequities in access to skill development. These programs range from bridging the gap between education and employment for out-of-work youth to teaching skills in underserved rural areas. These programs are socially efficient if they can generate a more sustained source of income and productivity growth over the long term, but implementation of these programs have not been consistently successful.

Cost-effective training investments should consider the optimal length of training (to avoid courses that are unnecessarily long). The evidence suggests that training programs should be weeks rather than months. In Germany, unemployed short-term trainees had just as fast transitions to stable jobs as long-term trainees, from the start of training (Osikominu 2013). In the Republic of Korea, training dropouts had better employment outcomes than similar youth with no training 1 year after dropping out, but only if they had completed at least 12–15 weeks of training. The benefits to training declined after 2 years, however (Flores-Lagunes, Choe, and Lee 2015).

Quality, relevancy, and targeting of training matter. Evaluations suggest that quality training programs, if correctly targeted at the poor, can increase earnings and improve employment outcomes (Attanasio, Kugler, and Meghir 2011; Blattman, Fiala, and Martinez 2014). In India, a subsidized training program for women increased participant employment, work hours, and earnings, and was highly cost-effective (Maitra and Mani 2014). In Peru, quality publicly sponsored training programs had far better outcomes than low-quality ones, producing trainees with far higher earnings and better-quality jobs. Nevertheless, the most important training attribute was expenditure per trainee: teacher experience, class size and infrastructure, and market knowledge had little or no impact (Galdo and Chong 2012).

The value of training to raise incomes hinges on providing technical training that can be sustained by labor market demands. In Bhutan, a skills training program for construction-related activities found that trainee households in rural villages saw their income rise only when there were fewer trainees relative to the village population ensuring that not too many were trained in the same skills at the same time (Chun and Watanabe 2012). In Turkey, a large, randomized evaluation of a vocational education program for unemployed youth found no significant effect on quality employment outcomes 1 year after the training (Hirshleifer et al. 2015)—results largely consistent with similar studies in other developing economies (e.g. Card et al. 2011; Cho et al. 2013).

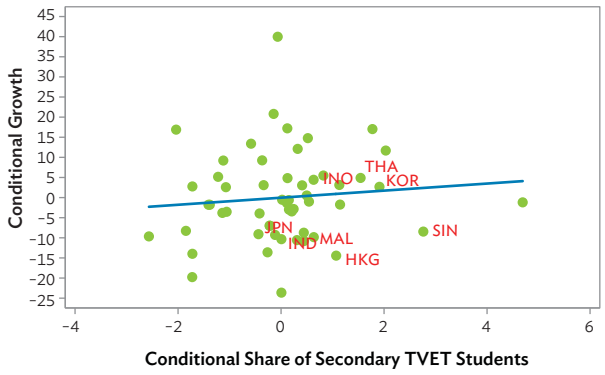
For each success, however, there are just as many failures, underscoring the challenges of running informal training programs. Governments considering investments in this area should undertake evaluations of pilot schemes before scaling up.

Technical education

Financial efficiency entails identifying under what conditions public investments in TVET yield sufficient social returns that justify the costs and determine how costs should be shared among the public and private sectors. TVET spans multiple levels and takes different forms: secondary TVET, polytechnics, short-term placement-linked training, upskilling for current workers, etc. The fragmentation of the sector has complicated broad assessments, particularly across countries.

Economies that have greater shares of secondary students enrolled in TVET are no more likely to have higher growth even after controlling for GDP per capita and years of schooling (Figure 5.3). Of course, quality of TVET systems varies greatly from one country to another and simply emphasizing basic technical skills in secondary education is not sufficient for countries to achieve greater growth. Evaluations are needed to determine the preconditions that ensure technical and vocational training can consistently contribute to greater economic development. Prime examples exist in the region that suggest TVET can work effectively. Countries such as the Republic of Korea and Singapore that achieved rapid growth over recent decades succeeded in part by aligning TVET reforms with their economic development strategies (Cheon 2014; Ra and Shim 2009).

Figure 5.3: Growth and Share of Secondary TVET Students
(Conditional on initial GDP per capita and years of schooling)



Coefficient = .011, se = .013, t = .849

HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KOR = Republic of Korea; MAL = Malaysia; SIN = Singapore; THA = Thailand.
Note: See Appendix 1 for detailed methodology.
Source: ADB estimates using data from Penn World Table Version 8.1, Barro-Lee Dataset (2010), and World Bank EdStats.

Developing Asian economies are increasingly shifting attention and financing toward TVET in the hope that it will enhance labor market outcomes and ultimately economic development.[16] Indonesia and the PRC are just a few of the economies that have increased their share of students enrolled in vocational high school in the last decade alone (UNESCO-UIS).[17] The premise for these investments is that missing technical skills are a crucial barrier to youth entering the labor market. While employer surveys often cite technical and noncognitive skills as the primary culprit of skill shortages (e.g. Manpower Group 2015; Bruni, Luch, and Kuoch 2013), there is a need to analyze skill supply through detailed assessments and tracer studies to have more complete evidence as to whether existing technical skill investments are meeting labor market demands. To date, the best rigorous evidence on effective TVET in Asia primarily covers secondary TVET and some very specific cases of informal training (Table 5.2).

Table 5.2: There is Too Little Causal Evidence to Settle the Debate over TVET versus General Education in Asia

Type	Definition	Quasi-Experimental Studies	Randomized Controlled Trials
School-based	Contains formal curriculum and in theory should teach more generalizable skills. Can span secondary or tertiary.	2	0
Dual training	German model. Combines school-based learning with on the job training.	0	0
Informal TVET	More of an apprenticeship system. Does not include any general skills training and training may not always be significantly structured.	1	1

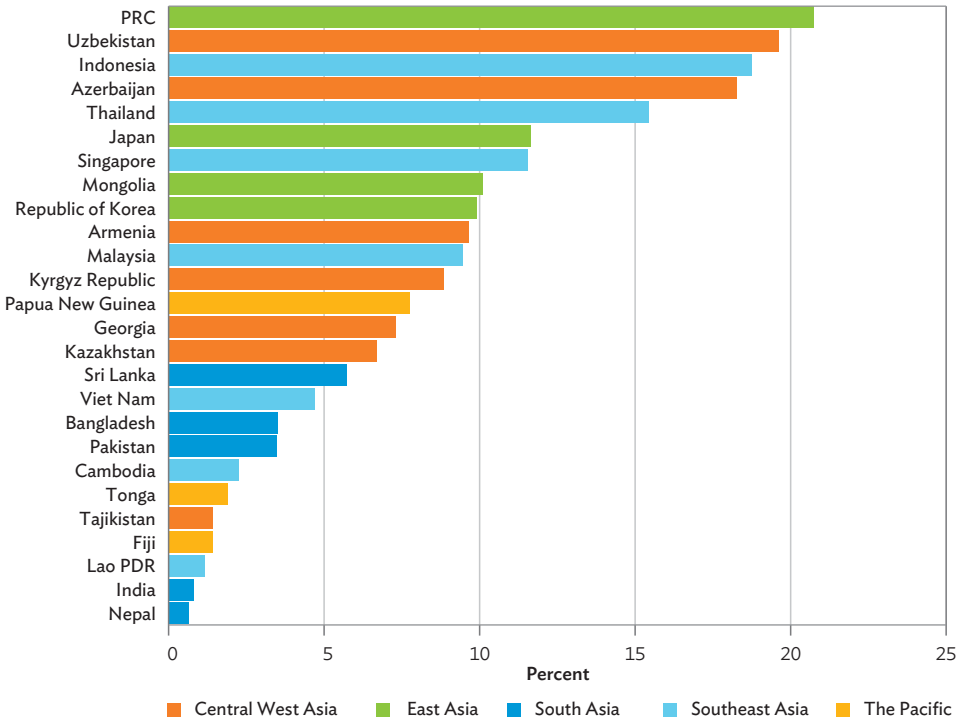
Source: ADB review of literature. Papers referenced were Newhouse and Suryadarma (2011); Moenjak and Worswick (2003); Chun and Watanabe (2012); Maitra and Mani (2014).

The share enrolled in secondary TVET in some Asian economies is sizable with enrollment accounting for more than 10% of the secondary enrollment population (Figure 5.4). However, the costs of public secondary TVET provision are estimated to be 20–40% more than general secondary education due to differences in the types of training offered (OECD 2013; Newhouse and

16 Our documentation reveals that almost all of the Asian economies have TVET at the secondary level (one exception is Sri Lanka) and many economies have some type of apprenticeship or dual-apprenticeship system in place. This includes the PRC, Fiji, India, Indonesia, Malaysia, Pakistan, the Philippines, Sri Lanka, and Thailand.

17 In Indonesia, the government has targeted that 70% of students would be in vocational (versus general) high schools (up from 30%) by 2015 (Ministry of National Education 2006). In the PRC, the target is to maintain 50% enrollment in vocational versus general high schools, and there has been a doubling of enrollment in vocational high schools over the last decade, with more than 22 million students (about 45% of all high school enrollment) in TVET (NBS 2001; NBS 2012).

Figure 5.4: Share of Secondary TVET Students



PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.
Note: Only data for the latest year available for each country is used.
Sources: World Bank EdStats (2005–2013); UNESCO (2007).

Suryadarma 2011). Many countries are currently seeking to improve the cost-effectiveness of TVET and are acknowledging that the public sector alone cannot respond to the increasing demand for TVET. It is thus important to understand what investments will create the right conditions that ensure the returns to TVET sufficiently outweigh the higher costs of provision.

Evidence on returns to secondary TVET is currently thin with results suggesting that more attention should be paid to the types of TVET investments that are effective in improving returns. In Thailand, TVET graduates during the early 1990s were found to have received returns to educational investments that were significantly higher than those in secondary general education (Moenjak and Worswick 2003). In Indonesia, male public secondary TVET students were found to be more likely to engage in the labor market than males who entered public secondary general education, and had no differences in wage returns even after controlling for initial levels of skill achievement, parental socioeconomic status, and parental educational attainment. In contrast, male private secondary TVET graduates had equivalent rates of labor force participation to public general secondary graduates, but had far lower wage returns. Female public and private vocational secondary education graduates had similar rates of labor force participation, with public vocational secondary graduates even having 13% higher wages. The findings indicated that for Indonesia, females were more likely to have benefits that justified the additional 28% higher costs to secondary TVET education (Newhouse and Suryadarma 2011).

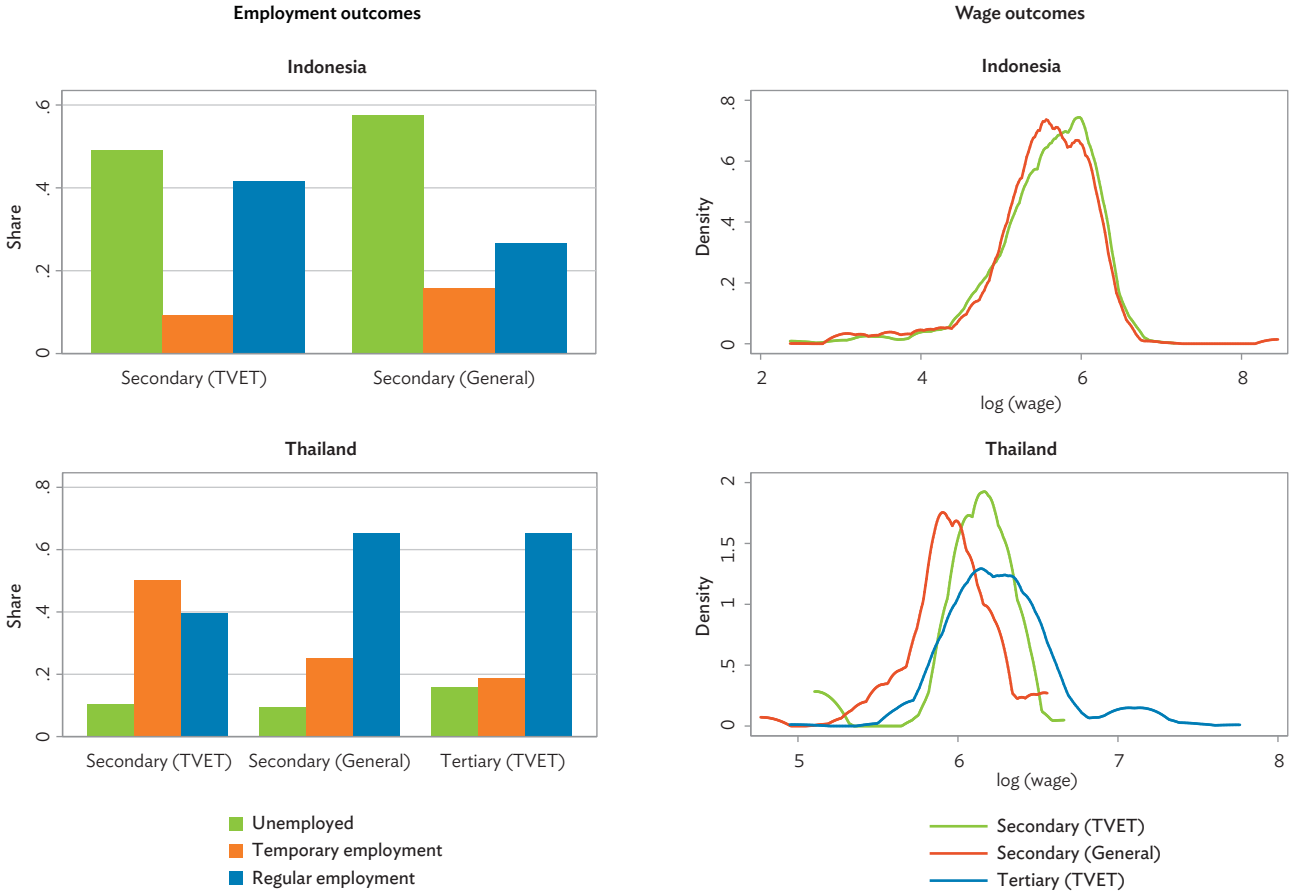
Further evidence from labor force survey data can add to this debate. The labor market outcomes of recent secondary TVET versus secondary general graduates in Indonesia and Thailand, two of the Asian economies with sufficiently large populations of secondary TVET students, reflect differential returns. In Indonesia, those who recently graduated

from TVET are more likely to be employed, and conditional on obtaining a job they are more likely to be in regular employment and have slightly higher average wages. In contrast, secondary TVET graduates in Thailand have far lower shares in regular employment than secondary general graduates, however, conditional on being employed secondary TVET graduates earn substantially higher wages (Figure 5.5).

The importance of different types of education, however, is not just about average earnings, but expected career employment and earnings over time. In OECD economies with more rapid technological change and an overemphasis on technical rather than general skills, employment of TVET graduates has tended to decline over time (Hanushek, Woessmann, and Zhang 2011). The TVET system is taking stock of this and is currently shifting to the development of broader skill sets for a more adaptable workforce. Although this section mainly looks into secondary TVET, it is important to note that the sector expands over multiple levels and is not limited to new labor market entrants. It also includes upskilling of current workers as skills upgrading is part of a continuous process.

Analysis of multiple cross-sections of data finds that employment and wage outcomes of secondary TVET graduates versus secondary general graduates vary depending on the country. In Thailand, the market value of TVET education tends to decline with

Figure 5.5: TVET and Secondary General Graduate Employment and Wage Outcomes Within 5 Years of Graduation



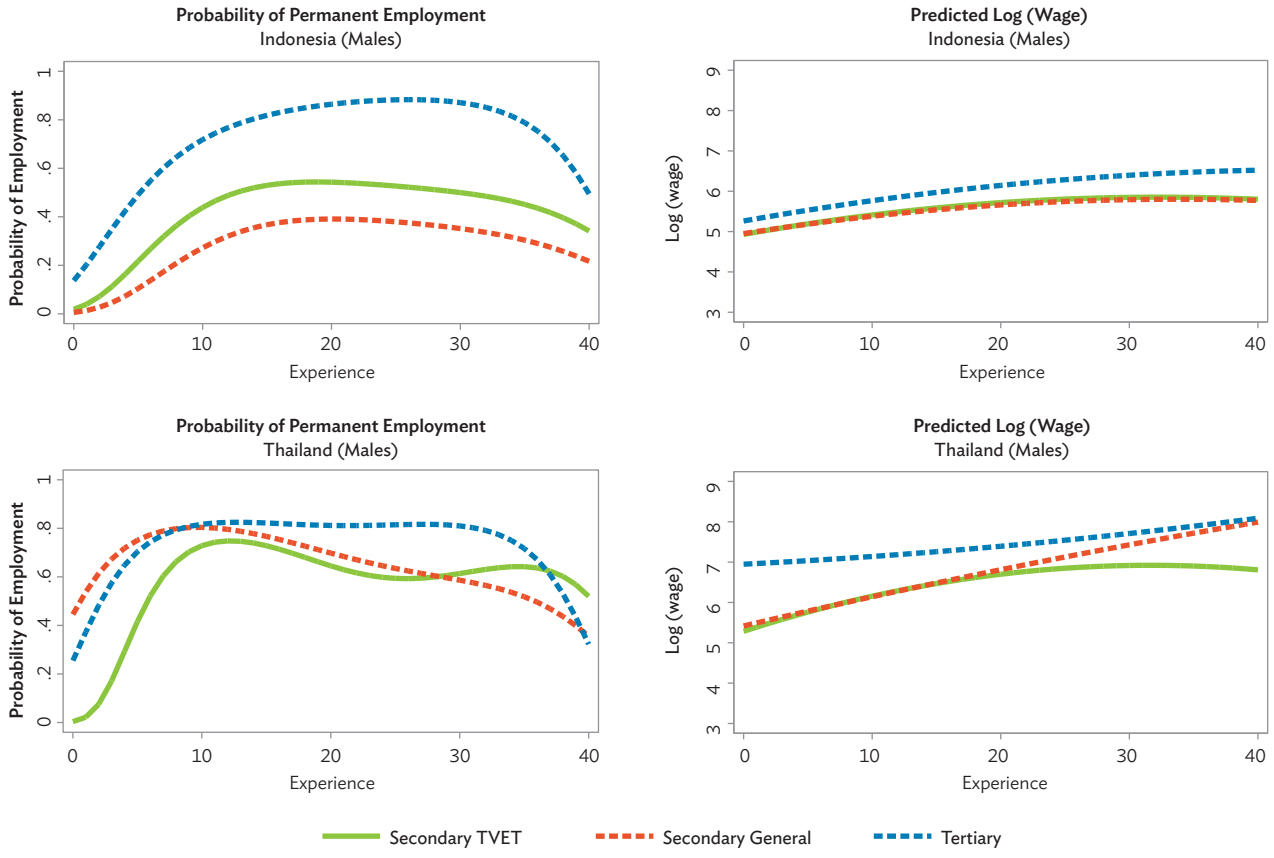
Notes: TVET = Tertiary Vocational Education and Training; Male sample only. Indonesia: Secondary (TVET): 33%; Secondary (General): 67%; Tertiary (TVET): 0%; Thailand: Secondary (TVET): 44%; Secondary (General): 34%; Tertiary (TVET): 22%.

Source: ADB estimates using Indonesia SAKERNAS (2013) and Thailand Labor Force Survey (2010).

experience, leading to gaps in wage returns between TVET and general secondary education graduates with greater labor market experience. In contrast, Indonesia's secondary TVET graduates on average retain a comparative advantage versus secondary general graduates in employment outcomes with virtually no difference in wage outcomes over time (Figure 5.6). This evidence suggests that TVET can be effective in certain circumstances.

Reforming TVET institutions will take time, particularly when it comes to changing pedagogical practices and building stronger ties with employers. This could be a contributing factor to why TVET has not always had success in all situations. In the PRC, item response theory tests were used to estimate gains to skills from attending upper secondary TVET, suggesting that it resulted in substantially reduced general skills while not improving any technical specific skills (Loyalka et al. 2014). A possible reason that secondary TVET did not have any success in improving skills was because it was underfunded. However, more funding alone will not guarantee better educational outcomes. A subsequent study showed that students who matriculated into model secondary TVET schools that had better financing (and presumably teachers, equipment, and alignment with industry standards) were no more likely to be employed or have higher wages than those who went to standard TVET schools (Li et al. 2015).

Figure 5.6: Employment Probabilities and Wage Returns for TVET and Secondary General Graduates



Notes: Predicted outcomes from pooled cross-sectional samples for each subgroup. Probit of permanent employment probability and regression of log wages are run on controls for years of experience, squared years of experience, 5-year cohort fixed effects, and region fixed effects. Reference group is the cohort born in 1970 and the largest region in the country.

Source: ADB estimates using Indonesia SAKERNAS (2003, 2008, and 2013) and Thailand Labor Force Survey (2000, 2005, and 2010).

Many factors influence labor market outcomes of TVET students. TVET systems are often plagued by large numbers of low-quality providers that do little to develop real growth in measurable or relevant skills. Because TVET is often a second choice for students in developing Asia, TVET entrants frequently lack critical foundational skills, which prevent them from acquiring new technical skills. Training also tends to be very specialized, making TVET graduates vulnerable to sector-specific shifts in production processes (Mertaugh and Hanushek 2005). This is gradually changing as TVET systems are now focusing more on portable skills and paying greater attention to noncognitive skills, which are essential to success in the workplace. The profile of students in TVET is often very different from that of students in the general track (e.g. socioeconomic background, parental involvement, social and emotional skills). Although increasing, evidence on private returns to TVET remains limited and more research is needed to understand career paths of TVET graduates.

In general, apprenticeship programs can bridge the link with the labor market, generating higher returns and effectiveness. In countries with well-established apprenticeship systems like Australia, Germany, the United Kingdom and the United States, the returns to TVET are high (Steedman 1993; Acemoglu and Pischke 2000; ILO 2012b; Lerman 2014), but vary widely by qualification and mode of study (Ryan 2001). While many point to the German dual-training system, its success resides in its flexibility that allows students to move from technical or low-tiered tracks to higher-tiered tracks and its greater emphasis on more general adaptable skills. If developing Asian countries are to successfully adopt a dual-training system, broad-based interventions and attention to quality statistics will be required (Box 5.4).

Developing countries face large variations in quality of TVET provision, often reflecting weaker institutions and greater difficulty in monitoring and ensuring quality. This underlines the need to ensure

Box 5.4: The German Dual Training System—Not Easy to Replicate

Germany, with its dual training system (DTS), is touted as a model for vocational schooling systems around the world (Eichhorst et al. 2012). The success of the DTS is embedded in the complementarity between classroom theory and in-firm training with a greater emphasis on more adaptable skills (Dustmann, Puhani, and Schonberg 2014). The system has been adopted in Asian countries such as India, Indonesia, Malaysia, the Philippines, and Viet Nam. But these countries have faced challenges in replicating its success (Majumdar 2011).

The DTS depends crucially on the commitment of stakeholders and the institutional environment. At the core of Germany's longstanding support for TVET is the Vocational Training Act of 1969. It specifies rights and responsibilities of the federal government, local government, private sector, trade unions, and students. The high degree of formalization is enforced by the social partners, while the local chamber of commerce conducts the functions of promotion, administration, and oversight, working at local level closely with employers. This web of institutional checks and balances nationally and locally underpins the German model. Vocational Education and Training (VET) systems in developing Asian economies, however, suffer from weak institutions with many ministries, organizations, and agencies involved, making coordination difficult. In Viet Nam, enterprises acknowledge that vocational training has failed to meet requirements for technically skilled graduates or to attract businesses that are willing to train (Huy 2009). Moreover, labor unions in Asia tend to play a much smaller role and have less influence than their western counterparts (Kuruvilla et al. 2002).

Even with the right institutional framework in place, issues remain. First, ministries need to invest in guaranteeing teacher competency, maintaining curricular consistency, promoting high stakeholder participation, and providing career guidance to impose minimum standards for the quality of TVET provision. Second, students entering a dual system should possess basic literacy and numeracy skills expected of basic education graduates. Third, the dual system should address transition barriers to tertiary education, allowing for multiple pathways (e.g. apprenticeship graduates should be able to attend university). With a large share of 15-year-olds in developing Asian economies not having these basic skills and the questionable quality of education received by TVET students, TVET so far has not had much success in being a pathway to higher learning (Hummelsheim and Baur 2014).

For developing Asian economies looking to develop a skilled workforce, the key lies in balanced investments in education and training that strengthen foundational skills, improve the relevance of technical skills, and generate pathways to higher learning.

commitment to legislation and institutions on quality TVET provision, and that skills taught are aligned with labor market demands. The lack of reliable and timely information on labor market demand impedes many TVET systems' efforts to improve labor market relevance. TVET needs to respond to current labor market needs and anticipate future demand. It is therefore necessary to encourage private providers to participate in the sector. For example, India's National Skill Development Corporation is partnering with private providers to increase TVET provision in the country while aligning skill development with actual industry needs. Thus industry engagement, detailed data on industry demands, and monitoring skill and labor market outcomes of TVET students will remain critical to making decisions on how to allocate finances efficiently among different types of technical skill investments that result in better labor market outcomes.

5.2 Reducing costs of educational provision

Efficient public financing aims to lower the costs per level of quality provision. Three areas stand out: PPPs, contract teachers, and technology.

Public–private partnerships

PPPs can help catalyze scarce financing to deliver better student learning outcomes at a lower cost when the public sector can impose sufficient accountability (Chaudhury et al. 2006). By circumventing rigid, dated, and ineffective public institutional features, PPPs typically involve tasking the private sector with educational provision and public sector partners with funding education and monitoring progress. PPPs can also enhance the relevance of educational provision to develop technical skills more in line with labor market demands. These models are effective given that the private sector has greater knowledge and ability to act on market opportunities in educational provision.

While private schools have shown great promise in improving the quality and efficiency of educational provision, their ability to consistently fulfill a predominant role in providing basic education must be carefully examined within different contexts. In many cases, higher levels of private school achievement could be due to selection of students into schools rather than true benefits to privately provided education (Murnane and Ganimian 2014).

Public funds can be used to contract out the management of public schools to private entities in providing public education. This includes staff hiring, curriculum design, and building maintenance. It requires ability to allocate funding and construct legally binding contracts that guarantee financial payments to the private sector based on student attendance or performance. For these modalities to work financial payments must be set high enough that the private sector can reap profitable returns from these contracts. However, to date, there has been relatively little evidence that has explicitly demonstrated the causal effects of PPP provided education.

Still, accountability-based public subsidies to private entities may be useful in guaranteeing that contracting out management to private entities improves student achievement. This entails actual measurement of student test performance rather than enrollment. It requires government commitment to evaluation that imposes private sector accountability. Such mechanisms have been used for students to attend low-cost private schools in Pakistan with significant increases in student enrollment and school inputs (Barrera-Osorio and Raju 2014). These programs required private providers to provide students with free schooling and mandated that students in these schools achieved a minimum pass rate on a standardized exam administered twice a year. Attending a private school was estimated to have significant value added, improving student achievement by 0.25 SD for each additional year of schooling (Andrabi et al. 2011).

Development impact bonds are a more recent innovation that has been gaining traction in extending educational financing through private sector provision while imposing accountability. While PPPs have large potential to improve future educational investments, the capabilities to conduct monitoring and evaluation and undertake appropriate analysis are best for economies committed to improving their educational institutions (Box 5.5).

Contract teachers

Rapid school expansion in developing Asian economies has resulted in heavy overcrowding in many public schools. Hiring contract teachers is a practical short-term and low-cost solution to reduce class size and fill gaps in educational provision. The use of contract teachers could be a viable solution for TVET provision where there is a need to more frequently adjust technical skill areas to meet changing labor market demands.

While a major concern surrounding the use of contract teachers is that it could hurt the quality of provision, several studies have shown this need not be the case for basic education. In India, an experiment that randomly provided funds to schools to hire non-civil-service contract workers under fixed-term renewable contracts (rather than permanent contracts) found significant improvements in student math and language test scores at these schools (0.16 and 0.15 SD). This occurred even though contract teachers were not professionally trained and were hired at one-fifth of the typical civil service teacher wage (Muralidharan and Sundararaman 2013).

Similar results were found in Kenya, where students had test scores 0.22 SD higher in schools that received an extra contract teacher. However, only students who received the contract teachers experienced real gains to learning—students assigned to civil servant teachers had no gains in test scores despite reductions in class size, suggesting that

Box 5.5: Development Impact Bonds for Education

Development impact bonds (DIBs) are a "pay-for-success" financing mechanism to fund educational infrastructure and projects. They are valuable when the public sector is too risk adverse to allocate funding and scale up programs without demonstrated success. DIBs involve private investors that supply funds to educational providers to adopt educational interventions to meet targets set by project "impact funders" (typically the public sector). If these targets are achieved, the impact funders repay investors their principal plus a financial return.

DIBs incentivize private providers to enter where they see a viable business model that can meet the targets within the terms of the impact funders. In theory it can lead to greater program success and encourage educational providers to adopt more innovative and cost-effective approaches to educational provision.

The Harvard Kennedy School Social Impact Bond Technical Assistance Lab (2013) outlines crucial steps in developing a successful DIB project. At design stage, it is necessary to determine whether DIBs are a realistic fit for an organization conditioning on internal enthusiasm from the impact funder and external interest from private investors. Once a suitable policy initiative is selected, the organization must undertake data analysis and financial modeling as well as engage would-be partners, including the educational service provider, the private investor, and the evaluator of project targets. A contract is drafted and signed before project implementation. Finally, once outcomes are determined and payments are made, decisions on scaling and follow-up contracts are made. This financing mechanism relies on reliable and trustworthy contracting mechanisms, forward-looking impact funders that set quality and educational targets, and sophisticated monitoring and evaluation processes that adequately can ensure and determine the causal impacts of the investments.

In Asia, DIB-financed projects are used in India and Pakistan to fund expansion of low-cost private schools in rural areas, improve educational enrollment, and help reduce gender inequalities in education. The DIB in rural Pakistan was aimed at adding 5,000 school classes. Private entrepreneurs were recruited and tasked with establishing and operating primary schools in randomly selected rural areas for which children were eligible for free enrollment. These entrepreneurs were given a per-child subsidy with some schools receiving a higher subsidy for girls than boys. Recent evidence suggests that while this program did not succeed in inducing greater female enrollment, it did lead to large gains in overall enrollment (Barrera-Osorio et al. 2013).

DIBs' success in enhancing educational outcomes at lower cost will hinge on funders' ability to define and monitor outcomes while providing incentives to encourage private investment. With many institutions in developing Asia still not heavily vested in quality data collection or transparency, it still could be too early for such models to achieve widespread success.

contract teachers were more effective despite their lower pay (Duflo, Dupas, and Kremer 2015).

These examples show that contract teachers are not a solution in all contexts, but are good alternatives especially in countries faced with problems of overcrowding and low accountability among civil servant teachers.

PPPs and contract teachers are but two of the more typical mechanisms to improve financial efficiency. Yet technologies are bringing a new angle to enhancing educational outcomes, not only to collect vital information for accountability but to create new ideas for curriculum design and teaching, in addition to generating new sources of funding (Box 5.6).

Technology

Technology use can be highly important in lowering costs while maintaining quality of provision. When technology has quality educational content, it can help keep students engaged and interested while broadening educational access, working to reduce the burden on teachers to improve skill outcomes (Murnane and Ganimian 2014). It can also lower the costs of educational provision by replacing teaching time with computerized content.

Technology can range from software-based courses to those with an internet connection and involve real-time interactions with teachers. Essentially it requires hardware (such as computers, tablets, or smartphones) and good enough content provided through software, apps, or online materials.

Technology in education is increasingly feasible given the penetration of computer and internet technology in schools (Figure 5.7). Technology (where students can simulate performing different technical tasks) could generate significant reductions in costs of TVET provision due to the large range of skills training, design of curriculum, equipment, and

Box 5.6: Crowdsourcing for Funding, Information, and Ideas

With the increasing penetration of broadband and mobile networks throughout Asia, crowdsourcing—leveraging the global online community—has the potential to improve multiple aspects of education including cost efficiency. This includes "sourcing the crowd" to fund new and innovative educational projects; generating information and ideas for enhanced curriculum design, teaching delivery, and homework; and developing ratings for teachers and schools.

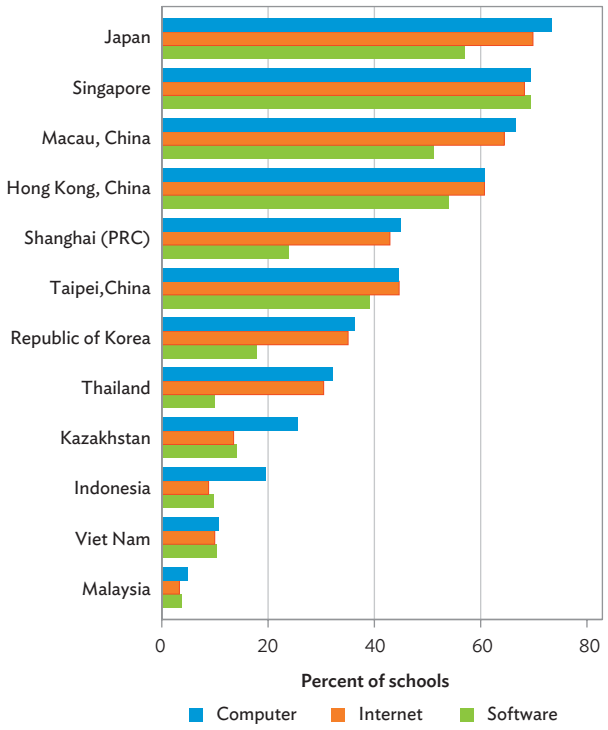
In theory, synthesizing information from a large crowd can help cut through the "noise" to help get important projects funded, help identify important learning outcomes, and generate information for individuals and families to make more informed educational decisions. The main cost is setting up and maintaining the website platform.

Crowdsourcing is underused in Asia. While models for curriculum design (e.g. BetterLesson), teacher ratings (e.g. RateMyProfessors.com), and funding for educational projects (e.g. Adopt-A-Classroom) have gained traction across the US, most crowdsourcing in Asia has remained largely confined to areas outside education. However, this is slowly beginning to change. Bangla Braille is a website that uses the crowd to record books for the visually impaired in Bangladesh. Checkmyschool has been developed in the Philippines to monitor school services. Two major online education platforms—Khan Academy and Coursera—have been asking the global community to add more localized subtitles to their course and videos to make them more widely accessible.

Successful crowdsourcing platforms are designed with an understanding of what motivates people to contribute (Agrawal, Catalini, and Goldfarb 2014). For project-funding platforms it is important to have a way to match potential funders with proposed projects, an accountability mechanism to instill greater trust between donor and recipient, and a threshold pledge systems that is time bound (Belleflamme, Omrani, and Peitz 2015). For example, donorschoose.org has an accountability mechanism where schools or teachers who have received funding for proposed projects provide progress and detailed cost reports in addition to photos. To obtain funding, the quality of proposed projects and personal networks are important (Mollick 2014; Zheng et al. 2014).

In contrast, crowdsourcing of information for curricula or reviews should generate utility for participants through recognition of their contributions and value from being part of a community that provides a public service (Lerner and Tirole 2005). This means including feedback mechanisms to contributors. Similarly, websites that source information and generate ratings or rankings must be carefully constructed to improve their validity and increase reputational incentives. With many viable platforms operating, it is now time for Asian economies to start tapping into the wisdom and funding provided by the crowd.

Figure 5.7: School Computer and Internet Penetration



PRC = People's Republic of China.
Source: PISA 2012.

material required relative to the needs of general education.

On-line and blended learning

A good fit for nonselective higher education and TVET

Downloaded materials from the web on a computer combined with real-time interaction through the web can have a strong comparative advantage over traditional classroom learning. This approach has the potential to enable quality education to be more equally distributed among the population and to cut out some of the large disparities in access often faced by lower socioeconomic groups. Nine key advantages are outlined in Box 5.7.

Online learning still accounts for a small share of the educational market. However, it has the most potential to compete and displace nonselective higher education and TVET institutions that tend to teach a more basic set of skills (e.g. Hoxby 2014). These institutions provide little value added in terms of learning experience or social networks as teachers and curriculum content are relatively standardized and students tend to commute rather than live on campus. Thus the learning environment and content can more easily be replicated in a virtual environment without being detrimental to student learning outcomes.

Blended learning

Blended learning substitutes a portion of traditional classroom instruction with online learning, helping lower the costs of delivery. Blended learning still remains nascent, but is believed to be an area that holds significant promise especially for TVET and higher education.

Box 5.7: Nine Advantages of Online Learning over Traditional Learning

The advantages of online learning are:

1. It can leverage the best teachers and creators of content, providing a way for more students to access better quality teaching.
2. Students can easily adapt the pace of learning to fit their needs, going as fast or slowly as needed to understand core concepts.
3. Because it is at one's fingertips it reduces unnecessary time and money spent on commuting.
4. Students have the flexibility to consume lectures to fit their schedules rather than having to adapt their schedules to lecture times.
5. Productivity is enhanced as the costs of delivering a lecture or class for the revenue should be higher than in traditional models.
6. There are strong benefits to investing in quality as the market grows, in contrast to traditional models that have capacity constraints and so there is no quantity–quality trade-off.
7. High-quality online learning can be more capable and cost-effective at engaging students than sub-par lecturers.
8. Because the systems are web-based they can easily collect information, experiment, and identify ways to improve learning outcomes to maximize skill development.
9. As online learning competes with certain forms of traditional learning as well as with other online learning providers, competition should cause costs to decline for traditional and online learning.

Source: Cowen and Tabarrok (2014).

However, investments so far have not developed quality content enough to maximize the potential of online learning. Randomized evaluations comparing lower-cost blended learning to traditional classroom instruction have found mixed results (Zhao and Breslow 2013). For example, an introductory statistics class in the US that replaced 3 hours of classroom instruction with machine-guided learning and 1 hour of classroom instruction found that students had similar pass rates, final exam scores, and performance on a statistical literacy test (Bowen et al. 2014). An introductory microeconomics course examining blended versus traditional learning found that students in traditional classroom format had a 2 percentage point higher score on the combined midterm and final tests. Another evaluation of an introductory economics course at a public university in the US found similar exam scores between blended and classroom learning, but those receiving only online learning had lower test scores than those receiving traditional classroom instruction (Joyce et al. 2014).

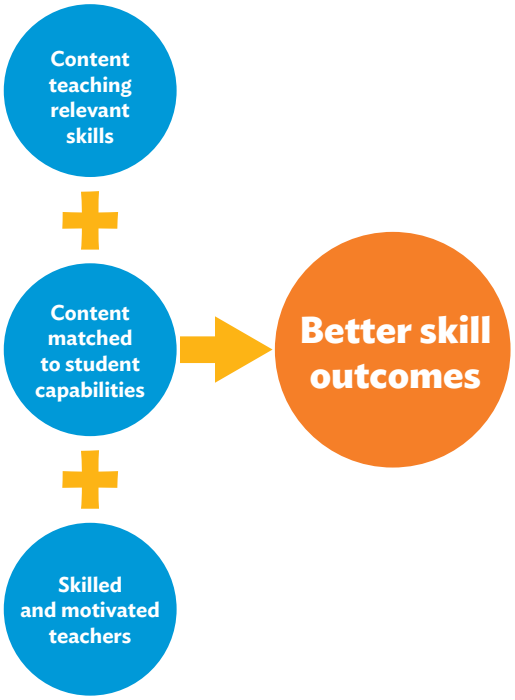
Moving some classroom time to online learning modules could lower classroom-instruction costs while maintaining similar standards for student learning. However, the model still needs to be tested in developing economies where quality of instruction, culture of interaction and discussion, and students' access to the internet could be far different from that in the US.[18]

18 For information on how to implement blended learning in practice see Horn and Staker (2014).

Section 6. Educational Delivery

Improving educational delivery requires having the right curriculum content well matched to student capabilities that is focused on developing the relevant skills, and having skilled teachers who are incentivized to provide quality instruction so students learn (Figure 6.1).

Figure 6.1: Enhancing Educational Quality Must Address Curriculum Content and Delivery



Source: ADB.

6.1 Curriculum content

Curricula that are engaging, compatible with student skills, and use clear and up-to-date skill targets are more likely to develop the critical and relevant skills needed to meet labor market demands. Quality curriculum content needs to recognize the capabilities and limits of teachers, but also be appropriate to current levels of student capabilities. Because costs are fixed and there are benefits to having compatible and standardized quality across regions, base standards for curricula can achieve cost efficiencies at a national level.

Student-centered learning

Curricula taught at a level that lets students gain skills

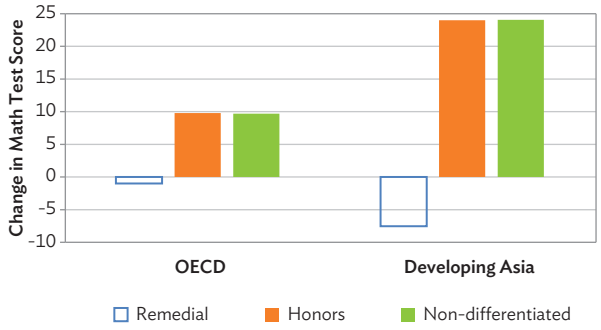
Curricula that are well matched to student capabilities can significantly improve student learning outcomes. If curricula (and teachers) are overambitious it can hinder student learning (Pritchett and Beatty 2012).

Tracking that separates low- and high-performing students or provides additional help that is better paced to student capabilities can have beneficial effects on student learning outcomes. It allows time-constrained teachers to personalize their teaching to the level of students in the class. In India, a remedial education program that hired young women to teach students who were lagging in basic literacy and numeracy increased average test scores by 0.28 SD due to gains in test scores of children at the bottom of the distribution (Banerjee et al. 2007). Remediation programs are also effective, even for college students: remediation math and English programs in the US targeted at students who had graduated from high school academically unprepared resulted in students who were less likely to drop out of college and more likely to transfer to better colleges (Bettinger and Long 2009).

Nevertheless, tracking can have mixed results, preventing knowledge spillovers derived from interactions between low- and high-performing students. Cross-country evidence finds that students tracked earlier have significantly lower achievement on mathematics and reading. Yet early tracking is related to higher levels of achievement on science tests, reflecting uneven gains and losses to early tracking depending on the subject area (Hanushek and Woessmann 2005). Remedial and honors courses within schools are observed to have variable effects among different regions. In high-income Asian economies, remedial education is fundamentally important in driving higher test scores, while

it has little effect in OECD or developing Asian economies. In fact, in developing Asian economies that offer extra math courses, whether honors or non-differentiated to student capabilities and used to supplement standard course work, have students that perform far better on the math test on average (Figure 6.2). On the other hand, schools that only offer supplementary remedial courses have no significant effect on student performance.

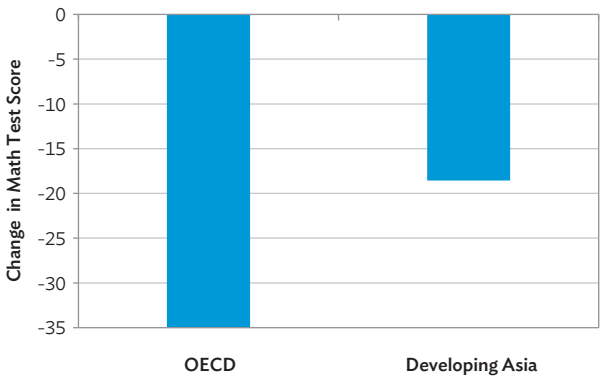
Figure 6.2: Effects of Schools Offering Additional Math Lessons on Math Test Scores



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

Student perceptions of teaching content may provide a better measure of whether content is well matched to student capabilities. Independent of the region, students who report that the content is too difficult have significantly lower test score outcomes (Figure 6.3).

Figure 6.3: Effects of Perceived Difficulty of Curriculum on Math Test Scores



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

Fostering critical skills

Curriculum content for basic education combined with new teaching methods can keep students engaged and better develop critical labor market–relevant skills. These include skills that emphasize computing and noncognitive skills, as well as critical cognitive, problem-solving skills (World Bank 2007). At the secondary level, helping students prepare for the world of work requires provision of job skills for those not going on to higher education. A quality curriculum pushes students to solve problems critically rather than use rote memorization.

Noncognitive skills

Fostering noncognitive skills can be integrated with standard basic and secondary education. The best evidence on the development of noncognitive skills comes from the Perry Preschool Program (for disadvantaged children of 3–4 years old) in the US which taught social skills in a daily plan-do-review sequence in which children planned a task, executed it, and then reviewed it with teachers and fellow students. The aim was to develop skills to work with others. These children had no higher IQs at age 10 than comparable students who did not attend the program, but these children had higher educational achievement and 7–10% higher earnings per year as adults (Heckman et al. 2010; Heckman, Pinto, and Savelyev 2013).

Curricula that use group projects, presentation activities, and volunteer activities are also avenues for curriculum design that can generate gains in noncognitive skills. However, there is a need to build further evidence on the effectiveness of curricula to develop cognitive and noncognitive skills that have sustained impacts.

Digital and basic computer skills

Basic computing skills are increasingly becoming a necessity for operating in modernizing economies that are increasingly integrating

technologies into everyday work tasks. Many websites and smartphone apps allow self-employed or own-account service workers (typically low-skilled) to market themselves and gain access to a larger consumer base. At a minimum this requires familiarity and comfort with basic smartphone or web technology. For example, Uber, which has expanded rapidly to a number of countries in developing Asia, allows technically independent drivers to easily be hired by potential passengers through the simple push of a button on a computer app.[19]

Early introduction to computers can improve student comfort, interaction, and manipulation of computer technology. This does not mean, however, that there should be mass public investments in providing computers to every child. One Laptop per Child programs are costly at $100–$200 per machine, and have achieved only moderate success. In the People's Republic of China (PRC), student achievement in math increased, but not in Peru or Uruguay (Mo et al. 2013a; Cristia et al. 2012; De Melo, Machado, and Miranda 2014). Another computer-distribution program in Romania saw lower school grades but higher computer skills and improved cognitive ability (Malamud and Pop-Eleches 2011). More viable and simple low-cost solutions would include curricula and schools with computer labs where students receive exposure through shared computers.

Informal sector skills

A weak evidence base pervades their teaching impact

The continued prevalence of individuals in informal or self-employment in developing Asian economies requires curricula in secondary and TVET that can teach practical skills, such as basic financial management and marketing. Given the difficulty in moving from informal to formal wage employment, targeting populations that enter the informal sector can be important for enhancing their long-term labor-market prospects (Gunther and Launov 2012).

Studies find mixed results of business and entrepreneurship training, however, in terms of survivorship and increased revenue or profits in existing firms. A business training course conducted for women in Sri Lanka using a business training course developed for microenterprises and new entrepreneurs in developing countries, known as the Start and Improve Your Own Business Program, found that the training had no impact on profits, sales, or capital stock despite some small changes in business practices for existing businesses. Those receiving a grant for business investments temporarily increased profitability, but the effect dissipated by the second year. In comparison the training helped business startups speed up their process of entry into the market and increased their profitability, suggesting that training is better targeted and effective for new owners than existing ones (De Mel, McKenzie, and Woodruff 2014; McKenzie and Woodruff 2014; Field, Jayachandran, and Pande 2010).

In Uganda, a randomized study found that female-targeted training that taught technical skills plus budgeting, financial, negotiating, and accounting skills resulted in a 35% increase in engagement in income-generating activities (Bandiera et al. 2014). Yet the heterogeneity of various curricula and training interventions for the informal sector means that knowledge on how to design effective curricula for the informal sector is not complete. The difference in interventions and outcomes means that many more evaluations will have to be done to arrive at a greater consensus to better understand what works independent of the context.

19 The state of California, US, has challenged this "independence" in the courts, and won, i.e. they are employees and not independent. However, several more rounds in the courts over several more years are likely until a final decision, at least for California, is made.

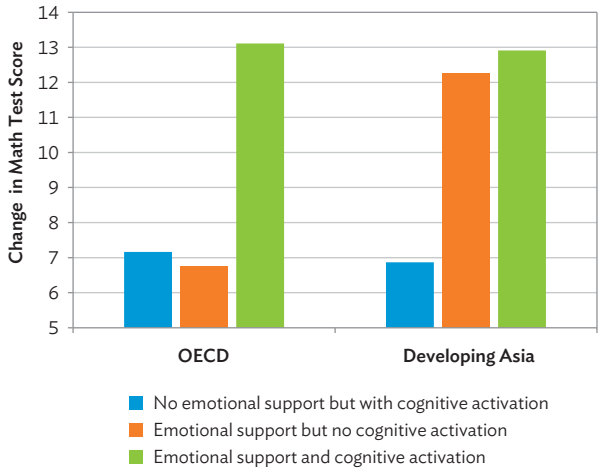
6.2 Instruction

Quality curriculum content needs to be combined with quality instruction to enhance student skills. As teachers are fundamental to student learning, developing programs to enhance teacher quality and skills is important. Nevertheless, when either the skills or motivation of teachers are suspect, looking to alternative delivery methods that cut out variations in teacher quality could generate gains to learning.

Teacher quality

Teachers are the main mode through which education has been traditionally delivered. Teachers who engage students more in problem solving activities (cognitive activation) and teachers who are perceived to care more about student learning are small but important factors in enhancing student outcomes (Figure 6.4).

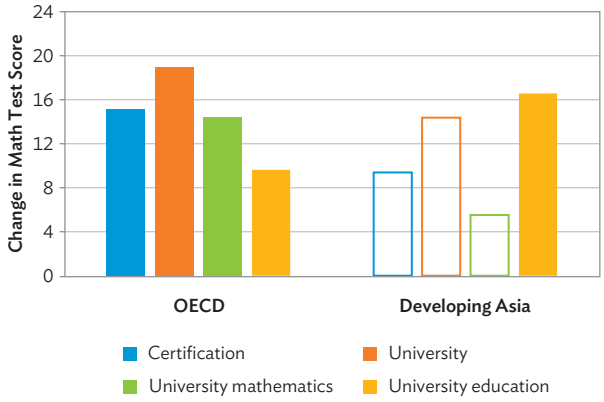
Figure 6.4: Effects of Instruction Approach on Math Test Scores



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

Yet teacher test scores, credentials, degrees, experience, and training are seldom very good indicators of quality teaching skills (Hanushek 2013; Hanushek and Rivkin 2012). In developing Asia, teacher certification and degrees have no effect on student outcomes (Figure 6.5). This may in part be reflective of institutions where certification provides no credible signal of teacher skills that matter for skill outcomes, unlike OECD economies where teacher certification is a large and significant determinant of student performance.

Figure 6.5: Effects of Teacher Certificates or Degrees on Test Scores



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

While complementing new curricula with teacher training is necessary, it is by no means sufficient for guaranteeing that new curricula are adopted. Low-cost methods for training teachers include providing mini-lessons to teachers through video and small incentives to participate in training. However, new curricula should be aligned with teacher incentives to better guarantee adoption into classroom instruction. Incentives for teachers to adopt new curricula could range from financial rewards to reductions in the time it takes to design or administer curricula.

As evaluations of teacher capacity building on student learning often find no impacts, the absence of incentives could be the missing component that ensures these interventions are effective (see Glewwe et al. 2013 and Murnane and Ganimian 2014 for literature reviews). In India, an intervention providing low-stakes diagnostic tests and feedback to teachers to improve instruction found that teachers exerted more effort when observed in the classroom,

but their students did no better in independent administered tests than students of teachers who received no feedback (Muralidharan and Sundararaman 2010). To generate gains in learning outcomes through improved teacher quality could require policy that is more focused on human resource management practices and labor market policies that improves recruitment and retention of better teachers and imposes accountability (Section 4).

How to effectively improve teacher quality remains an open question, especially for TVET and higher education. While donor spending often focuses on teacher training, research needs to be undertaken to understand the incentives that induce teachers to adopt these new practices so that they ensure the development of better student skills.

Positive peer effects

A low-cost way to improve teacher skills and student outcomes is to leverage knowledge of more experienced and effective teachers. There are large spillovers (generated by knowledge or competition) between teachers that can have potential to be just as effective as more formal training methods and incentives. In the US, students of teachers who gained more effective colleagues were observed to have larger increases in math and reading tests. These effects were larger for less experienced teachers, indicating that allocating better teachers across various schools and creating mentorship links with new teachers could improve student skills (Jackson and Bruegmann 2009; Bacher-Hicks, Kane, and Staiger 2014).

TVET's need for industry knowledge

Industries that see faster technological change require more frequent reviews and updates to maintain relevancy to changing labor market demands. Intuition and best-practice reports for TVET suggest that partnering with industry experts and engaging teachers who have hands-on industry experience are key to making TVET curricula more relevant and producing real technical skill gains. While there are efforts to develop industry linkages to address concerns on relevancy of skills, there is relatively little rigorous evidence that confirms the widespread effectiveness of these initiatives.

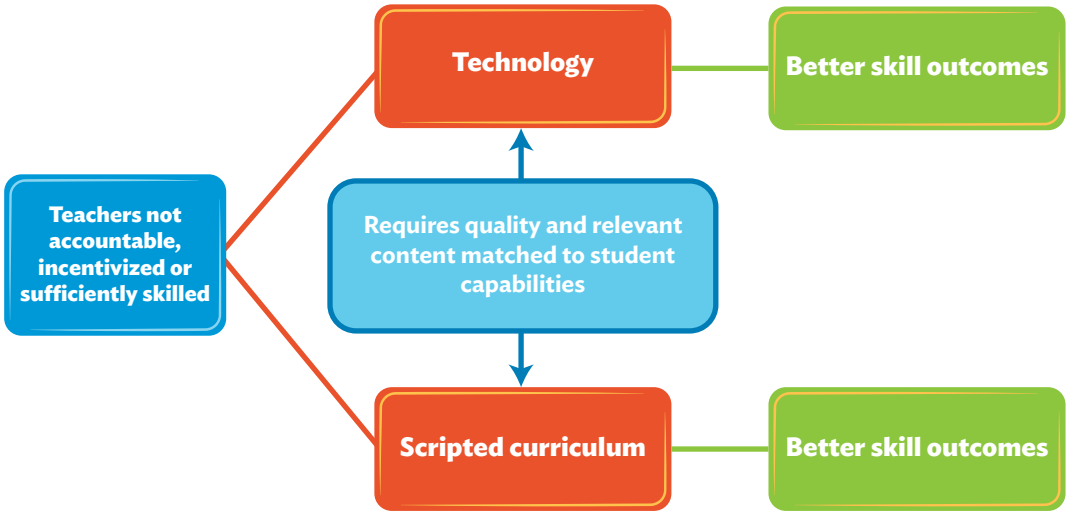
Skills councils that are driven by industry investments and that set time frames for reviewing and updating skills (e.g. the National Skills Development Council in India), while in line with best practice, still need to be rigorously evaluated. Precisely because of changing industry demands, TVET curricula should place more emphasis on building adaptable, noncognitive, and computing skills.

Teachers with industry experience are important in TVET to generate gains in technical skills. In the PRC, students that had secondary vocational teachers with experience in computers had higher levels of computer proficiency; those who had had teachers with no such experience learned very little, and had no measured gains to computing proficiency even when the teacher had professional certification in these skills (Johnston et al. 2015). Caution therefore should be exercised in economies undergoing TVET expansion to ensure that increased emphasis on technical education leads to improved labor market outcomes (e.g. the Philippines for secondary education). The limited existing evidence suggests that expansion would be more effective by hiring teachers with relevant industry experience rather than trying to develop new technical skills of existing teachers. To potentially facilitate effective delivery of TVET likely relies on having greater flexibility in teacher hiring and termination practices to ensure that TVET can quickly shift to meet changing industry demands.

Alternatives to variable teacher quality

Technology use and scripted curriculum are alternatives to consider to improve learning outcomes when there are concerns with teacher skills or effort (Figure 6.6).

Figure 6.6: Technology and Scripted Curricula are Possible Alternatives if Teachers are Not Accountable, Incentivized, or Sufficiently Skilled



Source: ADB.

Technology combined with content

Delivering more student-centered learning

Technology that has quality educational content can keep students engaged and interested, raising the amount of productive time spent on learning. It can help reduce much of the large variation in teacher quality, and holds promise especially in rural areas where outreach, teacher monitoring, and school choice are usually more limited.

Gamification

Turning tedious problem solving into a game that rewards learning and knowledge

Gamification is a type of computer-assisted learning (CAL) that is designed to incentivize students to invest more time in learning by making learning into a game. The gamification of education has been found to be highly effective at improving performance on achievement tests as curriculum content can be easily adjusted to match student capabilities. In the PRC, educational computer games in math and English were used to supplement traditional classroom learning in schools catering to children of migrant workers. Eighty minutes of shared computer time a week on top of standard classroom learning over 13 weeks increased student math scores by 0.12 SD (Lai et al. 2012; Huang et al. 2014).

CAL integrated directly into regular school time is also highly effective. Regular computer class time replaced by CAL for 3rd and 5th graders receiving 80 minutes of shared computer time a week, and monitored by two teacher supervisors, raised math scores by 0.16 SD (Mo et al. 2014a). A low-cost CAL program in India (costing $15.20 per student per year), where students spent 2 hours per week with education software, found that math scores rose by 0.47 SD. However, the effects on learning diminished 1 year after the program ended to only 0.10 SD (Banerjee et al. 2007). Thus interventions may need to be implemented and evaluated over longer time periods to ensure they can sustain improvements in learning outcomes to truly justify their effectiveness.

Innovations in gamification have become more sophisticated and provide ways to more precisely

analyze behavior and better assess how to help people extend their investments in learning, whether through increased effort or improved capacity. These innovations are being applied across a range of education levels as well as training and learning on the job. Badgeville, for instance, integrates gamification into clients' mobile applications to increase collaboration among their employees as well as facilitate training and development (Badgeville 2015).

Development of quality content

The ability to develop learning modules and quality content in developing economies is more feasible than ever before. The Khan Academy, for example, has reduced costs of provision by allowing teachers to build their own courses while having access to in-depth analytical tools. Engaging the private sector to design and develop technological content especially for TVET is important to standardize and reduce some of the variations in the quality of TVET provision. Venture capital in educational technology has been on the rise and may provide an efficient answer to improving the quality of educational provision in terms of curriculum content, testing, and delivery (Box 6.1).

Scripted curriculum

A low-tech solution to reduce variances in teacher quality

When teachers are not incentivized or accountable and teacher skills are low, scripted lessons can improve delivery by providing explicit guidance to teachers on what to say and do. In Maharashtra, India, a randomized implementation of scripted lessons had significant impacts on student achievement, raising math scores by 0.31–0.33 SD (He, Linden, and MacLeod 2007). As scripted curriculum can eliminate teacher effort in designing and constructing the curriculum, unmotivated teachers will have greater incentive to adopt these types of lessons, which can be effective for basic education but remain untested for higher education and TVET.

Box 6.1: Venture Capital—Funding the Next Generation of Education Technology

Venture capital fills a crucial void in financing that allows entrepreneurs without collateral to scale up their businesses. Venture capitalists invest in small, high-risk businesses for an equity stake with funding driven by expectations of how large and profitable a startup can become.

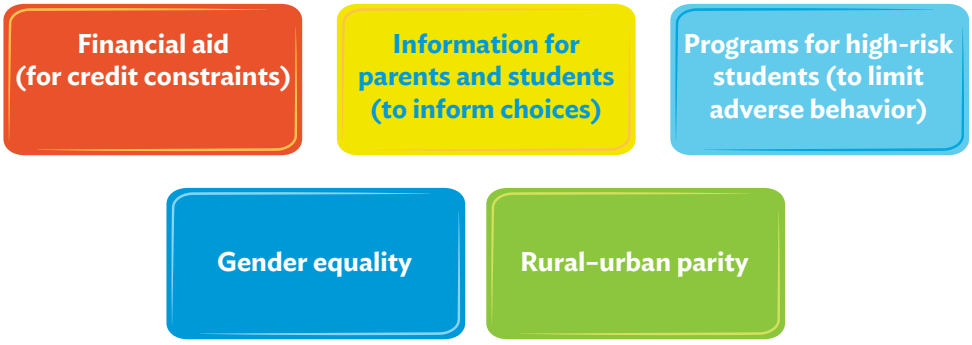
Such funding for education technology globally rose by nearly half from 2013 to $2.3 billion in 2014, with 24% going to companies operating in the PRC (Ambient Insight 2015). For Asia, development of education technology is expected to continue to rise, given that Asia has massive market potential with roughly 630 million basic and upper secondary students and an average household that is estimated to spend 6.5% of its income on education-related products, according to ADB calculations.

The market for education technology is expected to expand as schools are beginning to outsource specific tasks and services to private educational technology providers so that the schools can function more efficiently and focus more on meeting specific skill targets. Education technology products range from textbooks, custom-designed hardware (e.g. tablets by Amplify), software for assisting instruction (e.g. Khan Academy, Duolingo), provision of online courses (e.g. EdX, Coursera) and ways to validate and assess student learning. They cater to a wide and diverse audience including students, teachers, and schools across all age segments: compulsory education, higher education, corporations for training, and lifelong learning.

Due to the fixed costs of developing quality systems, a cost-efficient and sustainable model for developing countries would be to find ways to partner with good education-technology firms to enhance programs and adapt them to their context. Khan Academy, for example, has developed an open educational platform that generates subtitling to enhance accessibility to English videos for people who speak other languages and an adaptive learning tool that is open source and can be restructured to fit a country's needs. The New Schools Venture Fund, a nonprofit venture philanthropy firm supported by the Gates Foundation, and Learn Capital, the venture capital firm behind BloomBoard and Edmodo, are two examples that are aiming to develop and fund education-technology content for a global audience. As private venture capital is better positioned than government to identify, produce, and scale innovative products, it will likely play a large role in funding new education technology that will disrupt educational markets (Greenfield and Vander Ark 2014).

Section 7. Educational Access

Figure 7.1: Policies to Address Different Barriers to Optimizing Skill Investments



Source: ADB.

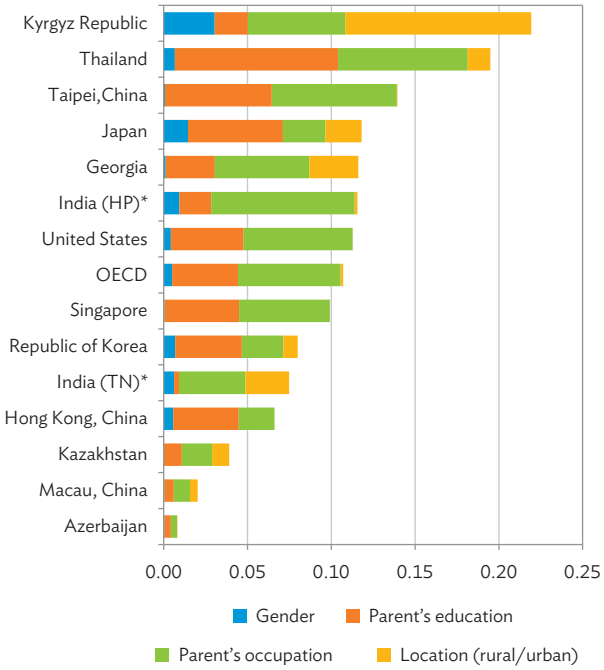
Increased access to quality skill development opportunities is important from an equity and efficiency perspective, and entails targeted program interventions that generate greater equality of opportunity. A key distinction is between *uncontrollable* circumstances (that generate inequality of opportunity) and *controllable* circumstances (that stem from differences in effort) (Roemer 1998).

Uncontrollable circumstances, which need to be countered through public investments, include being born into families that lack financial resources to pay for school or have insufficient information or time to mentor and coach their child; being born into a society that favors one gender over another; or living in a rural area with little access to quality schools. Thus policies that increase access could involve providing financial aid, providing targeted information to help individuals and families make more informed decisions, supporting programs to help limit adverse or detrimental behavior for high-risk students, and promoting gender and rural–urban equity in access to education (Figure 7.1). Success in enhancing educational access is tied to good data collection as it helps set the parameters for the right groups to target and to assess the quality of implementation of the targeting mechanisms.

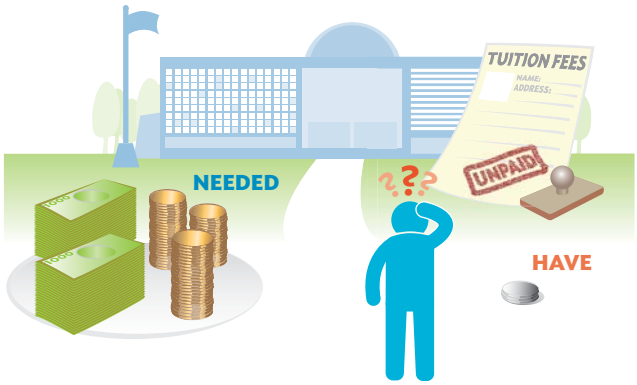
Low-cost ways to enhance effectiveness of many of these interventions is to incorporate knowledge of behavioral responses that will help "nudge" individuals into better skill investment decisions and enhance access (Lavecchia, Liu, and Oreopoulos 2015; Levitt et al. 2013; World Bank 2014). These can complement many interventions that enhance educational access from reducing perceived risks to borrowing, to reducing negative self-identities that are driven by social, gender, or rural–urban inequalities.

In developing Asian economies, a high share of educational outcomes appears to be driven by differences in parental education and occupations rather than geographic or gender factors (Figure 7.2). Policies that target based on socioeconomic status therefore could be far more effective at increasing access than those that focus on a specific gender or increase resources in rural locations.

Figure 7.2: Inequality of Opportunity in Mathematics



TN = Tamil Nadu; HP = Himachal Pradesh.
Notes: Based on Ferreira-Gignous (2011) measures of inequality of opportunity without scale. Includes only economies where less than 5% of the population has dropped out by age 15 to ensure results are more representative and less driven by selection of who drops out.
Source: ADB estimates using PISA 2012 and 2009*.



Credit constraints prevent individuals from investing in education even when expected returns exceed costs.

7.1 Financial aid

Resolving credit market failures

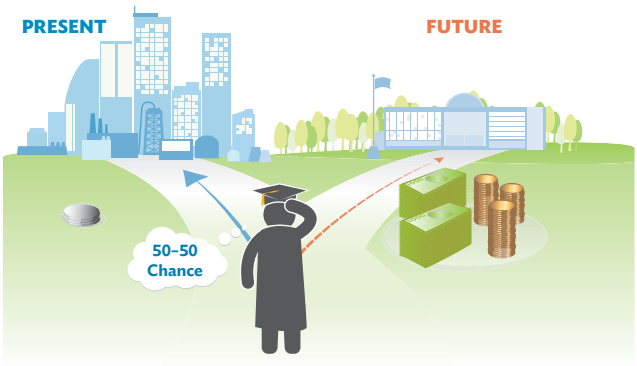
Financial aid products can help students increase their educational investments. Credit constraints in skill investments arise because parents do not value education, are unable to borrow against a child's future income, or are unable to borrow against their own income to fund a child's skill investments (Cunha and Heckman 2007). Yet credit market failures faced by poor families make it difficult to fund skill investments even when the expected benefits from investing in skills outweigh the costs. These failures in the credit market can result in far less educational investments, less intergenerational mobility, and higher wealth or income inequality (Lochner and Monge-Naranjo 2012; Belley and Lochner 2007). Credit constraints create inequities in school attendance, but also manifest themselves in less observable investments such as private tutoring, leading to lower levels of overall skill investments.

Credit constraints experienced during early childhood have a more detrimental impact on skill development than in adulthood (Caucutt and Lochner 2006, 2012; Milligan and Stabile 2011; Dahl and Lochner 2012). As the impact of a parent's investments in skills in early childhood are highly uncertain, risk aversion (Box 7.1) and time-inconsistent preferences can contribute to underinvestment.

Box 7.1: Some Consequences of Risk Aversion

Risk aversion is part of psychological behavior that causes students who are credit constrained to make more suboptimal educational investments when faced with credit constraints. This could cause them to prefer to take an immediate job with guaranteed income rather than take out loans and continue education or to undertake paid work while enrolled in school leaving less critical studying time (Belzil and Leonardi 2013; Brodaty, Gary-Bobo, and Prieto 2014; Caucutt, Lochner, and Park 2015).

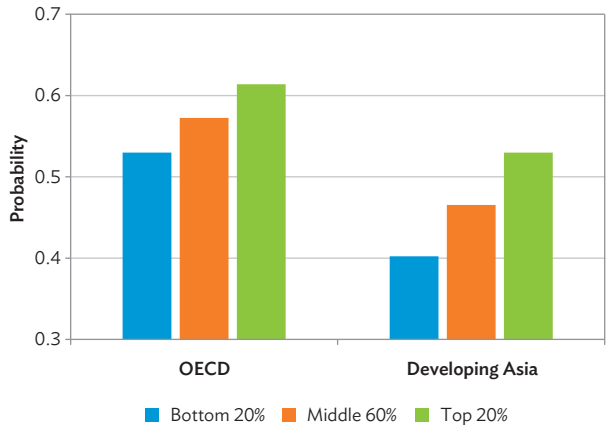
High-performing children with parents with low cognitive skills tend to be more at risk for lower educational investments since risk aversion tends to be higher independent of credit constraints and income for those with lower levels of cognitive skills (Dohmen et al. 2010). Risk aversion can widen inequalities in skill investments as poorer families and females are often more risk averse (Borghans et al. 2009; Attanasio and Kaufmann 2014). Thus, designing complementary policies that address both credit constraints and risk aversion is important especially for higher education.



Risk averse and poor individuals may underinvest in education to avoid having to take out loans for education.

Credit constraints are particularly severe in developing Asian economies with limited public financing of education and insufficiently developed credit markets to fund skill investments. Socioeconomic status can affect student expectations of attending college independent of the student's ability or their parents' level of education. In developing Asia, an individual in the bottom 20% of the socioeconomic distribution in their country is 13 percentage points less likely to aspire to attend college than a student in the top 20%, suggesting that credit constraints may be driving these aspirations (Figure 7.3).

Figure 7.3: Differences in College Aspirations Due to Differences in Socioeconomic Status



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

Conditional cash transfers

Conditional cash transfers (CCTs) are among the options for governments to consider. Typically targeted at poor families who face larger credit constraints, these can help improve child and family incentives for early skill investments by providing cash based on a child's health check-ups and school attendance or other conditions. Proxy means-testing identify families that are poor, by using indicator proxies that are significant predictors of welfare, such as parental educational background, physical housing characteristics, and ownership of durable goods.

CCTs have had considerable success in raising learning outcomes in the long-term in Latin America. CCTs have helped increase educational participation and attendance (see Fiszbein and Schady 2009 for a summary). With quality education, this can translate into gains in skills. In Nicaragua, CCTs were found to have long-term impacts on cognitive skills (Barnham, Macours, and Majuccio 2013). Developing Asian economies, such as Cambodia, India, Indonesia, Pakistan, and the Philippines, have only recently latched onto the CCT trend. A smaller volume of funds earmarked for transfers, older ages at which transfers take place, or less effective institutions are possible factors for why evaluations of CCTs in Asia have so far found less success pointing to challenges faced in immediately developing a CCT model that is effective. In the Philippines for example, CCTs were more effective at increasing enrollment among younger children than older children, while in Indonesia CCTs had no effect on enrollment for children ages 7–15 (Alatas 2011; Chaudhury, Friedman, and Onishi 2013).

CCTs tend to be less effective per dollar of investment at older ages. In contrast to younger ages, adolescents who have greater capabilities as workers often require greater amounts to induce significant changes in educational investment behavior. In the PRC, a cash transfer worth around one-third of annual

wages (around 150 $PPP) of low-skilled workers led to a sharp fall in dropouts among junior high school students with poor academic performance (Mo et al. 2013b).

In contrast, a CCT program that provided cash conditional on a child's enrollment in secondary school in Cambodia provided parents with a cash equivalent to 2% of the consumption of the median household. This transfer increased attendance rates by 25 percentage points. However, providing a larger cash transfer did not dramatically affect attendance rates suggesting that the lower cash transfer amount was a more cost-efficient transfer for improving enrollment (Filmer and Schady 2011).

Due to the targeting mechanism and conditionality requirements, CCT administration and monitoring mechanisms are costly. They typically require close coordination between the bodies distributing cash with those overseeing the education and health institutions. CCTs could rethink current models by providing cash conditional on making real gains to additional skills or maintaining minimum standards of achievement rather than focusing solely on targets such as enrollment.

Unconditional cash transfers

Unconditional cash transfers (UCTs) remove the conditions of CCTs and retain the targeting mechanisms, greatly lowering the cost of institutional administration and coordination. Ideally UCTs are labeled for education to help with mental accounting that sets expectations that the cash is used for education (Thaler 1990). In Morocco, a UCT program labeled for education had success equivalent to the CCT in increasing enrollment (Benhassine et al. 2014). When UCTs are not labeled for education, however, they may be less successful at inducing changes in educational investments. An unlabeled UCT versus CCT program in Malawi found less than half of the increase in school enrollment under the UCT compared to the CCT (Baird, McIntosh, and Ozler 2011).

Designing a cost-effective CCT or UCT system requires identifying the optimal amount of cash and types of conditions needed to induce significant changes in investment behavior of targeted groups. Most importantly, for UCTs or CCTs to be worth the cost, the quality of schools should be good enough that the additional years of education lead to gains in critical skills.

Loans

Loans for higher education can mitigate credit-market failures. This is especially important for publicly backed loans via private loan providers targeted at poor students with higher assessed returns to education. Society can receive large returns on investments if it creates more productive workers that pay back loans, but also add to the public tax base over the longer term. Access to finances can help ensure that students focus on their studies rather than working to support themselves, possibly raising levels of learning.

Repayment terms and amount of loan relative to grants offered to individuals are an important consideration. Policies that have shifted loans to grants have showed that loans increased the probability that students pursued high-salaried jobs and reduced the probability of low-paying jobs that were of public interest and have had significant impacts in developed economies on improving learning experiences and building skills (Belley and Lochner 2007; Rothstein and Rouse 2011). In developed economies, government-backed loans have low to zero interest and allow students to defer payments until they enter a job to mitigate some of the perceived risks to borrowing (Vandenberghe and Debande 2007).

Universities, colleges, and TVET institutions are presumably in a better position than banks and governments to screen potential loan applicants due to scale efficiencies created in screening during standard admittance process, but also should share in the risks of loan provision. This shifts some of the

burden to schools to better ensure candidates will receive and obtain a quality education that results in employment. This is a financial model for universities and colleges that can generate endowments and develop a strong alumni base (Hoxby 2014). While this model is typical in the US, it should be considered by Asian universities that aim to develop financial sustainability and maintain competitiveness over the long term. Singapore University of Technology and Design in collaboration with Massachusetts Institute of Technology is one leader in the Asia region that is trying to build an endowment to sustain its own financial base. For TVET institutions, the model would have to be different. In particular, one model that is considered to reduce risks of loan defaults occurs through TVET institutions partnering with firms to generate automatic payroll deductions once loan recipients become employed.

Financial loans are viable in developing economies that are looking to lessen the burden of public finances while mitigating some part of the risks of promising students going onto higher education. However there must be solid institutions that can enforce contracts for loan repayment. The Philippines' Study Now, Pay Later Program is just one example of a loan program that was not able to achieve financial sustainability because of institutions that were not sufficiently strong enough to enforce loan repayments (UNESCO 2003). To have sustainability and success, public loans, or educational provider–backed loans, require good legal systems that can enforce loan repayment. It may also be helpful to create financial products that can encourage families that are credit constrained to save for education (Box 7.2).

Other approaches

Vouchers or subsidies for training or education can relax credit constraints while enabling greater school choice or access. These are useful for TVET and higher education where there is widespread private educational provider penetration and individuals are sophisticated enough to differentiate between educational provider quality and different types of technical training. Provision of vouchers can lead to greater enrollment in education and training and improve earnings, conditional on entering a wage job (e.g. Kenya as in Hicks et al. 2013). A program in India that subsidized stitching and tailoring training to females found that participants had higher rates of employment and earnings 18 months after program completion (Maitra and Mani 2014). For these programs to be successful, vouchers and subsidies

Box 7.2: Helping Families Commit to Educational Investments

Educational commitment savings accounts are financial products that provide assistance to those that have long-term skill development goals. These accounts are for families and students who recognize the value of investing in education, but know that their choices might deviate from these goals in the short term, preventing them from making the optimal financial or skill investments.

Such accounts are useful even among poor populations. In Uganda, a randomized experiment found that a *weak* account permitting families to withdraw the money for other uses had greater deposits than a *strong* account restricting withdrawals to education only. Combined with parental informational sessions on how to support their child's education the savings accounts resulted in more household expenditure on school supplies and an increase in language and math scores (0.14 SD increase) that was just as large as some of the (presumably) more costly technology and contract teacher interventions (Karlan and Linden 2014).

Educational remittance accounts can also help improve educational investments. These are useful for countries such as Nepal, the Philippines, and Tajikistan where remittances from migrants workers account for a large portion of national income. Risk-averse migrants can reduce the amount of remittances it sends back due to concerns over usage of funds. To address this risk-aversion, Filipino migrant workers in Italy were randomly offered accounts to send remittances back to the Philippines for education. The weak account labeled the account for education, but did not put explicit restrictions on expenditures while the strong account paid remittances directly to schools. The weak account increased remittances by 15% while the strong remittance account increased payments by 17.2% (De Arcangelis et al. 2015). Given the small increase in remittances, but the much larger increase in cost of administration of the strong remittance account, the weak remittance account is viewed as the more cost-effective financial product.

The creation of these accounts can be driven by the private banking sector or be a joint initiative of the public and private sectors. Very few changes to current financial products, or additional costs for infrastructure, are needed.

should restrict provision to selected cases where programs have high enough quality to justify the investment.

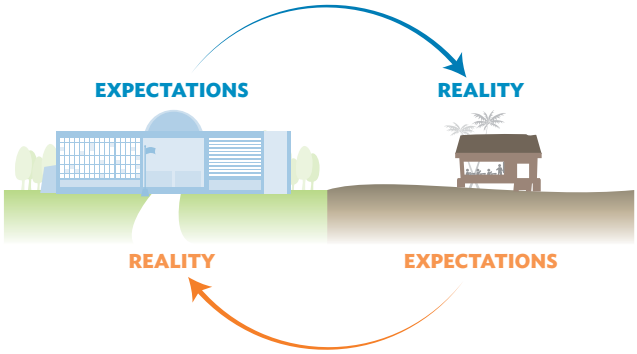
Two-step targeting of scholarships can be financially efficient (Barrera-Osorio and Filmer 2014). As children age and their abilities become more clearly developed, targeting those that are credit constrained and have greater potential is more prudent use of limited public finances. In Cambodia, a project offered primary school scholarships through a two-step targeting process that first restricted attention to individuals based on need and then within this set those based on merit. The evaluation found that only those needy students who were targeted based on merit had significant improvements in their test scores. This indicates that even well-intentioned need-based targeting is not always enough to broaden access for the most impoverished groups.

Framing messages are simple and low-cost interventions that can help risk-averse individuals to perceive borrowing as a less risky proposition and improve educational decision making. However, these policies still need to be evaluated as experiments that have shown the beneficial effects of framing to shift choice decisions have existed mostly outside education (Holt and Laury 2002; Levy-Garboua et al. 2012).

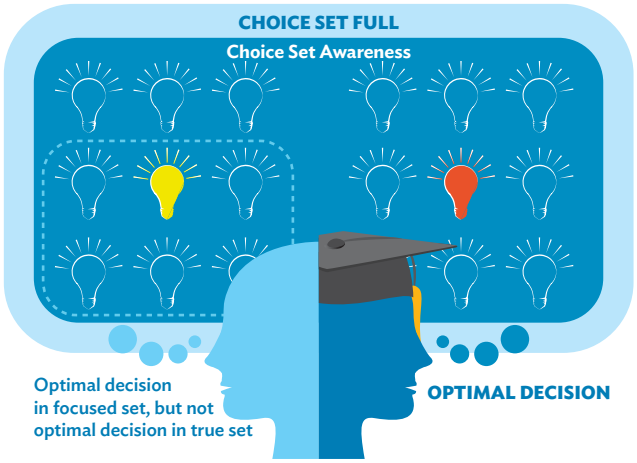
7.2 Information for students and their families

Helping people make informed choices where expectations and reality coincide

The right information is not always available for students and their families to make informed decisions, leading to suboptimal skill investments. In TVET and higher education where information especially tends to be lacking in developing Asia, the problems could be especially severe.



Informational failures where expectation and reality do not coincide can lead to less than optimal educational investments.



Bounded rationality causes people to make mistakes in educational investments.

Over- or underestimation of costs and returns to education is a problem more prevalent among disadvantaged groups. Overestimation of returns can lead to individuals and families incurring significant expenditures on education that provides little improved labor-market returns. In Chile for instance, prospective college students who significantly overestimated costs of college attendance were less likely to attend college and more likely to drop out of school. In contrast, those who overestimated earnings of past graduates were more likely to enter degree programs that provided less viable career paths, underscoring the consequences of inadequate information (Hastings et al. 2015).

Inadequate information can cause individuals to invest in technical or vocational training that does not fully match individual preferences or aspirations. This can cause promising students to focus on a very narrow scope of schools or degree programs, preventing them from fully developing their talents

or interests. Inadequate information can also cause students to rule out higher education altogether because of a misguided belief that there is no way to fund it.[20]

In the PRC, inadequate information resulted in children of poor migrant worker families overestimating the returns to continuing onto secondary education relative to entering wage labor. Thus when provided with information on wage returns to a middle-school education, a significant share chose not to pursue secondary education due to the low quality of education and burden faced in trying to finance their education (Loyalka et al. 2013). In the Dominican Republic, the lack of quality information meant that poor families initially underestimated the returns, causing them to invest in significantly more years of schooling once they received targeted information on schooling returns (Jensen 2010).

Individuals also over or underestimate the relative returns to different types of training or entering different educational institutions with varying quality. In Kenya, the provision of information on different returns to technical training improved the rates of females entering skills training in more male dominated fields such as electrical and construction (Hicks et al. 2013).

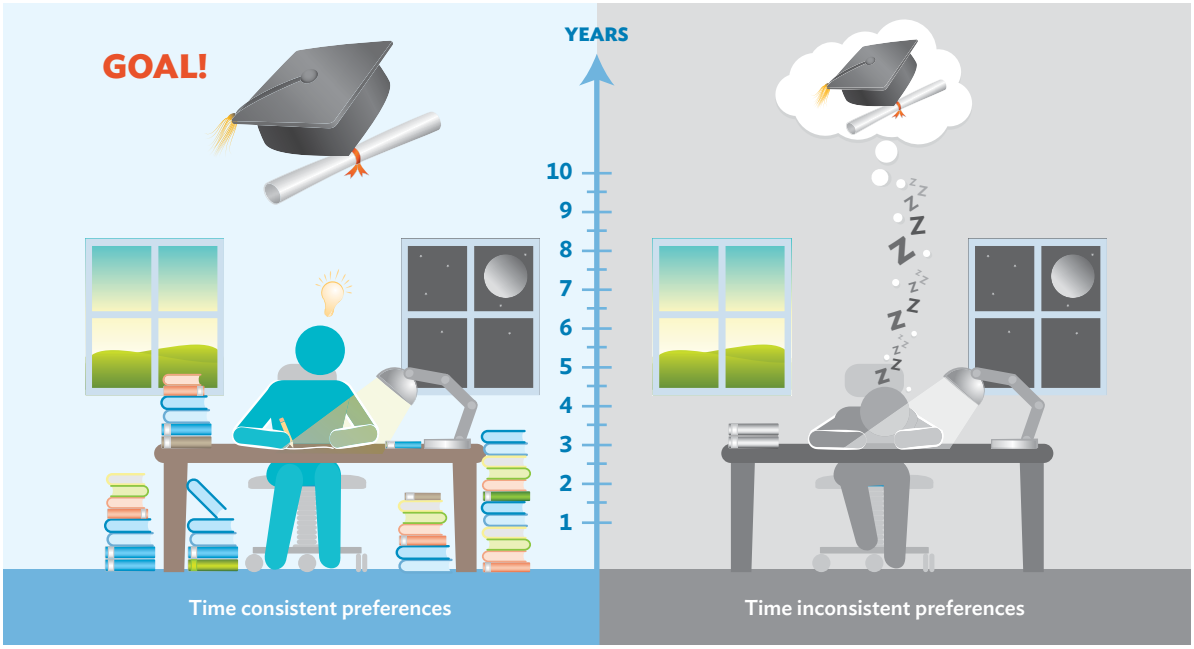
Information on returns to education, training, or educational quality can be a low-cost method to improve skill optimization among poor and disadvantaged groups. Targeted information that is credible, clear, and concise represent low-cost interventions that are valuable in helping those that have more limited social and financial resources to make better skill investment decisions (Hastings and Weinstein 2008). The information should help individuals weigh the value that additional educational investments provide given the quality of education available and career prospects over time. Policy and financial investments should be guided by analysis that helps to understand how expectations match the reality of returns to education, quality of schools, and types of skills in demand.

Career and financial-aid guidance

Career and financial-aid guidance can be important for those entering TVET and higher education. In the US these services have encouraged high-ability, low-income students to enter better colleges (Avery and Kane 2004; Hoxby and Turner 2013; Hoxby and Avery 2013). In the PRC, an intervention that provided information booklets on college costs and financial opportunities had significant effects on the likelihood that poor students applied for and received financial aid. This ultimately improved matriculation into college, pointing to the importance of targeted information.

Computerized solutions can substitute for the necessity of having to train and finance quality career counselors. Online career-counseling modules and career assessment tests can provide students with a narrower range of occupations that fit their skills and preferences. The US Department of Labor has increasingly used online tools providing individuals with the opportunity to learn about a large range of occupations, career growth, and type of training required (US Department of Labor 2015). The efficacy of developing computerized platforms makes financial sense when the expected use of the targeted population is large. Online platforms should be user friendly and the information and advice must have value added over existing knowledge. Studies indicate that those with more stable goals and clear vocational preferences derived more value from these types of computerized services, generating improvements in career decision making (e.g. Kivlighan et al. 1994). Nevertheless, as these studies are based on small samples and focus on self-reported beliefs there remains a need for further

20 *Bounded rationality* is a term used in behavioral economics to refer to the tendency of people to use rules of thumbs and defaults to make decisions when trying to sort through, perhaps too much, information leading to suboptimal decisions (Kimball 2015).



Time inconsistent preferences can lead to less than optimal investments.

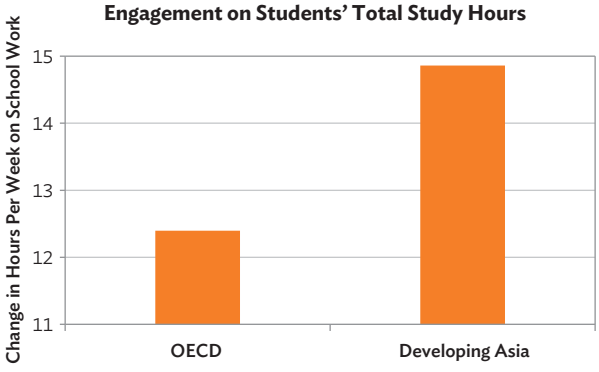
evaluations to assess if they are cost-effective models for developing economies.

Students who discount the future in comparison to the present (i.e. have present-biased preferences) may inadvertently underinvest in skill development.[21] For example, students may not study enough because they are not fully informed about how their current actions may affect their future. Children and teenagers who exhibit this behavior are less likely to study and more likely to drop out of school (Cadena and Keys 2015). Across economies, students who have parents engaged in their schoolwork invest more hours in studying that could lead to significant gains to learning (Figure 7.4). In developing Asia, students whose parents are involved in their studies spend 15 hours more on average.

Parent informational programs

Parents can face informational gaps that prevent them from fully supporting their child's learning development. Programs that provide information on a child's education—assignments, homework completion, attendance, and overall performance—can enhance parental monitoring and engagement helping their child to get more out of educational investments.

Figure 7.4: Effect of Parental Engagement on Students' Total Study Hours



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 student data.

21 Laibson (1997) and O' Donoghue and Rabin (1999) discuss the theory and consequences of these types of preferences.

Text messaging, for example, has gained ground as a way to communicate with parents. In a program where parents of disadvantaged preschoolers were sent messages on how to better engage in their child's literacy development, the program was found to have large gains to student learning (York and Loeb 2014). In the US, middle-school children whose parents were randomly chosen to receive text messages on their child's incomplete homework were 25% more likely to complete their homework, as well as to achieve significant gains in test performance (Bergman 2015).

How information is relayed matters. In a program for disadvantaged students in an urban area in the US, teachers sent weekly messages to parents on a student's performance. When the teacher communicated information to parents on what the student could do to improve in school, this increased the probability that high-school students earned course credits by 6 percentage points—a 41% reduction in the proportion failing to earn credits (Kraft and Rogers 2015). In contrast, a text messaging program that sent weekly health messages on addressing anemia to caregivers in rural areas in the PRC found that these were effective when combined with monthly quiz questions to test retention of information. This resulted in caregivers with greater health knowledge and subsequently primary school students that had gains to health and academic performance (Mo et al. 2014b).

Parental informational programs are potentially cost-effective investments that entail relatively minimal institutional resources to implement in developing economies. Given the proliferation of mobile phones throughout developing Asia, text messaging programs are low-cost solutions that could improve parental interactions with their child and enhance educational outcomes.

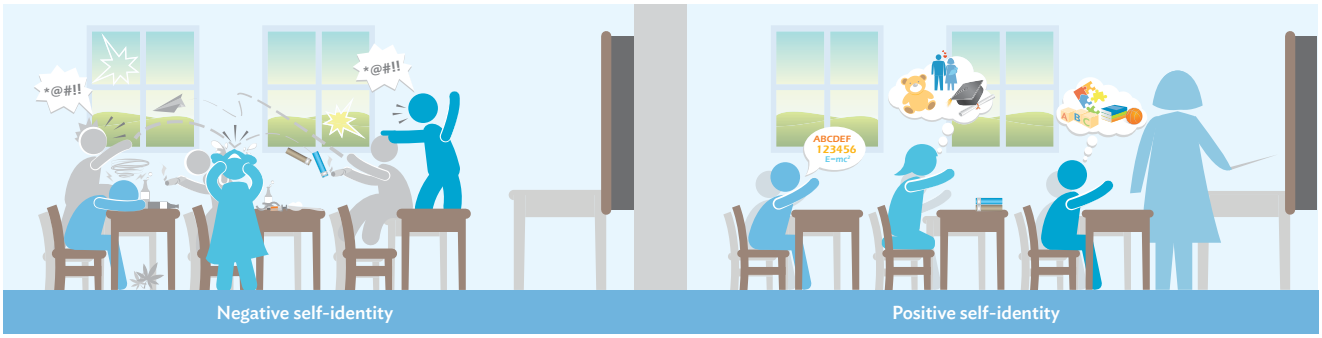
7.3 Programs for high-risk students

Diffusing detrimental behavior

Self-identity, which captures how individuals view and perceive themselves in relation to their social context, can affect test performance. A negative self-identity can cause underperformance even when an individual has higher innate skills. It can also become self-fulfilling, resulting in long-term consequences on student skill development, magnifying inequalities that have little to do with a student's real ability. In India, for example, public revelation of caste status resulted in students putting in less effort and receiving lower test scores for inferior castes than when caste status was kept private (Hoff and Pandey 2006). Even in the PRC where there is less social stratification, a randomized experiment showed that public revelation of an inferior residential status (*hukou*) resulted in a 10% decrease in test performance compared with keeping the status private (Afridi, Li, and Ren 2015).

The learning environment can have a large impact, as disruptive students with negative self-identities can prevent others from learning, lowering academic achievement of an entire class or neighborhood (Kristoffersen et al. 2015; Helmers and Patnam 2014). High-stakes learning environments can erode confidence and create anxiety, leading individuals to drop out, or in the worst case to commit suicide (Glewwe and Kremer 2006). Implementing small policies that reduce spillovers from negative self-identities in environments with high levels of social stratification are low-cost methods to improve student performance and reduce inequities that are driven more by a child's circumstances than intelligence or effort.

Mentoring or coaching is an alternative for children from disadvantaged backgrounds where parents have burdensome time constraints and other



Self-identity can influence how much students learn and perform on tests.

priorities. These programs help high-risk students to focus on positive rather than negative self-identities (*identity priming*) to enhance test performance. This can involve priming students just before tests by giving them encouraging messages that help them think about the broader picture and their self-worth rather than messages driven by cultural or socioeconomic context (Jordan and Lovett 2007). These programs can also help students stay on track and enhance awareness and attention to the long-term benefits of skill investments. A text messaging and peer-mentoring program in the US that reminded low-income students to complete the necessary tasks to enter college led to increased college entry and higher rates of degree completion (Castleman and Page 2015).

Psychological counseling can help mitigate negative self-identities associated with decreased confidence and increased anxiety arising from high-stakes learning environments and lead to increased likelihood of dropout (Glewwe and Kremer 2006). Interventions could range from low-cost volunteer solutions to high-cost solutions with professional counselors. In the PRC, counseling to junior high school students reduced dropout and learning anxiety in the short term, but was ineffective over the long run, except for those students at most risk of dropping out (Wang et al. 2014). Workplace-based programs that develop character and skills have also showed some promise in improving self-identity. Successful interventions in these areas tend to emulate the mentoring environment offered by successful families (Kautz et al. 2014).

Classroom reorganization can also reduce the consequences of negative self-identities, providing large benefits at little to no cost.[22] For example, in migrant schools in the PRC an intervention was introduced that encouraged low-achieving students to interact more with high-achieving peers; the latter were given financial rewards when they improved scores of their low-achieving peers. This intervention raised the grades of low achievers by 0.26 SD with no negative impact on high achievers (Li et al. 2014).

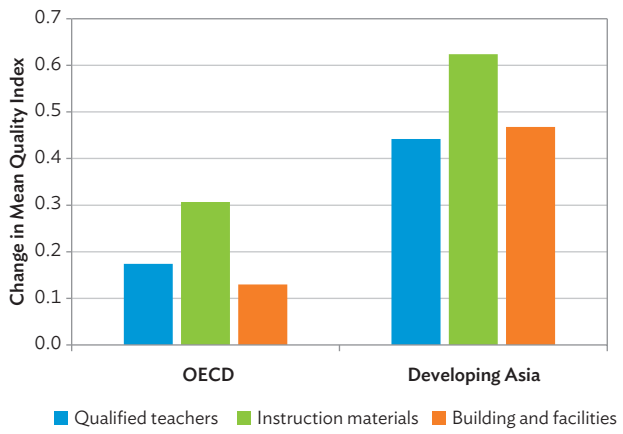
7.4 Rural–urban parity

Those who live in rural areas face some of the greatest difficulties in gaining access to quality education, but infrastructure, transport, and technology programs present opportunities to narrow disparities. In developing Asia, the gaps in educational inputs based on geography remain large, especially compared with OECD economies, as cities have far more qualified teachers, better instructional materials, and better buildings and facilities (Figure 7.5). Eliminating disparities requires investing more in educational infrastructure or adopting transport or technology programs to lower costs individuals face in gaining access.

School infrastructure provision for underserved rural populations can help increase skill development.

22 School uniforms can also help with negative self-identity. They are less of an issue in developing Asia given that many schools mandate uniforms as a policy, but elsewhere they can decrease negative self-identities (and improve student performance and learning, as in the US—Gentile and Imberman 2012).

Figure 7.5: Differences in Educational Inputs by School Location



Note: Solid columns significant at 10%. See Appendix 4 for detailed methodology.
Source: ADB estimates using PISA 2012 school data.

In Indonesia, a massive school-building program not only increased educational attainment, but also improved labor market earnings, suggesting that the value of education improved productivity enough that it outpaced the supply of additional skills (Duflo 2001).

The high cost of supplying to rural areas and maintaining quality can be extremely challenging. In some cases, boarding schools could serve as more cost-effective solutions to narrow disparities in access to quality education. Nevertheless, this comes with its own set of challenges. In Shaanxi, the PRC, the Rural Boarding School Construction Program highlighted concerns with safety, hygiene, supervision, diet, and nutrition as some of the challenges in provision at boarding schools. These students had poorer health, worse behavioral outcomes, and lower academic performance than their nonboarding peers. To improve provision, a teacher training program on caretaking was implemented to help improve student performance. While fewer students had tardiness or misbehavior outside of class, the program had little effect on academic performance or misbehavior during class (Yue et al. 2014).

In general, the need remains for innovative interventions to identify how to cost-effectively improve skill development in remote rural regions.[23]

Internet technology and online learning form one possible solution to improve educational access to rural populations conditional on students having access to technology. This can improve the variety of educational and training opportunities that eliminate the costs of commuting and still enable real-time engagement with a teacher. This becomes increasingly viable as the costs of providing internet technology continue declining and through increasing penetration of the Internet in remote rural areas.[24]

7.5 Gender equality

Discrimination is socially inefficient as it creates skill inequities and differential investments that have little to do with innate skill or talent. Cultural or social biases against females (or males) lead to inequalities and socially inefficient allocation of education and training as well as subsequent labor market outcomes. Gender disparities due to cultural or labor market biases for or against either sex can create differences in parental educational investments that have little to do with ability or skill. Gender disparities are larger among poorer populations with multiple children of both sexes. Thus expanding access and increasing incentives for families to invest in education for the disadvantaged gender has an important role in improving aggregate skill development outcomes.

A number of countries in the region have been successful in closing gender differences in secondary

23 Bike programs mentioned (see the subsection on gender equality below) is also a low-cost solution that could apply to both genders, even though that particular intervention was targeted only at females (Muralidharan and Prakash 2015). An important finding was that changes to enrollments were disproportionately higher for those living furthest away from the schools.

24 Google's Project Loon uses balloon technology to lower internet access costs in remote areas.

enrollment as measured by the gender parity index. In fact, many countries have gross enrollment in secondary education significantly over 1 (notably Armenia and Bangladesh), indicating that males have lower enrollment. Still, some economies have female enrollments far behind those of males (e.g. Cambodia and Pakistan) (Figure 7.6).

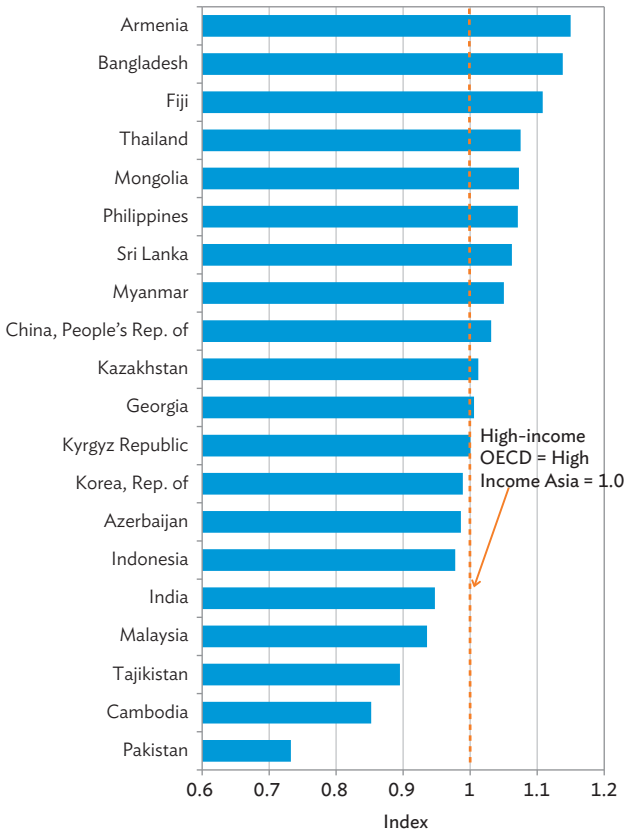
Gender-segregated classrooms or schools are useful where gender inequality is created through biases in teacher investments and can result in detrimental impacts in the allocation of gender to occupations. In Israel, it was found that girls who had teachers that favored males (based on departures in scoring in nonblind classroom exams compared with scores from a blind national exam in math and language tests) were less likely to enter science and mathematics occupations. The consequences of teacher gender biases were more severe among girls whose fathers were more educated and for those from lower socioeconomic backgrounds (Lavy and Sand 2015). Thus separating girls from boys could reduce gender biases that occur in mixed classrooms and eliminate negative self-identities that arise from differential treatment by teachers toward a specific gender. The need to better understand the effects of various interventions and identify when gender biases are prevalent could provide a more equal footing for students to access educational opportunities irrespective of their gender.

CCT programs targeted at females are a common intervention to reduce gender disparities in education. In India, a program that provided a financial grant to parents who gave birth to daughters and a long-term savings bond that could be redeemed by the daughter conditional on being unmarried at age 18 was found to have a positive effect on educational investments in the daughter (Yoong and Sinha 2009). In Pakistan, a female secondary school stipend increased girls' enrollment rates by 9% relative to those who did not receive CCTs (Chaudhury and Parajuli 2010).

Bike programs targeted at females can serve as a lower-cost alternative to reduce gender disparities. In India, an intervention that provided bikes to females conditional on school enrollment increased female attendance by 41%, reducing gender disparities by 46%. This program cost only $1 per month, in contrast to a CCT program targeted at secondary school age girls in Pakistan, which increased enrollment by only 9% and cost $3 per month (Muralidharan and Prakash 2015).

Identity priming can reduce gender disparities in test performance. Studies in the US have found that females primed to contemplate their identity as a student in a selective school performed far better than those primed to think about their sex (McGlone and Aronson 2006).

Figure 7.6: Gender Parity Index on Secondary Gross Enrollment



Note: Only data for the latest year available for each country is used.
Source: World Bank EdStats (2008–2013).

Occupational information can enhance female skill development and reduce gender disparities in wages by helping girls and women better focus on labor market opportunities. In Kenya, the provision of information on occupation to voucher recipients of TVET training resulted in increased entry into male-dominated occupations that had higher wages (Hicks et al. 2013). In India, recruiting services targeted at young women in rural villages for business process outsourcing led to significant decreases in early marriage and child-bearing. These women were more likely to enter the labor market or invest more in schooling or training (Jensen 2012).

Flexible training schedules, child care provision, location, and time of day in which training is provided are considerations in designing training programs that ensure more equitable take-up of informal training programs serving as a safety net for females from disadvantaged backgrounds. These are necessary because of expectations of female roles and responsibilities in their home and family and because of more restricted mobility that generates disparities between males and females in take-up of training programs.

Greater evaluation is needed of gender-targeted programs, especially to understand long-term effects. Just because certain programs are effective for males does not guarantee effectiveness of the training program for females (e.g. De Mel, McKenzie, and Woodruff 2009). A study that randomized business training to females in Sri Lanka found that it led to large increases in business entry in the first year, but there were few differences in business ownership compared with those that did not receive training 16–25 months after the training had ended (De Mel, McKenzie, and Woodruff 2014). There are also significant differences in training effects among females of different socioeconomic groups. In India, a business training program showed positive effects only among upper castes (Field, Jayachandran, and Pande 2010).

There are many programs that can be designed to effectively reduce gender disparities without explicitly targeting or setting quotas for female participation (Duflo 2012). For example, effective training in female-dominated sectors, such as agriculture production activities, can reduce gender differences in skill and labor market outcomes without explicit targeting. Identifying cost-effective interventions that ensure more equitable investments along gender dimensions can therefore go a long way to enhancing educational access.

Section 8. Learning On The Job

The cognitive and noncognitive skills developed on the job over 20 years of work are estimated to account for 20–60% of all skills developed, and 30–70% of wage growth over a person's lifetime, depending on the level of education obtained (Yamaguchi 2012; Heckman, Lochner, and Taber 1998).[25] Such learning on the job is therefore vital to developing a nation's skills base.

What elements encourage learning on the job? First, setting the conditions for adoption of firm training that can ensure workers continue to learn on the job. Second, following good human resource management (HRM) practices, which are vital in terms of targeted training practices, creating incentives for workers to improve their performance, and leveraging the competitive and knowledge spillovers that come from working in firms. Third, improving the efficiency in matching workers and jobs. Similar to a curriculum needing to be pitched to a student's capabilities, workers who get jobs better matched to their skills can learn far more, and better utilize the skills they have.

8.1 Training investments by firms

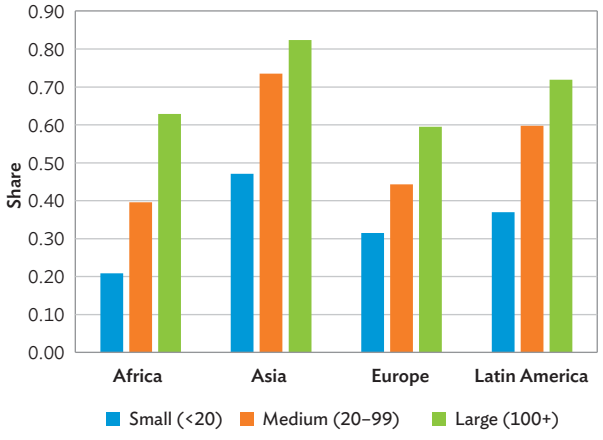
Firm training investments may account for as much as 8.6% of growth in firm productivity according to Almeida and Carneiro (2009), while panel data regressions of the World Business Enterprise Surveys provide suggestive evidence that firm training that builds worker skills is key to raising labor productivity. New technologies require training to ensure that workers can use them and promote new worker skills. Thus policies that drive technology adoption and promote the development and competitiveness of firms are important to developing learning on the job (Almeida and Aterido 2010).

Partially subsidizing firm training can enhance skills training and is warranted when employers and workers cannot adequately capture the full returns to training investments, leading to underinvestment. It can be a large part of better aligning skills to labor market demand and has strong economic returns, particularly in the form of higher wages and firm productivity (Almeida and Carneiro 2009; Blundell et al. 1999; Konings and Vanormelingen 2015). Subsidies makes sense when firm training is general enough that it develops important transferable skills at a lower cost than public sector provision and draws concretely on industry knowledge, leading to broader productivity gains (Acemoglu and Pischke 1999). More thorough evaluation is required, however, to identify the amount of training costs that should be shared between government and firms.

Regular employment and large firms are more likely to promote learning on the job

Innovation and training are more often conducted by foreign and larger firms (Figure 8.1) even if they do not always use more skilled or educated workers.

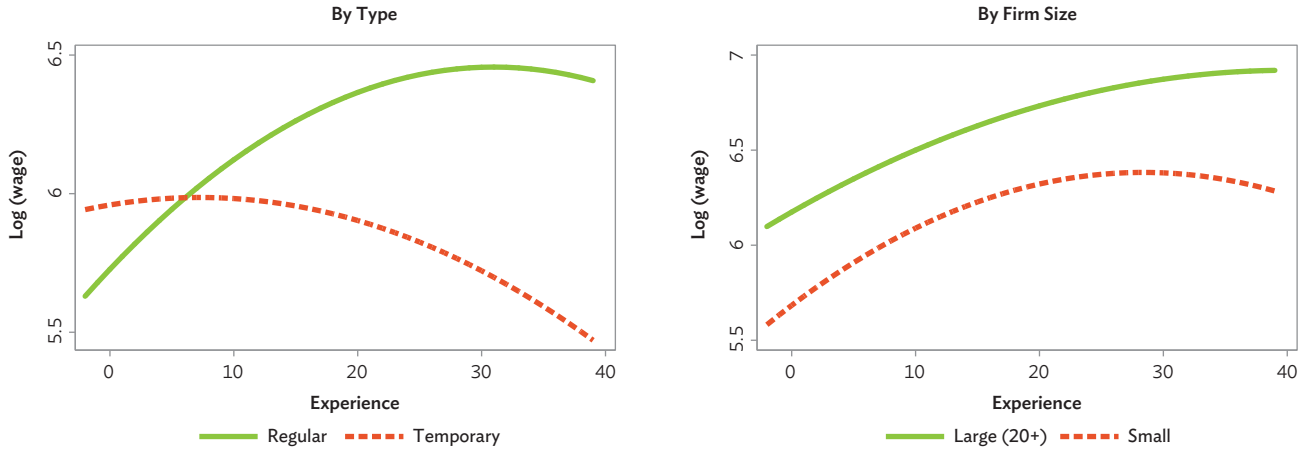
Figure 8.1: Firm Training across Global Regions by Number of Employees



Note: Only latest survey year available for each country is used.
Source: ADB estimates using the World Bank Enterprise Surveys (2006–2014).

25 Based on detailed US panel data of individuals.

Figure 8.2: Formal Wage Employment in India



Notes: Plotted wages for sample of male workers in nonpublic sector only. Estimates from log monthly wage regressions controlling for experience, squared experience, education, cohort group, and calendar year fixed effects. Left chart includes type of employment while right chart includes an indicator for the firm having at least 20 employees.
Source: ADB estimates using data from India Employment and Unemployment Survey (2000, 2005, and 2012).

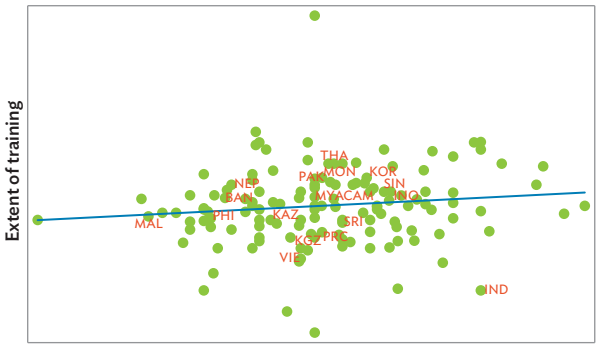
More regular as opposed to temporary jobs and jobs in larger firms seem more likely to develop learning on the job, a pattern reflected in wages rising with experience. In India for example, regular[26] jobs—providing sufficient stability that a worker could expect to remain in the firm over multiple years—in private firms are more likely to have wages that rise with experience independent of the level of education, unlike temporary jobs where wages tend to decline. In Germany—an economy with high rates of skill development and formal wage employment—highly skilled workers were found to have high returns to experience and firm tenure compared with unskilled workers who had almost no returns to experience or tenure in a sector (Dustmann and Meghir 2005). Individuals in larger firms have wages that grow more with experience than those in small firms (Figure 8.2). Thus, policies that encourage growth of larger firms and more regular jobs will likely enhance productivity and learning on the job.

Competitive labor and product markets are among the keys to developing more innovative firms that train

Several factors are key to encouraging firm training, including competitive labor markets that promote innovative firms that invest in training. This can be seen explicitly in cross-country regressions relating competition to higher rates of training (Figure 8.3).

Relaxing labor market regulations is important. Tough rules on hiring and firing and on working hours can cut into the skill premium and create distortions

Figure 8.3: Training and Efficiency of Product Markets



BAN = Bangladesh; CAM = Cambodia; IND = India; INO = Indonesia; JPN = Japan; KAZ = Kazakhstan; KGZ = Kyrgyz Republic; KOR = Republic of Korea; MAL = Malaysia; MON = Mongolia; MYA = Myanmar; NEP = Nepal; PAK = Pakistan; PHI = Philippines; PRC = People's Republic of China; SIN = Singapore; SRI = Sri Lanka; THA = Thailand; VIE = Viet Nam.
Notes: Regression residuals of competition index and training extent conditional on log GDP per capita (PPP) and country fixed effects.
Source: ADB estimates using the World Economic Forum Global Competitiveness Index (2006–2014).

26 These jobs are sometimes referred to as "permanent" jobs in labor force surveys. Their chief characteristic is that they are distinct from daily-contract jobs (or work with no contract at all, formal or informal) where the employment relationship is expected to be short term. Regular or permanent jobs are those that involve some expectation of working in the medium to long term with a firm. Thus these terms, when used, do not imply the need to introduce strong employment-protection legislation.

in demand for skilled labor. Restrictive labor market regulations were found to dull technology adoption in the highest skilled sectors while inducing it in low-skilled sectors (Alesina, Battisti, and Zeira 2015), and even temper overall demand for high-skilled labor. Tough laws that raise the costs of firing workers after a specified period create disincentives for firms to hire more regular labor on a longer-term basis and disproportionately favor temporary and contract labor (Nataraj et al. 2014).

Enforcing contracts is a precondition to ensure that written legal agreements are binding. It can improve firm sponsorship of training by helping firms capture more of the returns to training. However, the more complex the training, the more difficult it becomes to write a contract to guarantee the quality of training. In these cases, sophisticated, but costly, monitoring programs are required to ensure quality training. Much of the success of vocational education programs in Germany is argued to stem from the regulatory and monitoring environment (Dustmann and Schonberg 2012).

Removing trade barriers can enhance competition by eliminating policies that favor less productive domestic firms over foreign firms. By opening economies, domestic firms are forced to compete and upgrade their productivity to survive. Removal of trade barriers has had significant effects in enhancing firm productivity and strengthening labor demand (Hasan et al. 2012; Nataraj 2011).

Removing small-firm promotional policies that disincentivize enterprise growth is important for competition. Policies that favor small firms under the premise that they are the primary generators of jobs in developing economies and are needed to level the playing field can have unintended consequences if not appropriately designed. Unless they are young firms, many small firms are run by individuals who would be more productive as wage workers as they are not "capitalists in waiting" (Banerjee and Duflo 2008). Policies to help smaller firms overcome various types of market failures may inadvertently discourage more dynamic firms to enter the market or lead to consolidation of market share by larger, more productive firms that are better able to generate productive and relatively well-paying jobs. Interventions should provide only short-term support targeted toward young, small firms rather than broadly favoring all firms that are small.

Regulating monopolies (via antitrust policy) is important for maintaining a competitive market environment. The process entails evaluating and removing unnatural barriers, created by monopolies, that prevent new firm entry and competition, whether domestic or foreign. Such regulation requires strong institutional commitment and financial resources to review and break up existing or potential monopolies and capacity to evaluate the market power of firms. These requirements could make this type of policy a much greater challenge to implement in developing Asian economies where even applying simpler policies, such as a one-stop shop for business registration, remains difficult.

8.2 Human resource management practices

Pushes employees to reach peak performance to create better conditions for learning on the job

HRM involves business practices that set guidelines and expectations for workers. It aims to incentivize workers, improve retention of highly skilled and motivated workers, while dismissing consistent underperformers to reach optimal labor productivity. An effective HRM system sets targets, collects data to measure progress, and rewards workers through bonus payments, training and promotions. HRM is therefore essential to developing greater learning on the job. The most effective HRM systems leverage knowledge spillovers to improve worker skill development and generate greater productivity gains (Box 8.1).

Box 8.1: Diffusing Knowledge

The structure of the work environment can enhance knowledge spillovers that generate greater learning on the job. A study of medical research scientists found significant knowledge spillovers within firms leading to enhanced firm performance (Waldinger 2013). In organizations such as universities where individuals work more in self-contained environments, knowledge spillovers may be determined more by topic of research rather than physical or social space (Azoulay, Graff-Zivin, and Wang 2010). Thus the incentives individuals face, as well as how the firm or institution is organized, affect knowledge spillovers.

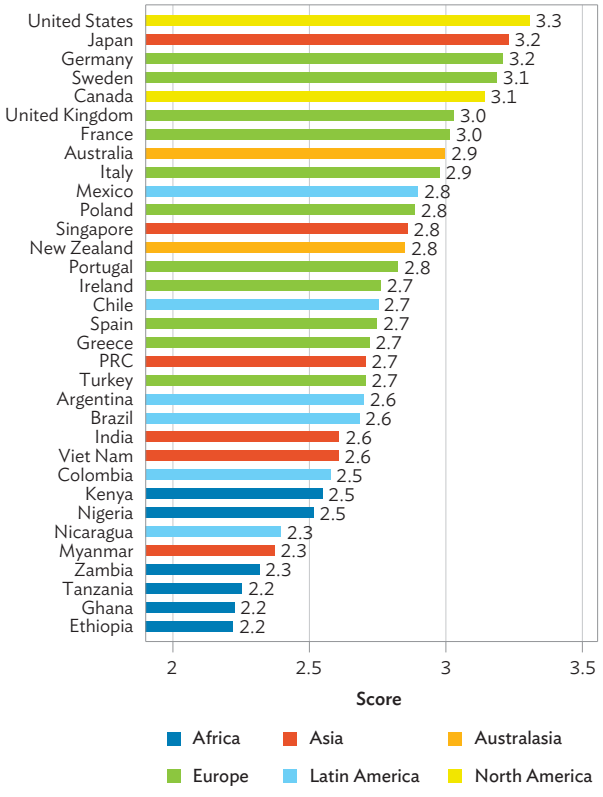
Workers in large firms are better placed to develop skills due to opportunities for collaboration that enables information and knowledge to flow. Independent or self-employed workers in developing economies have fewer such opportunities, which is one reason why collaborative work spaces and communities for entrepreneurs hold promise (Waber, Magnolfi, and Lindsay 2014). These types of environments are starting to crop up in economies throughout Asia—India, Indonesia, Malaysia, Thailand, and Singapore are just a few of the places known to have them. They are intended to stimulate larger work environments by bringing together multiple entrepreneurs working in complementary areas, so as to facilitate knowledge spillovers. Small business groups and business-facilitation communities provide a secondary means to enhance the cross-flow of knowledge between entrepreneurs and the self-employed.

Developing work conditions that leverage knowledge spillovers for seemingly disparate entrepreneurs could be one step that developing economies can take toward helping innovation and learning to thrive.

However, HRM practices in developing Asian economies are often behind the curve. Although the top manufacturing formal sector firms in developing economies tend to be in line with the best HRM practices globally, there is a long-tail of formal firms with poor HRM practices that draws down the average HRM score. Out of 33 developed and developing economies worldwide, the PRC, India, Myanmar, and Viet Nam were ranked in the bottom half (Figure 8.4). These rankings imply less than optimal skill development on the job which could arise because of the larger share of employment in small, informal firms.

Returns to adopting HRM can be substantial and should therefore not be viewed as a main barrier for firms to developing greater learning on the job. In India, managers of medium-sized manufacturing firms randomly selected to receive training in HRM and provided with performance-based pay saw a 17% gain in labor productivity within the first year of training (Bloom et al. 2013). Declines in computer and internet costs are increasingly improving returns to HRM and have helped speed adoption (Bloom et al. 2013; Bloom and Van Reenen 2010). Better HRM is shown to be closely linked to higher levels of productivity and profitability in a large range of studies (Bloom et al. 2012; Black and Lynch 2001; Oyer and Schaefer 2011; Syverson 2011). Incentivizing workers by having them share in the gains from additional effort is the most important aspect of HRM in raising productivity, but relies on tracking worker output (Cappelli and Neumark 2001).

Figure 8.4: Average Management Scores among Manufacturing Firms



PRC = People's Republic of China.
Source: Bloom, Sadun, and Van Reenen (2015). Management practices data covers various years (2004–2014).

Encouraging better HRM practices in smaller firms that are more typical of the firm size in many developing economies can be valuable to developing learning on the job, and are also aligned with firm objectives as they can generate productivity gains. A recent employer–employee matched survey in Viet Nam on micro and small firms (with 44 employees on average) provides evidence that HRM is important even for small firms. Better HRM practices were correlated with higher labor productivity and lower probabilities of skilled workers expecting to leave the firm (Chun and Villanueva 2015).

Sharing information on returns to HRM could induce greater adoption of HRM that promotes learning on the job as there could be informational gaps in the benefits of adopting better HRM. Owners and managers of medium-sized and large firms in India were found to be generally aware of HRM, but 45% of these firms were skeptical that HRM adoption could increase profitability by improving product quality and reducing costs.

Incentivized managers with sufficient skills and autonomy to make critical decisions could speed the adoption of HRM. Incentives could range from profit-sharing arrangements to promotional opportunities. Managerial incentives are necessary to address, as implementing better HRM entails undertaking costly actions to monitor worker effort (Bloom and Van Reenen 2007; Lazear 2000; Moretti and Perloff 2002). In India, a study using a representative panel of firms suggested that managerial bonus payments were a far more important factor in explaining differences in firm productivity than incentivized workers (Chun and Lee 2015). Managerial characteristics, namely openness to new ideas and willingness to take risks, are also found to be important determinants of adoption of HRM (Bloom and Van Reenen 2007).

Improving competition through regulating monopolies, relaxing trade barriers, and reducing overly restrictive labor regulations are beneficial in speeding the adoption of HRM in addition to promoting firm investments in training. Even when firms know that HRM can improve practices, many are slow to adopt it. Weak product and labor markets with little competition allow badly managed, less productive firms to survive. Across countries and sectors, more competitive sectors have much higher levels of HRM (Bloom et al. 2013).

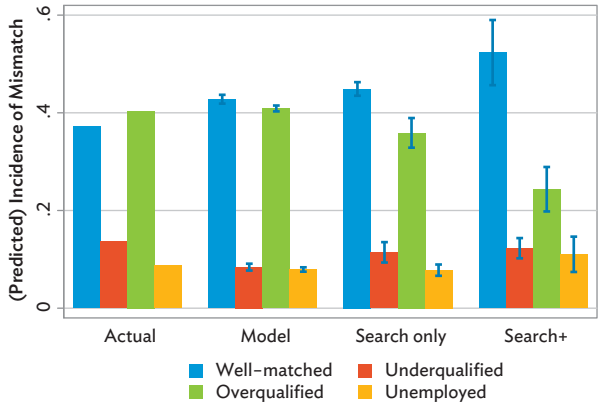
8.3 Matching workers and jobs

Labor market frictions by gender, race, caste, or socioeconomic status prevent individuals from entering occupations for which they have a comparative advantage and diminish productivity. These have long-term consequences for job development and reduce learning on the job. Improving the matching process, including eliminating search costs and difficulties in certifying skills, can improve worker opportunities to develop skills that better match their qualifications and capabilities to enhance aggregate productivity. Search frictions can account for up to nearly half of all overqualification mismatches (Figure 8.5).

Overqualification mismatches result in penalties in wage returns that can have long-term consequences to life-time earnings, not to mention dulled incentives to develop learning on the job (Sattinger and Hartog 2013; Allen and van der Velden 2001). Analysis indicates that individuals who are poorer and are female are more likely to be overqualified even after accounting for cognitive and noncognitive skills and level of education (Chua and Chun 2015). Thus, targeted labor market programs to reduce search frictions can help to improve matching and subsequent learning on the job. The effects can be substantial as analysis indicates that in urban Asian economies search frictions could be a major factor in up to half of all overqualification mismatches (Figure 8.5).

Employment services can reduce employment search costs resulting in more efficient allocation of labor—better matching people to jobs. One of the major barriers to search arises because workers, more often poor, do not live close to most of the available

Figure 8.5: Effects of Eliminating Search Frictions on Labor Market Mismatch



Note: See Appendix 4 for detailed methodology.
Source: ADB estimates using World Bank STEP Skills Measurement Surveys for Armenia, People's Republic of China (Yunnan Province), Georgia, the Lao PDR, Sri Lanka, and Viet Nam.

jobs nor have adequate networks or information to find out about viable job opportunities. Providing information on available jobs can help. For example, in the rural Philippines the impact of attending a job fair increased the likelihood of looking for work in Manila (the capital and primary generator of jobs in the country) and formal employment 10 months after the job fair, pointing to the beneficial effects of providing job information (Beam 2013). Nevertheless, solving informational search frictions is not always the solution to improving job matches. As another study in the rural Philippines shows, facilitating job search abroad through information on available jobs and assistance with filling out forms and gathering documents provided no increased probability of international migration over a 2-year period (Beam, McKenzie, and Yang 2014).

Transport subsidies can reduce labor market search costs. Recent studies provide evidence that transport subsidies to the poor can raise the intensity of job search: in the US, intensity of search was 19% larger for those receiving subsidies relative to those who did not receive subsidies (Phillips 2014). In Ethiopia, transport subsidies increased the probability of employment by 6 percentage points in the short term (Franklin 2015). Such interventions hold promise, if administrative costs can be lowered while maintaining an effective targeting mechanism.

But what if workers themselves are not interested in the jobs offered? An evaluation in Jordan—an economy with high youth unemployment —found that a job-matching service that lowered search costs for both employers and youth was unsuccessful. Out of 1,000 possible matches based on employer requirements and youth skills, only nine matches were made in which job candidates accepted a job offer by a firm (Groh et al. 2015). A major reason was youth aspiration: they were primarily interested in high-status jobs and failed to even appear for job interviews that had low prestige.

Reasons for minimal job matches, however, may also suggest the need for other interventions that provide incentives to employers to hire workers or develop critical interviewing skills. But, a study that investigated subsidies to employers, training in noncognitive skills, and a combination of both, for female junior college graduates in Jordan found that subsidies had only short-term effects on employment but these were not sustained over the longer term (Groh et al. 2012). Such expectation mismatches could drive higher rates of youth unemployment in developing economies—such as Armenia, Georgia, and Fiji— with already high rates of unemployment and less informal or self-employment.

Helping youth to transition faster into decent jobs is complex. Greater evidence on effectiveness of interventions that can help youth to better adjust to labor market realities is needed to speed the transition into jobs where youth continue the learning process.

Standardizing skill certification and occupational licensing that uses standardized tests to measure skills will create greater incentives for individuals to develop real skills. These programs can have broad effects, better ensuring that TVET and higher education focus on developing critical and relevant occupational skills. In the US, occupational licensing has proven benefits for employment and pay outcomes (Gittleman, Klee, and Kleiner 2015). Standardizing skill certifications and occupational

licensing improves matching between workers and employers. This is because it enables employers to obtain a clearer signal of true ability that cannot be assessed from non-standardized qualifications and certifications. This diminishes perverse incentives for individuals to undertake costly educational investments to signal their ability when employers resort to screening based on level of education because they are unable to differentiate between a vast number of possible candidates. These types of programs can significantly improve welfare, especially for those who could find it harder to pay for higher education, and help promising candidates to get into jobs that induce greater learning.

Occupational licensing and skill certification programs allow individuals to signal or demonstrate competency, with occupational licensing placing explicit entry barriers into certain occupations. However, in many economies certification has largely been ad hoc and based on passage through certain programs rather than on a true measure of skills possessed. These programs need to impose clear and credible international or national standards for skill recognition, certification, and occupational licensing programs.

Once the credibility of these programs is acknowledged, they can help individuals enhance their marketability and occupational mobility. Over the long term, they can generate greater incentives for firms to sponsor outside training if there are clear skill targets that are seen as important for workers to have to enhance their productivity (Acemoglu and Pischke 2000). Quality of national governance is paramount though, as bad regulation could see proliferation of fraudulent degrees and low-quality educational providers.[27]

Although skill-recognition programs are usually costly and require close coordination among employers and vocational education institutes, they can potentially be outsourced to private companies. India Skills Private Limited, for example, has developed assessments and experts to measure skills in 72 vocations and trade with the intent of creating an independent and credible certification agency to measure the quality of technical skills. These types of firms hold promise in developing Asian economies—where weak institutions have eroded the value of many TVET certifications—by helping to reduce the "noise" that prevents individuals from clearly signaling their actual skills.

Standardized certification programs are increasingly feasible through modularized online learning and digital programs, circumventing traditional barriers and costs to access (Weise and Christensen 2014). Through these programs, individuals can update their skills, remain in work, and continue to learn, while having the flexibility to take the time they need to master a skill. Certification by this route requires self-discipline, but incentives tied to worker productivity and competitive labor markets can motivate workers to continue to learn and develop greater skills on the job. Coursera and EdX are just two examples of such programs. Nevertheless, these programs still need to evolve to ensure that they are accessible to a wider population not only by providing a more diverse set of skill training, but by ensuring they are available in a wider set of languages.

Online learning and digital certification programs are seemingly the future for "democratizing" learning on the job. With standardized and credible mechanisms for verifying certification, these programs can help lead to better matches between workers and jobs, and ensure continued learning on the job.

27 For example, in Pakistan a recent "university" was exposed as simply a diploma mill, developing very few student skills (Walsh 2015).

Section 9. Concluding Remarks

To meet current and future labor market demands and maintain human capital competitiveness in an increasingly globalized world, fostering cognitive and noncognitive skills is essential. These skills set the foundation to easily acquire new technical skills that enable adaptation to changing labor market and occupational demands. Technical skills are primarily important in high-skilled managerial and professional occupations and some nonroutine occupations, but each country must undertake careful assessments as technical skills largely depend on the industrial structure of labor market demands.

Enhancing skill development to improve the quality and relevancy of skill in developing Asia will take commitment, vision, and coordination of the disparate groups involved—policy makers, practitioners, researchers, students, families, and firms. To increase the relevancy and quality of skill development these groups will broadly want to direct their efforts along the following lines:

Policy makers must focus more on developing the basic preconditions for better governance of educational institutions to maximize efficiency of financing. This means policy makers must make key decisions on financing and curriculum design and delivery that are guided by robust data metrics for monitoring, performance evaluation, and ensuring accountability of teachers and schools to enhance skill outcomes. With the reduction in costs of management information systems that can aid in data collection and analysis, financial reasons should increasingly be less of a barrier to adoption.

Practitioners should design programs that incorporate theories of change and results from rigorous evidence. As the effectiveness of specific programs differs depending on cultural and social conditions, pilot evaluations should be undertaken to provide critical information to develop workable and cost-efficient approaches that maximize skill outcomes before taking projects to scale. One promising solution is to invest in technologies with quality content as they provide the ability to democratize education, as hardware and software costs have declined dramatically and digital content development has cost-efficiency effects over large populations.

Researchers play an important role in filling gaps in knowledge to improve labor market relevant skills and identify how to structure investments in education for TVET and higher education. There needs to be greater consensus and attention to designing and measuring cognitive, noncognitive, computer and technical skills that capture absolute skill development as well as changes over time. Skill measures are inherently important for evaluating cost-effectiveness of educational investments that can lead to long-term labor market advantages. Developing metrics that optimally align incentives of teachers and schools with long-term enhanced learning outcomes can help to get more out of traditional forms of educational provision.

Students and families need to advocate for transparent and credible information that is critical to making more informed skill investment decisions that can impose accountability on schools and help students to achieve greater access to quality education.

Firms or industry representatives need to get involved in curricula design and delivery, particularly in ensuring accountability of training providers, as they are important beneficiaries of skill-linked productivity gains.

Appendix 1: Growth Regressions and Projections

Data and data sources

Test scores as measures of cognitive skills

The Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) are two international surveys that provide comparable and timely data on reading, mathematics and science achievement of students across the globe. In the analysis, all the PISA years from 2000 to 2012 were covered, while TIMSS covers 2003 to 2011. In both sets of data the average age range is 14–15 years in which skills are tested. The skill measure used was the average of science-mathematics scores averaged over the entire time period considered within a country and is intended to capture a country's level of cognitive skills.

To date, around 70 economies have taken part in the assessments. The two tests use similar structure and scaling methods to measure the aptitude of the students on a 1,000-point scale. To demonstrate the importance of top-level skills and basic-level skills in long-term economic development, the threshold of Hanushek and Woessmann (2015) was used to examine top-level skills (the share of students scoring above 600) and basic-level skills (the share of students scoring 400–600).

Years of schooling (Barro-Lee)

The Barro-Lee dataset provides cross-county information on educational attainment for 5-year intervals covering 1950 to 2010. As data is not complete for all countries, interpolation and extrapolation was used to fill in missing observation years. This study uses the average years of schooling of the population aged 15 to 64 over 1970–2010 to represent the quantity of education held by the workforce over the time period of analysis. While initial human capital in 1970 was also examined, it did not drastically alter the signs or magnitudes of the effects.

PWT's gross domestic product per capita

The National Income data for the period 1970–2010 were extracted from the Penn World Table (PWT) database version 8.1. PWT database provides cross-country information on relative levels of income, output, inputs and productivity, with period coverage depending on the release. In this study the output-side real GDP per capita at chained PPPs across countries and over time was used.

Growth model

A standard growth model used by Hanushek and Woessmann (2008) examines the effect of the quantity and quality of education on growth. Specifically the following model was estimated:

$$Y_i = \beta_0 + \beta_1 G_i + \beta_2 S_i + \beta_3 T_i + \varepsilon_i \quad (1)$$

where Y_i is the average GDP per capita growth rate for country i for the period 1970–2010. G is the variable used to denote the initial income level (GDP per capita) of the country, S denotes the average years of schooling from 1970–2010 of a particular country, T represents the standardized average test score of a country and ε is the error term capturing the variability not explained by the explanatory variables. Initial income is included as it is one of the most important controls in standard growth regression models.

To capture the relative importance of both top- and basic-level skills on economic growth, the average test score in equation (1) was replaced with the share of students with scores above 600 denoted by H for country i and the share of students with scores between 400 and 600 denoted by M.

$$Y_i = \beta_0 + \beta_1 G_i + \beta_2 S_i + \beta_3 H_i + \beta_4 M_i + \varepsilon_i \quad (2)$$

Appendix Table 1: Result: Schooling, Skills and the Relationship with Economic Growth					
Variables	(1)	(2)	(3)	(4)	(5)
	Average GDP per capita Growth Rate (1970–2010)				
Initial Income (1970 GDP per capita)	-0.219***	-0.245***	-0.263***	-0.248***	-0.234***
	(0.048)	(0.043)	(0.049)	(0.046)	(0.056)
Average years of schooling (1970–2010)	0.390***	0.141	0.167	0.126	0.393***
	(0.102)	(0.091)	(0.114)	(0.092)	(0.114)
Average test score (standardized)		1.491***	1.329***		
		(0.230)	(0.329)		
Share of students with a score of 400–600				3.254***	
				(0.917)	
Share of students with a score of above 600				5.772***	
				(1.024)	
Share of secondary TVET students					0.011
					(0.013)
Constant	1.597**	3.968***	3.792***	1.459**	1.493**
	(0.630)	(0.556)	(0.741)	(0.559)	(0.630)
Observations	59	59	59	59	54
Regional Dummies	NO	NO	YES	NO	NO
R-squared	0.287	0.506	0.531	0.506	0.2763

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: ADB estimates using data from Penn World Table Version 8.1, Barro-Lee Dataset (1970–2010), PISA and TIMSS science-mathematics test scores (2000–2012), and World Bank EdStats, using approach by Hanushek and Woessmann (2008).

Output from the regression estimates is displayed in Appendix table 1. The country sample excludes countries affected by civil war (e.g. eastern European economies and those of the former Soviet Union) over 1970–2010 resulting in a final sample of 59 countries. These regressions are not causal. Many other important factors that could also explain growth are omitted from the regression framework. However, inclusion is difficult due to the small sample size. However, the effect of skills (test scores) on growth tends to be substantially robust to inclusion of additional factors such as property rights, trade openness, and regional controls. The results are also robust to dropping the East Asian Tiger economies (the Republic of Korea; Singapore; Taipei,China; Hong Kong, China) from the sample suggesting that there is a strong relationship between skills and growth.

To investigate the importance of technical vocational education and training (TVET) programs in fostering higher economic growth the following regression model is run:

$$Y_i = \beta_0 + \beta_1 G_i + \beta_2 S_i + \beta_3 V_i + \varepsilon_i \qquad (3)$$

In this regression, V is the share of secondary TVET students, controlling for the initial GDP per capita G and average years of schooling S for country i.

Added-variable plots

The plots are graphical representations of the regression results shown in Appendix table 1. In Figure 2.8 the residual of years of schooling is graphed with the residual of growth after taking out the effect of initial income (GDP per capita in 1970) with the slope corresponding to estimates between years of schooling and growth in model 1. The figure implies that an additional year of schooling is significantly associated with a 0.39 percentage point increase in the average long-run growth.

In Figure 2.10 (left panel) the residual of skills (test scores) is graphed with the residual of growth after taking out the effect of initial income and years of schooling with the slope corresponding to estimates between skill and growth in model 2. In Figure 2.10 (right panel) the residual of years of schooling is graphed with the residual of growth after taking out the effect of initial income and skills with the slope corresponding to estimates between

years of schooling and growth in model 2. The two graphs suggest that skills matter for growth more than the years of schooling as the positive effect of education nearly disappears once controlling for skills. Concretely, a one standard deviation increase in test scores (equivalent to 100 points on PISA or TIMSS) is associated with a 1.49 percentage point increase in long-run growth.

Figure 5.3 displays the residual of the share of secondary TVET students and the residual of growth after taking out the effect of initial income with the slope corresponding to estimates between share of secondary TVET students and growth in model 5. The figure shows that the share of students enrolled in secondary TVET is not significantly associated with long-term growth after controlling for years of education and initial income.

Growth projections

Various educational reforms were simulated under the assumption that it takes 15 years for any reform to be implemented. These reforms aimed to raise the average years of schooling of the workforce and/or performance on international tests (PISA and TIMSS) following a similar methodology to Hanushek and Woessmann (2010).

The following are GDP growth scenarios used in the simulations:

Scenario 1. Raise the average years of schooling of each developing Asian country to the average years of schooling of high-income OECD economies. This is equivalent to increasing the years of schooling of developing Asian countries by 3.6 years on average, from 8 years to 11.6 years.

Scenario 2. Raise the share of students with score above 400 to OECD level (85%)

Scenario 3. Raise the share of students with score above 400 and 600 to OECD levels (85% and 15%, respectively)

Using estimates from an updated growth model (1970–2010), each developing Asian economy starts the reform in 2015 and full implementation occurs by 2030. It requires many years for the full effect of the reforms on economic growth to take place as human capital in the workforce must be slowly replaced. Following Hanushek and Woessmann (2010) it is assumed that the working life for individuals in the economy is 40 years and the specific phases of reforms take place as follows:

Phase 1 (2015–2030). The first phase is the educational reform implementation phase where the effect of the reform on GDP growth is assumed to be linear. The additional growth in GDP per capita brought about by the reform in year t is given by:

$$\Delta^t = Growth\ coef * \Delta\, Test\ score * \frac{1}{working\ life} * \frac{t-2015}{15} + \Delta^{t-1}$$

where the growth coefficient comes from the above regression results (model 4 for scenarios 1–3).

Phase 2 (2031–2055). The education reform is fully implemented, and achievement of all subsequent students remains at the new level. However, there are still workers with initial levels of skills and education being replaced in retirement by new entrants to the labor force with higher level of skills. During this phase, the additional growth in GDP per capita in year t is given by:

$$\Delta^t = Growth\ coef * \Delta\, Test\ score * \frac{1}{working\ life} + \Delta^{t-1}$$

Phase 3 (2056–2070). The first 15 labor-market cohorts, which only partially benefited from the education reform, are replaced by those who benefited from the fully enacted education reform:

$$\Delta^t = Growth\ coef * \Delta\, Test\ score * \frac{1}{working\ life} - (\Delta^{t-40} - \Delta^{t-41}) + \Delta^{t-1}$$

Phase 4 (2070+). During this final stage the whole workforce has gone through the reformed education system. Thus the annual growth rate is now increased by the constant long-run growth effect Δ:

$$\Delta^t = Growth\ coef * \Delta\ Test\ score$$

GDP growth with and without reform

Without reform: the economy grows at the constant potential GDP growth rate (equivalent to predicted Y in equation (2)) such that:

$$GDP^{\,t}_{no\ reform} = GDP^{\,t-1}_{no\ reform} * (1+potential\ growth)$$

With reform: there would be an additional growth Δt on top of the potential GDP growth rate:

$$GDP^{\,t}_{reform} = GDP^{\,t-1}_{reform} * (1 + potential\ growth + \Delta^t)$$

Total effect of the reform to 2045

The total value of any reform is computed as the sum of the discounted values of the annual differences between the GDP with reform and the GDP without reform:

$$Total\ Value\ of\ reform_{\{2015,\ 2045\}} = \sum_{t\ =\ 2015}^{2045} (GDP^{\,t}_{reform} - GDP^{\,t}_{no\ reform}) * (1 + discount\ rate)^{-(t-2015)}$$

Where the discount rate is assumed to be 5%. This formula was used to calculate the cumulative percentage increase in GDP per capita levels by 2045 as shown in figure 2.11.

$$Percent\ Change = \frac{Total\ Value\ of\ reform_{\{2015,2045\}}}{GDP\ per\ capita_{2015}} * 100$$

Appendix 2: Education and Skill Development System Indicators Construction and Analysis

The questionnaire used as the basis for the indicators was constructed based on a thorough literature review of research that found causal evidence between certain types of programs and enhanced outcomes, particularly in terms of measured skills (primarily cognitive). The literature review is detailed in much of Sections 3 through 8. The questionnaire was designed to assess a country's performance in different areas of skill development covering both national policy legislation and investments and for different education levels: basic and upper secondary, technical vocational education and training (TVET), and higher education. Questions covered the five major areas discussed: governance, financial efficiency, educational quality, educational access, and learning on the job. The survey questionnaire was designed to systematically encode a country's level of development where higher values were associated with better quality or breadth of implementation for areas that are seen as potentially important for skill development, but where no objective data exists.

To fill out the questionnaire, a team of consultants undertook a desk review of government reports and country documents for 78 economies for basic education and 22 developing member economies for all other skill areas. Referenced documents included UNESCO, World Bank SABER, UNEVOC, OECD and ministry of education websites. For aspects of the questionnaire where information was difficult to obtain or there were conflicting reports by different sources, country experts were consulted. The most recent source documents and databases were used in the documentation process (i.e. within the last 5 years).

Indicators of skill development

Indicators that were used in the analysis and presented in Table 3.1 were created using simple averages of encoded values from the questionnaire and objective data that comes from primarily the UNESCO Institute of Statistics (UIS) and the World Bank's World Development Indicators (WDI) database. The composites were generated using what were viewed as logical groupings for various indicators given the literature review, but future work could consider construction based on factor analysis that would provide groupings based on actual variations in the data. These composite indicators are described in further detail below. However, for a detailed mapping of indicators into values and a country by country documentation of the various indicators please see the background paper of Chun, Elepano, and Florentino (2015).

Public educational expenditure as % of GDP (National)

This is an objective indicator drawn from the WDI database and covers the entire educational sector as there were fewer values available for different levels of education.

Data for evidence-based policy decisions (National)

This is a composite indicator of data needed to make the right types of skill investment decisions at the national level. Specifically, this requires getting detailed data on numbers enrolled in different levels of education and for different types of technical training, attendance rates, and whether an economy measures skill outcomes either at a nationally or internationally comparable basis. It also entails collection of data on disadvantaged populations (whether by gender, ethnicity, or socioeconomic status) that are important for targeting disadvantaged groups. Finally, the indicator captures collection of data on key occupations demanded by the labor market through vacancy rate data that can inform the need for different types of technical

skill investments. For each of the indicators, both the method (i.e. paper-based or digital) and the timeliness of data collection (i.e. annually versus less than annually) were evaluated. The indicator also includes a component that measures the availability of legislation or a designated institution that oversees the audit of data collection, manner of audit, and the percentage of schools subjected to audits.

Information (Basic education, TVET, higher education)

These are composite indicators of data used for imposing accountability that allows for monitoring and evaluation. It captures four types of data:

1. Enrollments, dropouts, attendance, certification, skill outcomes, graduation and employment rates that are generated at the school or teacher level.
2. Public reporting of different educational inputs such as teachers, equipment, extracurricular programs that are supposed to be delivered based on public financing, and the level at which the information is available (regional, district, or school level).
3. Inputs on the degree to which information is provided directly to parents on student performance as well as school performance (compared to other schools in a region) as measured by nationally standardized exams. This is seen as essential for parents to monitor and impose accountability on schools, and to monitor the performance of their child to make sure they get the right type of help.
4. Availability of career guidance counselling at different education levels. This information is important to improve individual decision making on the types of skills to invest in and to enhance access to higher levels of education.

Similar to data for evidence-based policy decisions, it evaluates whether data are collected digitally. This informs the ease at which critical analysis are conducted and policies tied to accountability are imposed. Accountability requires greater timeliness in data collection than collection that occurs for national level policy decisions (e.g. quarterly).

Early childhood education (ECE) (National)

This is a composite indicator that includes the amount spent on ECE as a share of GDP obtained from the UIS database. It also includes indicators that capture the extent to which ECE is broadly provided for the general public and the start age at which provision occurs.

Emphasizing technical education (National)

This indicator, drawn from the UIS database, captures the share of secondary students enrolled in TVET out of all secondary students. These ideally would be supported by measures of financing given to TVET both at the secondary and tertiary levels, but currently this type of data was not found to be available.

Competitive markets (Learning on the job)

This comprises two composite indicators that come from the Global Competitiveness Indicators database (2015) representing quality of institutions in terms of contract enforcement and market competition (composite indicators 1 and 6).

Firm training investments (Learning on the job)

This is an indicator of average share of firms investing in training as drawn from the World Bank Enterprise Surveys where the latest year of data for a country was used.

Matching workers to jobs (Learning on the job)

This is a composite indicator that captures if the country has skill recognition and occupational licensing programs, employment programs that help facilitates worker and employer job matching, and government-supported job websites.

Gender equality (Basic and upper secondary, TVET, higher education, learning on the job)

This indicator is based on objective data that uses (or creates) the gender parity index (GPI) from UIS and WDI on females versus males enrolled in different levels of education and participating in the labor force. The GPI is then converted into a measure where less absolute deviations from equality measures greater gender equality.

Rural–urban parity (Basic and upper secondary education, TVET)

The indicator for basic and upper secondary education is an objective indicator based on the parity of enrollment rates at the primary and secondary levels for basic education between rural and urban areas. This is currently based on data from the WDI. Ideally this indicator would also include measures in the quality of infrastructure, teacher, and extracurricular inputs.

The indicator for TVET is based on the availability of short-term and long-term training programs that are located across the country and therefore provides more equality in access between rural and urban areas.

Public–private partnerships (Basic and upper secondary education, TVET, higher education)

This is a composite indicator capturing the availability of public financing for private schools to supply public education and contracting out of curriculum design.

Curriculum content (Basic and upper secondary education, TVET, higher education)

This is a composite indicator that captures the inclusion of academic programs that are meant to foster critical thinking, problem solving and noncognitive skills in the curriculum. The indicators also include provision of remedial and enrichment programs that may help to better match student capabilities. Support and provision for the development of basic financial, marketing and computer skills are also included.

Teacher certification, wages, incentives (Basic and upper secondary education, TVET, higher education)

This is a composite indicator that captures the degree to which teachers are certified. For basic education this is objective data (based on the UIS) of number of trained teachers at basic and secondary education. The extent to which the wages offered to teachers are higher or lower than other professional occupations were also collected to capture competitiveness of the occupation. While wage data ideally is based on actual values, no database was identified that contained available data for different occupations over a large set of countries. For TVET and higher education these indicators included whether there were clear policies that require faculty members to have a certain level of industry experience (TVET) or have produced a certain number of publications (higher education). Future development of this indicator would ideally better capture aspects of merit-based hiring policies, human resource management, and quality of institutions generating certification or entry into the education profession to better measure teacher quality.

It also examines the practice of policies that provide training and bonus incentives to teachers based on enrollment, performance and welfare data. This indicator also includes an indicator capturing the stability of key education officials in terms of their length of stay in office as this is seen as integral

to generating accountability over the long term rather than being driven by political factions.

Technology and software usage (Basic and upper secondary education, TVET, higher education)

This composite indicator is comprised of an indicator of sufficient availability of computers (i.e. to cover at least 10% of the student population) and the availability of software to teach coursework. Future development of this indicator would capture the quality of content that is available to teach students—in particular the usage of computer adaptive learning content that is provided in an engaging format (e.g. gamification).

Financial aid (Basic and upper secondary education, TVET, higher education)

This indicator captures the availability of financial aid programs such as scholarships, stipends, and grants for students in the basic, TVET, and higher education policy levels. At basic and upper secondary education levels it also examines whether there are conditional cash transfers and school feeding programs in place. Future indicators could better capture the quality of these programs in terms of targeting mechanisms.

Counselling and mentoring (Basic and upper secondary education)

This indicator captures the availability of mentoring programs and psychological counselling programs provided in the school. These programs are seen as essential to limit disruptive classroom behavior.

Examples of indicators

Indicators in the database are of two types. The first is objective. It includes measures such as public educational expenditures as a % of GDP and measures of gender parity in enrollment. The second type of indicator is ordinal. Two examples of ordinal measures assign scores to each country based on the level of development of a given area are provided below:

Example 1: How does government institutions in (COUNTRY) collect and store data on student enrollment rates

0 = No collection;

1 = Paper-based collection which is collected occasionally and/or without good compliance;

2 = Paper-based collection which is collected consistently with good compliance;

3 = Digital collection (MIS) which is held at state level rather than national level;

4 = National-level collection (MIS) which is collected consistently over time and with high levels of compliance.

Example 2: In (COUNTRY), how integrated is noncognitive skill development in the primary education curriculum?

0 = Skill not systematically part of curriculum

1 = Skill only systematically integrated in curriculum for all schools as an elective

2 = Skill systematically integrated into curriculum for all schools

Construction of standardized (Composite) indicators

As indicators have varying ranges of values, the following three step procedure was used to group these measures and subsequently standardize them.

Step 1: Convert all indicators to range from 0 to 1 whether objective or ordinal

For each country, *i*, and indicator type, *m*, create a revised indicator I^R:

$$I_{im}^R = \frac{I_{im}}{max_i\{I_{im}\}}$$

Step 2: Consolidate indicators into composite where relevant. Composite will range from 0 to 1.

The composite indicator, $I^C{}_i$, is constructed by taking the average value of the indicator by summing up over the relevant group, *C*, of revised indicators:

$$I_i^C = \frac{\sum_{m \epsilon C} I_{im}^R}{N_i^C}$$

Step 3: Standardize each composite indicator to have mean 0 and standard deviation 1:

$$I_i^{CS} = std(I_i^C)$$

National basic education inputs and cognitive skill outcomes

This discussion corresponds to the results reported in Figure 3.1. To examine whether different inputs at the national level and for basic education are important to enhanced skill outcomes for a country for ages 14–15, as measured by the latest PISA or TIMSS test scores, *TestScore*, available between 2003 and 2012, in a given country, *i*, regression analysis was conducted. More specifically, for each standardized indicator, *I*, some of which are composite, $m \neq n$ (m={1,2,.....16}; n={1,2,.....16}) the following regressions were run:

$$TestScore_i = \alpha + \beta_{mn} I_{im} + \beta_{nm} I_{in} + \sigma G_i + \gamma S_i + \varepsilon_i$$

Where *TestScore* is the test score for the latest PISA or TIMSS test taken in a given country, *G* represents log GDP per capita of the country for 2012 or latest year available, *S* captures average years of schools for those aged 15–65 in 2010 and ε is the error term. The average β_{mn} over all regressions was obtained and the number of times for which the coefficient on β_{mn} was significant at the 10% level was counted. Given that β_{mn} was significant in the regressions more than half the time the indicator was identified as being statistically important to national skill development outcomes.

Only two indicators at any given time were included due to potential multicollinearity that arises from having too many indicators included in a single regression and because of the small total sample size. The results of the regressions cannot be explained by low variations in the data as the coefficient of variation of the indicators all had values that were over 20 with the exception of gender equality.

In extensions to the analysis, the relationship of indicators with test scores were examined for those in the bottom 20% of socioeconomic status and those students whose mother has at most a primary education. The results did not fundamentally change in terms of the effects on these distributions. Interaction terms were also tested to examine if different policies could be complementary in terms of producing higher skills. However, the interaction terms were not found to have any statistically significant effect on test scores. The effects of different indicators in economies with more information compared to those with less information were also examined. Only in economies with low information did country support for public–private partnerships have a statistically negative relationship with test scores, suggesting that it may be more difficult to implement effective public-private partnerships when there is too little information.

The average coefficient estimates for each indicator from the pairwise regressions were then multiplied by the difference between the average of the three economies in Asia with the highest values (the Republic of Korea; Singapore; and Taipei,China), $\overline{I_{T3}^{CS}}$, and the average of the three economies with the lowest values for any given indicator (most often Bangladesh, Cambodia, and Pakistan), $\overline{I_{B3}^{CS}}$. This was meant to simulate what a low ranked Asian economy could gain in terms of skills by improving inputs up to the level of one of the best performing economies in terms of skills. More specifically, the following equation represents the value of estimates displayed in Figure 3.1 for each indicator *m*:

$$\Delta_m = \left(\frac{1}{15}\sum_{n=1}^{15}\beta_{mn}\right)\left(\overline{I_{T3}^{CS}} - \overline{I_{B3}^{CS}}\right)$$

In the regressions, the information indicator was decomposed into the five different components of information including information for evidence-based policy plus the four components of information described above for basic education. Only after the multivariate regressions were run were the estimates for information then averaged to construct a single indicator of information. Similarly, the indicator for teacher incentives and the indicator for teacher certification and wages were separate indicators in the regressions, but were subsequently combined into a single indicator of teacher certification, wages, and incentives based on the average of the estimates of these two indicators.

TVET and higher education inputs and educational outcomes

While it remains important to identify how different legislation, quality of policy implementation and breadth of investments for TVET and higher education may lead to better skill development or labor market outcomes, no data that could adequately examine these relationships across a large enough set of economies were identified. This remains an important area for further research.

Appendix 3: Key Metrics for Targeted Policy, Accountability, and Private Decisions

Appendix Table 3: Key Metrics for Targeted Policy, Accountability and Private Decisions						
Level	Topic	Variable	Type of decision making			
			Policy	Accountability (school)	Accountability (teacher)	Private
National or Regional *This type of data is ideally obtained at an aggregate regional level and is collected on an annual basis and for a minimum of several different grade levels in basic education, for detailed skill areas in TVET and higher education. It can serve as a basis for evaluating how the education system is performing and setting financing priorities. The data is ideally designed to be able to link people with specific types of skills training to labor market outcomes at a broad level.*						
	Educational supply of skills *This data helps to assess how well the education system is in producing skilled individuals.*					
		Level of disaggregation: Grade Degree type (if TVET or higher education) School type {private or public} Gender Disadvantaged	✓			
		Private cost of provision per student	✓			
		Public cost of provision per student	✓			
		Share enrolled in school type {public or private}	✓			
		Grade (if basic education) Degree type (if TVET or higher education)	✓			
		Total students enrolled (by gender and disadvantaged)	✓			
		Total students dropped out (by gender and disadvantaged)	✓			
		Total students passed or graduated (by gender and disadvantaged)	✓			
		Total potential students enrolled who could have sat for certificate or licensing exam (if TVET or higher education)	✓			
		Total students sitting for certificate or licensing exam (if TVET or higher education)	✓			
		Total students passing certificate or licensing exam (if TVET or higher education)	✓			
		Measured average skills on nationally or internationally standardized tests Cognitive Noncognitive Technical (if TVET or higher education)	✓			
	Skill supply and labor market outcomes *This type of data could be gathered through labor force survey or administrative data given tracking of students or cohorts. This data is essential to properly assess how well graduates of certain types of education and technical skills are matching labor market demands. It can also help individuals make better skill investment decisions. It requires sufficiently sampling a large enough population in key education-technical skill areas. It ideally will be gathered at a minimum 1, 5, 10 years after completion of education to assess career trajectories.*					
		Level of disaggregation: Highest level of education completed Type of technical training Received certificate or license Gender Disadvantaged at age 15	✓			✓
		Total in main activity: in school working employed formally in occupation related to skill trained employed temporarily in occupation related to skill trained employed formally not in skill trained unemployed not in labor force	✓			✓
		Occupation related to main field of training (if applicable)	✓			✓
		Level of education needed for occupation	✓			✓
		Measured workplace skills (e.g. PIAAC; World Bank STEP)				
		Average wages	✓			✓
	Skill demand *This type of data is gathered to assess the types of occupations (and hence skills) that are in demand by enterprises. It is ideally gathered on an annual basis at a minimum. It could be collected from administrative enterprise data, industry groups, or more costly enterprise survey data. Note that skills and education measures may not have to be updated on an annual basis, but should reflect current education and skill needs. Useful examples are the US O*NET and World Bank STEP employer surveys.*					
		Level of disaggregation: Industry-occupation				
		Total employed				
		Total hiring				
		Total firing				
		Total vacancies (open for 1, 3, 6+ months)				
		Average wages				

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Appendix Table 3: Key Metrics for Targeted Policy, Accountability and Private Decisions						
Level	Topic	Variable	Type of decision making			
			Policy	Accountability (school)	Accountability (teacher)	Private
		Minimum education required:				
		Minimum skills required: Cognitive Noncognitive Technical Other workplace skills				
School *This type of data is at the school level and is important for imposing school accountability and for helping individuals make more informed decisions about which schools to attend or whether to invest in further education. It is ideally gathered on an annual basis.*						
		Year established		✓		
		Location		✓		✓
		Type of school {public, private}		✓		✓
		Private cost of provision per student	✓	✓		
		Public cost of provision per student	✓	✓		
		Net revenue - costs	✓	✓		
		Tuition fee	✓	✓		✓
		Financial budget expenditures	✓	✓		
		Number of teachers		✓		
		Number of teachers with relevant industry experience (if TVET)		✓		
		Number of classrooms		✓		
		Internet connectivity		✓		✓
		Number of working computers		✓		✓
		Principal identity		✓		
		Principal degree/certification		✓		
		Principal years of teaching experience		✓		
		Principal years of school management experience		✓		
		Principal years of other experience		✓		
		Number of classes offered and type		✓		
		Number of students at start of school year/program		✓		
		Accreditation level (if TVET or higher education)		✓		✓
		Number of large firm industry linkages (if TVET)		✓		✓
		Number of peer-reviewed journal publications (if higher education)		✓		✓
		Number of patents, trademarks or copyrights received (if higher education)		✓		✓
		School/Degree teacher attendance rates		✓		
		Level of disaggregation for student indicators: Disadvantaged Female		✓		
		Total applied (if TVET or higher education)		✓		
		Total accepted (if TVET or higher education)		✓		
		Total enrolled		✓		
		Total dropped out		✓		
		Total graduated		✓		
		Total students sitting for certificate or licensing exam (if TVET or higher education)		✓		
		Total students passing certificate or licensing exam (if TVET or higher education)		✓		
		Measured average skills on nationally or internationally standardized tests (upon entry)[a] Cognitive Noncognitive Technical (if TVET or higher education)		✓		✓
		Measured average skills on nationally or internationally standardized tests (upon exit) Cognitive Noncognitive Technical (if TVET or higher education)		✓		✓
		Total in main activity (1, 5, 10 years after graduation): in school working employed formally in occupation related to skill trained employed temporarily in occupaton related to skill trained employed formally not in skill trained unemployed not in labor force		✓		✓
		Number entering occupation related to main field of training (1, 5, 10 years after graduation; if applicable)		✓		✓
		Derived indicator of principal or dean value added		✓		✓
		Derived indicator of school value added		✓		✓

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Appendix Table 3: Key Metrics for Targeted Policy, Accountability and Private Decisions						
Level	Topic	Variable	Type of decision making			
			Policy	Accountability (school)	Accountability (teacher)	Private
Teacher *This type of data is used for teacher accountability. It is aimed at incentivizing teachers to improve their performance. It also is potentially essential for principals or administrators to impose better management practices, identify which teachers are underperforming and figure out solutions to improve performance.*						
		Birth year			✓	
		Certification or degree of training			✓	
		Skills training completed			✓	
		Years of teaching experience			✓	
		Years of other experience			✓	
		Years of relevant industry/professional experience (if TVET or higher education)			✓	
		Last year of industry experience (if TVET)			✓	
		Number of peer-reviewed journal publications (if higher education)			✓	
		Number of patents, trademarks or copyrights received (if higher education)			✓	
		Class level or subject taught			✓	
		Level of disaggregation for student indicators: Disadvantaged Female			✓	
		Total enrolled			✓	
		Class attendance rate (if basic education)			✓	
		Class dropout rates			✓	
		Class pass rates			✓	
		Students evaluations of teacher performance			✓	
		Measured average skills on nationally or internationally standardized tests (upon entry)[a] Cognitive Noncognitive Technical (if TVET or higher education)			✓	
		Measured average skills on nationally or internationally standardized tests (upon exit) Cognitive Noncognitive Technical (if TVET or higher education)			✓	✓
		Derived indicator of teacher value added[a]			✓	✓
Student *This type of data is important for teachers, parents and individuals to evaluate individual student performance. It helps to better ensure that individuals are learning and figure out stop-gap measures for those that are not. It also is useful information for targeting merit based scholarships and providing programs to help those that are disadvantaged. It envisions student linked data overtime that allows for performance tracking.*						
		Birth year	✓			
		Gender	✓			
		Socioeconomic status	✓			
		Attendance rate (if basic education)	✓			
		Classes passed	✓			✓
		Classes repeated	✓			✓
		Disciplinary infractions				
		Year skill training received				
		Skill training received (if TVET or higher education)				
		Skill certification test taken (if TVET or higher education)	✓			
		Skill certification test passed (if TVET or higher education)	✓			
		Measured average skills on nationally or internationally standardized tests (and year of test) Cognitive Noncognitive Technical (if TVET or higher education)	✓			✓

a Entrance exams are not necessary if one is able to derive a measure of value added based on historical test performance of students or skills at entry into institution or classrooms. This requires a database containing unique student identification that allow tracking over time.

Note: Most metrics should be collected on a yearly or monthly basis. Some key metrics such as those for accountability should be carefully constructed to ensure they capture true value added or quality of schools.

Appendix 4: Notes for Various Tables and Figures

Educational investment estimates

Footnote 1

All estimates are in 2011 $PPP using 2010 as a base reference group. Private estimates are computed using actual education expenditure of households in 2010 for 24 economies using the World Bank's Global Consumption Database. Average education share of household expenditure across the 24 Asian economies for each income group (low, middle, upper) is used to estimate education expenditure of economies without data by multiplying the share with the national accounts estimates of household final consumption expenditure (HFCE). Public education expenditure estimates are computed using the WB EdStats' education expenditures as a share of GDP. If data does not exist, the average shares for each income group are assumed to apply. Private and public estimates for 2014 are derived by multiplying the 2010 estimated education expenditure with the ratio of HFCE 2014 to HFCE 2010 or with the ratio of general government consumption expenditure (GGCE) 2014 to GGCE 2010, respectively.

Data collection across countries

Box table 2.2.1

To assess the frequency and detail of collection on labor force data across countries, the following surveys were utilized: United States—Current Population Survey (CPS); the Republic of Korea—Economically Active Population Survey (EAPS); Armenia—Household's Integrated Living Conditions Survey (HILCS); Cambodia—Cambodia Socio-Economic Survey (CSES); India—Employment and Unemployment Survey; Indonesia—SAKERNAS; for Pakistan, the Philippines, Thailand, and Viet Nam, countries' respective Labor Force Surveys (LFS) were used. The labor force survey for the PRC refers to the Annual Sample Survey on Labour Force. Details on the data collected using this survey were based on published survey results found in the China Statistical Yearbook, China Labour Statistical Yearbook, and Tabulation on the 2010 Population Census of the People's Republic of China.

To assess the level of collection on enterprise data across countries, the following surveys were used: United States—Occupational Employment Statistics; the Republic of Korea—Labor Force Survey of Establishments; Armenia—Report on Number of Employees and Wages/Salaries; Cambodia—Economic Census of Cambodia; India—Annual Survey of Industries; Indonesia—Annual Manufacturing Survey; Pakistan—Census of Manufacturing Industries; Philippines—Quarterly Survey of Philippine Business and Industry; Thailand—Annual Survey on Thailand's Productivity and Industries Performance; and Viet Nam—Enterprise Survey. Vacancy information for the United States is made available through its monthly Job Openings and Labor Turnover Survey (JOLTS). For the Philippines, this data is collected quarterly through the Labor Turnover Survey (LTS).

Cells with darker circles refer to a higher frequency or a greater degree of detail in collecting data from labor force and enterprise surveys. For the collection rate criterion, the darkest shade implies that data collection is done on a quarterly or monthly basis while the lightest shade implies collection is done sporadically. It should be noted that the Employment and Unemployment Survey in India, from which labor force data is collected, is done consistently but only once every 5 years. For the criteria on occupational code detail and industrial code detail, the darkest shade indicates that data collection is done at the 5- or 6-digit level, while the lightest shade indicates that data collection is only made at the broadest level (1-digit) or are not collected in the surveys. It is worthwhile to note that in the Philippines, occupational and industrial codes are based on the Philippine Standard Occupational

Classification and the Philippine Standard Industrial Classification, respectively, which disaggregates occupations and industries at a higher level, but the LFS only reports at the 2-digit level. For the education major criterion, the darker shade implies greater detail in the collection of data on fields of study (at least 10 fields of education) while the lighter shade implies data collection is only done at a very broad level (less than 10 fields of education). The criterion on occupational groups refer to the availability of a broad classification of employees' occupations within the firm. The darker shade indicates that the survey reports at least three categories of occupation groups, while the lighter shade indicates that the survey does not collect data on occupation groups, or only reports, at the most, two categories of occupation groups.

Computerization probabilities

Figure 2.12

To estimate computerization probabilities the following process was undertaken.

Step 1: Probabilities of future occupational destruction due to computerization were obtained from Frey and Osborne (2013). These probabilities are provided at the 5- or 6-digit US standard occupational classification (SOC).

Step 2: For various labor force surveys country occupational codes were mapped into the 2 or 3 digit International Standard Classification of Occupations 2008 (ISCO-08).

Step 3: Given loss of detail from going from 5- to 6-digit SOC down to 3- or 2-digit ISCO-08 and the mapping not being 1 to 1, employment weights from the US Census were utilized to redistribute and collapse down occupation codes while maintaining the overall values of the employment distribution.

Step 4: Only occupations that were in regular wage employment, indicating stable employment typically in more formalized firms and with some sort of contract or promise of longer term work, were considered as open to computerization. The reasoning was that in developing economies there are many temporary wage and informal self-employment type labor that are considered more to be jobs of last resort. Hence, these type of jobs probably are less likely to face job destruction as they are low pay and short term.

Step 5: Define cut-off probabilities for risk of job to computerization as follows:

High risk: greater than or equal to 0.70
Mid risk: 0.30 to 0.70

These estimates are believed to be fairly conservative. If temporary wage and informal self-employment were also considered to be open to job destruction, then many estimates would indicate that more than 30% of jobs in a country would be at a high risk for job destruction.

PISA student and school surveys

PISA 2012 micro data was used to estimate the effects of various school policies in addition to physical, teaching, and family inputs on various outcomes over a large set of economies. The average sample size per country ranges from 4,000–34,000 and approximately 43 economies were covered.

Factors affecting test scores

To estimate effects on student reading, mathematics, or science test score, *TestScore*, outcomes around age 15 standard regressions on the student sample were run which took the form for each student i, belonging to school j, in country k:

$$TestScore_{ijk} = \alpha + \beta I_{ijk} + \delta X_{ijk} + \mu S_{jk} + \gamma_k + \varepsilon_{ijk} \qquad (1)$$

In this equation β is the main coefficient of interest representing the relationship of the student or school level indicator, I, on test score outcomes abstracting away from other factors. X is a series of controls that include gender, current age, indicators for age first started school (less than or equal to 4, 5, or 6 versus age 7), indexed socioeconomic status, indexed socioeconomic status squared, and indicators for mother's education (secondary degree or university degree). S represents school indicators capturing school ownership (public versus private) and school location (rural versus urban). γ are country fixed effects. Regressions were run separately for OECD and Developing Asia[28] samples and standard errors are clustered at the school level.

Figure 4.4

The main indicators of interest were school accountability and school autonomy indicators. In this regression school autonomy is an indexed score provided in the public PISA dataset that is based on a series of questions regarding the school's ability to make decisions in terms of curriculum design, hiring or firing of teachers, financial allocations, etc. This was converted into a 0 or 1 indicator based on a school autonomy measure being above 0.5 standard deviations (top one-third). Accountability is an indicator representing whether student and school performance data is shared publicly.

Figure 5.2

The estimates from start age were displayed based on the standard regression framework of equation (1). Since few students attend school after age 7 these students were dropped from the sample.

28 Includes Hong Kong, China; Indonesia; Kazakhstan; the Republic of Korea; Malaysia; Shanghai, the PRC; Singapore; Taipei, China; Thailand; and Viet Nam.

Figure 6.2

The main indicator of interest was whether the school offered extra remedial, enrichment mathematics courses, or an extra non-differentiated-to-skill-level course, compared to offering none at all.

Figure 6.3

Curriculum difficulty is an index score of a student's perceived difficulty with the mathematics curriculum. It is based on a question on whether a student agrees with the following statement: "Sometimes the course material is too hard."

Figure 6.4

The main indicators of interest were cognitive activation and teacher support. Cognitive activation is an indicator derived from student responses in terms of the frequency with which teachers used cognitive activation strategies in teaching mathematics lessons. Cognitive activation strategies include: asking questions that make students reflect on the problem, giving problems that require students to think for an extended time, asking students to decide on their own procedures for solving complex problems, presenting problems for which there is no immediately obvious method of solution, presenting problems in different contexts to know whether students understood the concepts being taught, helping students learn from their mistakes, asking students to explain how they solved a problem, presenting problems that require students to apply the concepts they have learned in new contexts, and giving problems that can be solved in several different ways. Choices to these questions ranged from "almost or almost always" to "never or rarely". A dummy variable was constructed using this indicator, where 1 corresponds to teachers using cognitive activation strategies frequently ("almost always" or "often") and 0 corresponds to teachers rarely utilizing cognitive activation strategies ("sometimes" or "never or rarely").

Teacher support is an indicator based on responses to a series of questions on the frequency with which mathematics teachers fulfilled the following: showed an interest in every student's learning, gave extra help when students needed it, helped students with their learning, continued teaching until the students understood the lesson, and gave students an opportunity to express opinions. Choices to these questions ranged from "every class" to "never or hardly ever". A dummy variable was constructed using this indicator, where 1 corresponds to teachers providing support at a greater frequency ("every class" or "most classes") and 0 corresponds to teachers not usually being able to provide support ("some classes" or "never or hardly ever").

An index was created using the 4 possible combinations of cognitive activation strategies and teacher support. The highest value in the index indicates that mathematics teachers provide both cognitive activation strategies as well as support to their students, while the lowest value in the index indicates mathematics teachers providing neither cognitive activation strategies nor support to their students.

Figure 6.5

The main indicator of interest was based on questions that ask the current status of mathematics teachers (full-time or part-time) and their professional qualifications. Teachers working full-time were given a weight of 1, while teachers working part time were given a weight of 0.75. These were used to compute the share of teachers that are fully certified by a local authority in their main field of assignment; percentage of mathematics teachers with a bachelor's degree or a master's degree, regardless of the field of study; percentage of mathematics teachers with a bachelor's or master's degree in mathematics, physics, or engineering; percentage of mathematics teachers with a bachelor's degree or a master's degree in the field of education.

Factors affecting college aspirations

To examine factors affecting college aspirations a probit model was estimated:

$$P(C_{ijk}=1) = \Phi\left(\beta I_{ijk} + \delta X_{ijk} + \mu S_{jk} + \gamma_k\right) \quad (2)$$

In this equation C is an indicator capturing whether a student has strong college aspirations. It is based on a question on the extent to which students agree to the following statement: "Trying hard at school will help me get into a good college." A dummy variable was created using this indicator, where 1 corresponds to a student strongly agreeing with the statement. Similar to equation (1), X is a series of controls that include gender, current age, indicators for age first started school (less than or equal to 4, 5, or 6 versus age 7), indicators for mother's education (secondary degree or university degree), and skill level as measured by the average PISA test scores for mathematics and science. S represents school indicators capturing school ownership (public versus private) and school location (rural versus urban). γ are country fixed effects.

Figure 7.5

The main indicators of interest were those that reveal the relationship between socioeconomic status and college aspirations. In the regression, socioeconomic status was divided into three categories using as cut-offs the 20th and 80th percentile of the distribution for each country. The socioeconomic status indicators was adopted from the PISA 2012 index of economic, social and cultural status (ESCS). It is a composite index derived from the following indicators: highest occupational status of parents, highest educational level of parents, and home possessions. The index of home possessions includes indicators on family wealth, home educational resources and cultural possessions. A more detailed description of the ESCS is available on the OECD website (http://www.oecd.org/pisa/keyfindings/pisa-2012-results.htm).

Factors affecting student time spent studying

To examine factors affecting the number of hours, *H*, students spend on school work per week the following regression was run:

$$H_{ijk} = \alpha + \beta I_{ijk} + \delta X_{ijk} + \mu S_{jk} + \gamma_k + \varepsilon_{ijk} \quad (3)$$

Similar to equation (1) *X* is a series of controls that include gender, current age, indicators for age first started school (less than or equal to 4, 5, or 6 versus age 7), indexed socioeconomic status, indexed socioeconomic status squared, and indicators for mother's education (secondary degree or university degree). *S* represents school indicators capturing school ownership (public versus private) and school location (rural versus urban). γ are country fixed effects.

The total number of hours spent on school work was derived from a series of disaggregated questions capturing: time spent doing homework or other materials assigned by the teacher, doing homework with somebody overlooking and providing help if necessary, working with a personal tutor, attending out of school classes organized by a commercial company, and practicing content from school lessons by working on a computer.

Figure 7.8

The main indicator of interest captures parental monitoring. It was created using the number of reported hours spent studying with a parent or other family members. A dummy variable was created using this indicator, where 1 corresponds to parents devoting at least 5 hours a week on studying with the child, and 0, otherwise.

Differences in educational inputs

Figure 7.10

To examine differences in educational inputs, *Q*, that provide some insights into gaps in educational access that may be due to school locational differences the following regressions was run:

$$Q_{jk} = \alpha + \beta U_{jk} + \gamma_k + \varepsilon_{jk} \quad (4)$$

In this equation *U* is an indicator for whether a student resides in an urban location. Non-urban areas are defined as villages, hamlets, rural areas or small towns with populations no greater than 15,000. Urban areas are defined as towns or cities with populations greater than 15,000. γ are country fixed effects.

Three different types of education inputs were examined: teacher quality, instructional material, and school infrastructure. Teacher quality was captured by an indexed score corresponding to school responses that stated that the lack of qualified science teachers, the lack of qualified mathematics teachers, the lack of qualified English teachers and the lack of qualified teachers of other subjects were not problematic. Instructional material was captured by an indexed score of school responses capturing that shortage or inadequacy of science laboratory equipment, instruction materials such as textbooks, computers for instruction, internet connectivity, computer software for instruction, and library materials was not problematic. School infrastructure quality was captured by an indexed score of school responses that stated that the shortage or inadequacy of school buildings and grounds, heating or cooling and lighting systems, and instructional space (e.g. classrooms) was not problematic.

World Bank STEP worker surveys

The World Bank STEP worker survey sample covered six economies in Asia (Armenia, Georgia, PRC (Yunnan Province), the Lao PDR, Sri Lanka, and Viet Nam) for workers aged 15–65. These surveys were run in 2012–2013. Viet Nam covered only Ho Chi Minh and Ha Noi. As only the Lao PDR and Sri Lanka covered rural areas, analysis concentrated on urban areas only.

A multinomial logistic model was run to estimate the probability that a person, *i*, was matched, overqualified, underqualified or unemployed based on observed job outcomes and worker responses to the level of qualification that is needed to perform the job the worker is in. This model is based on the model described in Chua and Chun (2015). More, precisely the model took the following form where *k* is the outcome observed for person *i*:

$$\Pr\left(Match_i = k\right) = \Lambda\left(S_i'\alpha_k + X_i'\beta_k + Z_j'\gamma_k + \delta_c\right) \left[1 + \sum_{k=2}^{4} \Lambda\left(S_i'\alpha_k + X_i'\beta_k + Z_j'\gamma_k + \delta_c\right)\right]^{-1} \quad (5)$$

In this model, the systematic component of utility is comprised of search variables, S_i, human capital and socioeconomic characteristics of the worker, X_i, features of the local labor market j denoted by Z_j and a set of country dummies δ_c. The unobserved component of the utility is assumed to follow a Type-I extreme value distribution. Search captures variables that report a worker's access to information on vacancies and ability to demonstrate abilities. Human capital include indicators for education, experience, cognitive and noncognitive skills. Socioeconomic status includes indicators at age 15.

Figure 8.5

The multinomial logistic model in equation (5) was used to estimate the predicted job-qualification match outcomes pooling across the 6 economies and using population weights. Actual refers to the true distribution of match types, while model refers to the model prediction described in equation (5). Search simulates the predicted distribution of job matches that is expected to occur if search costs are eliminated. Search + refers to the predicted distribution of jobs that is expected to occur if search costs are eliminated and if parental education is moved to at least a postsecondary level and socioeconomic status at age 15 is moved to at least a middle income level. This is meant to capture that low socioeconomic status can create greater difficulties for workers to search for jobs due to locational and network differences that are not picked up by other variables in the model.

Surveys Used

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Cambodia National Institute of Statistics. 2003, 2009, 2011, 2012, and 2013. Socio-Economic Survey.
China Institute For Income Distribution. 2002 and 2007. China Household Income Project.
Fiji Bureau of Statistics. 2005 and 2011. Employment/Unemployment Survey.
India National Sample Survey Organization. 2000, 2005, and 2012. National Sample Survey: Employment and Unemployment.
Indonesia BPS - Statistics Indonesia. 2003, 2008, and 2013. SAKERNAS.
Kazakhstan Agency of Statistics. 2003 and 2013. Labor Force Survey.
Pakistan Bureau of Statistics. 2002, 2004, and 2013. Labor Force Survey.
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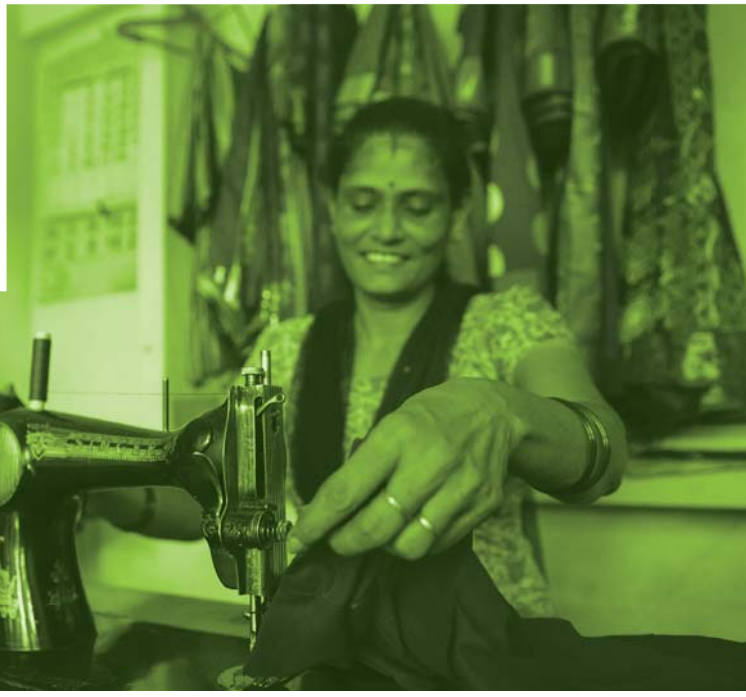


PART II

Millennium Development Goals Trends and Tables

Introduction to the Millennium Development Goals

In September 2000, leaders of 189 member states of the United Nations (UN) gathered for the Millennium Summit. During this largest gathering of world leaders, the Millennium Declaration, which committed the world to fighting poverty in its many dimensions, was adopted. A year later, the road map towards the implementation of the UN Millennium Declaration Report of the Secretary General translated this vision of fighting the many dimensions of poverty into what was subsequently referred to as the Millennium Development Goals (MDGs) to be achieved by 2015.

The eight goals laid out in the MDGs were discussed in international gatherings prior to the Millennium Declaration. For instance, the education MDG was part of the goals of the Education For All initiative. What was novel and unprecedented about the MDGs was that their framework sets forth specific, time-bound, and quantified targets by 2015 (with a 1990 baseline) to address extreme poverty in its many dimensions (income poverty, hunger, disease, lack of adequate shelter, and exclusion), while also promoting gender equality, education, and environmental sustainability. The MDGs made available a framework to focus attention and resources, including global aid, as well as provided an action agenda across economies, and among local governments and development partners within economies. Statistical indicators were identified for monitoring progress on attaining the goals and targets.

The first of the eight MDGs was about eradicating extreme poverty and hunger, with its first target identified as halving the proportion of people in extreme poverty by 2015 from what it was in 1990. Extreme poverty was defined using a poverty line of $1 per person per day by using 1990 purchasing power parity prices, and subsequently updated to $1.25 a day using 2005 purchasing power parity prices.

The monitoring framework for the MDGs was subsequently revised in 2007 to include four additional targets on:

- full and productive employment and decent work for all,
- access to reproductive health,
- access to treatment for HIV/AIDS, and
- protection of biodiversity

that were agreed upon by UN member states at the 2005 World Summit. The indicators for these new targets became effective in January 2008.

Box 1 lists the eight MDGs, the 21 targets and the 60 indicators for monitoring progress in attaining the MDGs.

Progress in attaining the Millennium Development Goals and targets

With the MDGs agenda set to close this year, the progress of the Asian Development Bank (ADB) developing members toward attaining the MDGs and targets is discussed in this part of the 2015 *Key Indicators for Asia and the Pacific*. Each goal is accompanied by a short analysis and supporting statistical information presented in figures, boxes, and tables on the performance of economies (and regions in Asia and the Pacific) toward achieving the goals. The classification of progress was determined using the methodology outlined in Technical Note I of the report *Making It Happen: Technology, Finance and Statistics for Sustainable Development in Asia*

Goals and Targets (from the Millennium Declaration)	Indicators for Monitoring Progress
Goal 1: Eradicate extreme poverty and hunger	
Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1.1 Proportion of population below $1 (PPP) per day[1] 1.2 Poverty gap ratio 1.3 Share of the poorest quintile in national consumption
Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.6 Proportion of employed people living below $1 (PPP) per day 1.7 Proportion of own-account and contributing family workers in total employment
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under 5 years of age 1.9 Proportion of population below minimum level of dietary energy consumption
Goal 2: Achieve universal primary education	
Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrollment ratio in primary education 2.2 Proportion of pupils starting grade 1 who reach the last grade of primary 2.3 Literacy rate of 15–24 year-olds, women and men
Goal 3: Promote gender equality and empower women	
Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	3.1 Ratios of girls to boys in primary, secondary, and tertiary education 3.2 Share of women in wage employment in the nonagricultural sector 3.3 Proportion of seats held by women in national parliament
Goal 4: Reduce child mortality	
Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-5 mortality rate	4.1 Under-5 mortality rate 4.2 Infant mortality rate 4.3 Proportion of 1-year-old children immunized against measles
Goal 5: Improve maternal health	
Target 5.A: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio	5.1 Maternal mortality ratio 5.2 Proportion of births attended by skilled health personnel
Target 5.B: Achieve, by 2015, universal access to reproductive health	5.3 Contraceptive prevalence rate 5.4 Adolescent birth rate 5.5 Antenatal care coverage (at least one visit and at least four visits) 5.6 Unmet need for family planning
Goal 6: Combat HIV/AIDS, malaria and other diseases	
Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS	6.1 HIV prevalence among population aged 15–24 years 6.2 Condom use at last high-risk sex 6.3 Proportion of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS 6.4 Ratio of school attendance of orphans to school attendance of nonorphans aged 10–14 years
Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it	6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs
Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	6.6 Incidence and death rates associated with malaria 6.7 Proportion of children under 5 sleeping under insecticide-treated bednets 6.8 Proportion of children under 5 with fever who are treated with appropriate antimalarial drugs 6.9 Incidence, prevalence, and death rates associated with tuberculosis 6.10 Proportion of tuberculosis cases detected and cured under the Directly Observed Treatment Short (DOTS) course
Goal 7: Ensure environmental sustainability	
Target 7.A: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources	7.1 Proportion of land area covered by forest 7.2 CO_2 emissions, total, per capita and per $1 GDP (PPP) 7.3 Consumption of ozone-depleting substances 7.4 Proportion of fish stocks within safe biological limits 7.5 Proportion of total water resources used
Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss	7.6 Proportion of terrestrial and marine areas protected 7.7 Proportion of species threatened with extinction
Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	7.8 Proportion of population using an improved drinking water source 7.9 Proportion of population using an improved sanitation facility
Target 7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	7.10 Proportion of urban population living in slums[2]
Goal 8: Develop a global partnership for development	
Target 8.A: Develop further an open, rule-based, predictable, nondiscriminatory trading and financial system Includes a commitment to good governance, development, and poverty reduction—both nationally and internationally Target 8.B: Address the special needs of the least developed countries Includes: tariff and quota free access for the least developed countries' exports; enhanced programme of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction	Some of the indicators listed below are monitored separately for the least developed countries, Africa, landlocked developing countries, and small island developing states. Official Development Assistance (ODA) 8.1 Net ODA, total and to the least developed countries, as percentage of OECD/DAC donors' gross national income 8.2 Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water, and sanitation) 8.3 Proportion of bilateral ODA of OECD/DAC donors that is untied 8.4 ODA received in landlocked developing countries as a proportion of their gross national incomes 8.5 ODA received in small island developing states as a proportion of their gross national incomes

continued.

Box 1 Millennium Development Goals *(continued)*

Target 8.C: Address the special needs of landlocked developing countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly)	Market Access 8.6 Proportion of total developed country imports (by value and excluding arms) from developing countries and least developed countries, admitted free of duty 8.7 Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries 8.8 Agricultural support estimate for OECD countries as a percentage of their gross domestic product 8.9 Proportion of ODA provided to help build trade capacity
Target 8.D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	Debt Sustainability 8.10 Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative) 8.11 Debt relief committed under HIPC and MDRI Initiatives 8.12 Debt service as a percentage of exports of goods and services
Target 8.E: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries	8.13 Proportion of population with access to affordable essential drugs on a sustainable basis
Target 8.F: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	8.14 Telephone lines per 100 population 8.15 Cellular subscribers per 100 population 8.16 Internet users per 100 population

AIDS = acquired immunodeficiency syndrome, CO_2 = carbon dioxide, DAC = Development Assistance Committee, GDP = gross domestic product, HIPC = heavily indebted poor countries, HIV = human immunodeficiency virus, MDRI = Multilateral Debt Relief Initiative, ODA = official development assistance, OECD = Organisation for Economic Co-operation and Development, PPP = purchasing power parity.

[1] For monitoring country poverty trends, indicators based on national poverty lines should be used, where available.

[2] The actual proportion of people living in slums is measured by a proxy, represented by the urban population living in households with at least one of the four characteristics: (a) lack of access to improved water supply; (b) lack of access to improved sanitation; (c) overcrowding (three or more persons per room); and (d) dwellings made of nondurable material.

Source: Millennium Development Goals Indicators: The Official United Nations Site for the MDG Indicators. July 2014.

and the Pacific (Economic and Social Commission for Asia and the Pacific [ESCAP], ADB, and United Nations Development Programme [UNDP] 2014/15). The rate of change is calculated mostly using the linear time trend of a suitable transformation of the indicator values. Economies are classified into four categories of progress such as, "achiever", "on track", "off track - slow", or "no progress/regressing", as measured by available data on target indicators since 1990:

- achievers are economies that have already reached the target,
- on track indicates that an extrapolation of trends based on available data between 1990 and most recent years shows that the target can be achieved,
- off track - slow progress applies to economies that are expected to meet the target but after 2015, and,
- no progress/regressing describes economies that have made no progress since 1990 or have actually slipped backward.

The statistics in the tables for each indicator in part III are usually presented for two data points between 1990 and 2015. These are often referred to as the earliest year (usually a year between 1990 and 2000) and latest year (usually any year closest to 2015) depending on available data. This is because the years for which data are available vary widely across countries. The actual years which the data relate to are indicated in the tables that are used as sources for the charts. However, lack of data shows the difficulty in collecting and disseminating the data.

In monitoring progress, cutoffs were introduced for several targets (Table 1), which are the cutoffs adapted from ESCAP, ADB, and UNDP (2015) report. For example, a cutoff of 2% is used for the target "halving extreme poverty between 1990 and 2015." This means that, when the share of people living on less than $1.25 a day is reduced to 2%, the target is considered to have been reached, even if 2% is not half of the percentage in 1990. Minimum data points must be three and have at least one data point after 2005 for inclusion in progress tracking.

Table 1: Cutoff Values for Selected MDG Indicators

No.	Indicator	MDG Target	Cutoff
1.1	Proportion of population below $1.25 (PPP) a day	Half the 1990 percentage	2%
1.8	Prevalence of underweight children under 5 years of age	Half the 1990 percentage	None
2.1	Total net enrollment ratio in primary education (both sexes)	100%	95%
2.2	Proportion of pupils starting grade 1 who reach the last grade of primary (both sexes)	100%	95%
3.1	Ratios of girls to boys in primary, secondary, and tertiary education	1	0.95
4.1	Under-five mortality rate per 1,000 live births	One-third the 1990 percentage	None
4.2	Infant mortality rate per 1,000 live births	One-third the 1990 percentage	None
5.1	Maternal mortality ratio	Reduce by ¾ (without)	None
5.2	Proportion of births attended by skilled health personnel	Reduce by ¾ (without)	None
5.5	Antenatal care coverage (at least one visit)	100%	95%
6.1	HIV prevalence	Reverse the trend	None
6.9a	TB incidence	Reverse the trend	None
6.9b	TB prevalence	Reverse the trend	None
7.1	Forest cover	Reverse the trend	None
7.2	CO_2 emissions per $1 GDP (PPP)	Reverse the trend	None
7.6	Protected area	Reverse the trend	None
7.8	Population using improved water sources (urban and rural combined)	Half the 1990 percentage (without)	None
7.9	Population having access to improved sanitation facilities (urban and rural combined)	Half the 1990 percentage (without)	None

CO_2 = carbon dioxide, GDP = gross domestic product, HIV = human immunodeficiency virus, MDG = Millennium Development Goal, PPP = purchasing power parity, TB = tuberculosis.
Sources: UNESCAP, ADB, and UNDP. 2015. *Making It Happen: Technology, Finance and Statistics for Sustainable Development in Asia and the Pacific.*

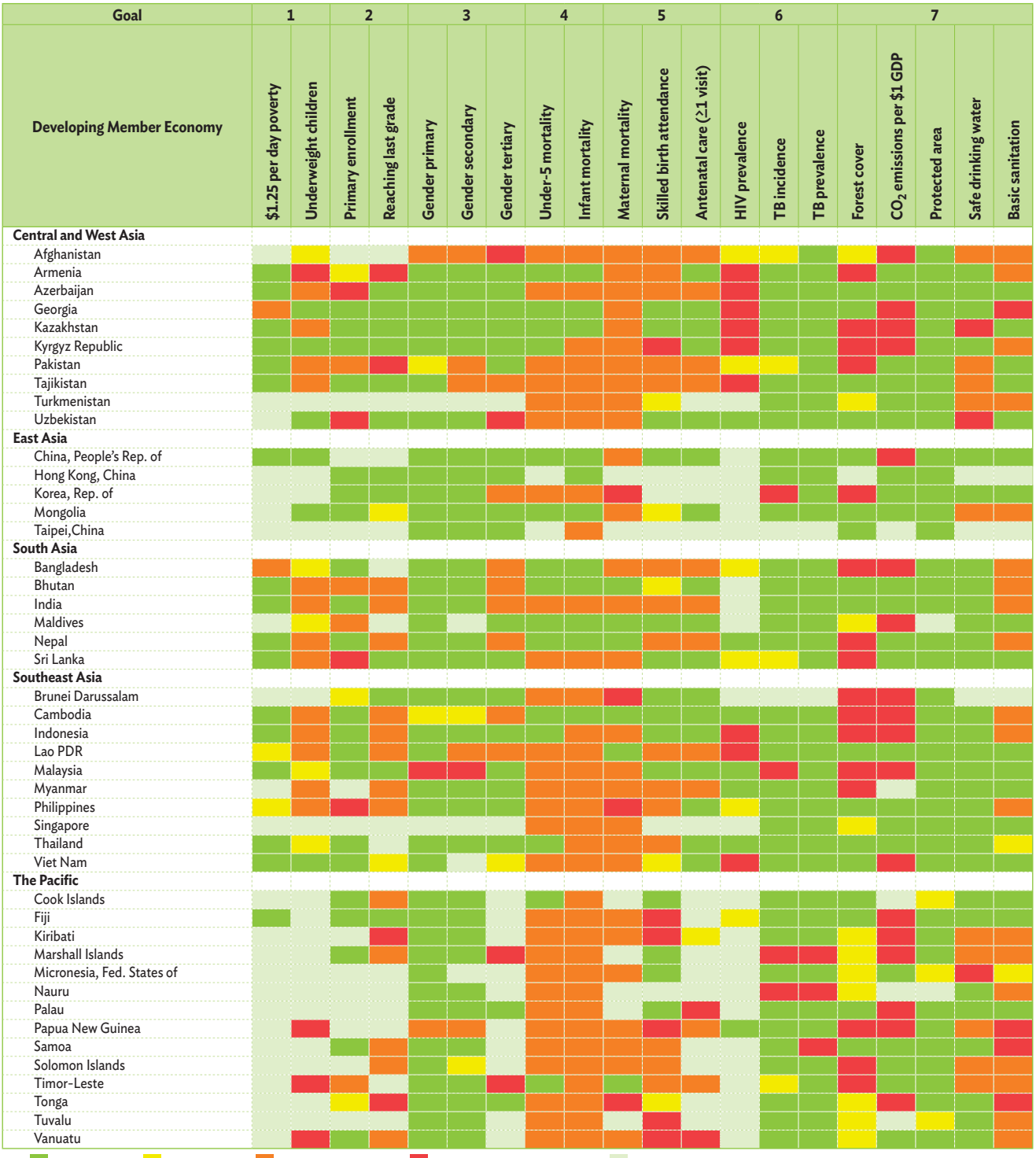
For indicators whose target is to reverse a trend, such as in HIV prevalence, tuberculosis incidence, tuberculosis prevalence, forest cover, carbon dioxide emissions, protected area, and consumption of ozone-depleting substances, only two categories were used—economies trending in the "right" direction since 1990, or that showed no change during the period are categorized as "achievers," and economies that trended in the "wrong" direction or that started with high levels but trended down in recent years are categorized as "no progress/regressing."

Table 2 illustrates the MDG progress classification, which reflects the progress of developing economies of the Asia and Pacific region since 1990. Four progress categories are made for indicators where sufficient data were available from the United Nations Millennium Development Goals Indicators database (UN 2015), following the July 2015 update and more recent data releases from the UN's official MDG data source agencies. Differences in performance classification between Table 2 and the ESCAP, ADB, and UNDP report arise due to differences in data used rather than in methodological processes as this report uses updated data for MDG indicators. Further, the data are annually updated, resulting in revisions of specific data points in some cases. Thus, progress classifications presented in this report are not always comparable with those in previous editions of the *Key Indicators for Asia and the Pacific*. The progress tracking methodology has its limitations given the nature of targets and is affected by the initial conditions in an economy with respect to the indicator.

In 2015, the target year for the MDGs, good progress is evident in many MDGs, notably in reducing extreme poverty globally, especially in Asia and the Pacific. But while there is much cause for celebration, there remains an unfinished agenda due to uneven progress across the goals, the uneven progress across regions and nations in each goal, and the uneven opportunities for people to share in the benefits of development and progress.

The target to halve extreme poverty (MDG 1) has been achieved years ahead of schedule in Asia and the Pacific, where data show that the proportion of people living on less than $1.25 a day has reduced to 15.3% in 2011 (from 55.3% in 1990). However, there has been slower progress in reducing hunger, particularly child malnutrition. Significant advancement in Asia and the Pacific has also been made toward universal primary education (MDG 2), but more efforts are required to ensure that primary school-aged children not only go to school but also complete primary schooling with good quality education. Gender disparities in schooling

Table 2: Millennium Development Goals Progress Tracking 2015



CO_2 = carbon dioxide, GDP = gross domestic product, HIV = human immunodeficiency virus, Lao PDR = Lao People's Democractic Republic, TB = tuberculosis.

Note: Asian Development Bank estimates based on UNESCAP, ADB, and UNDP MDG progress methodolody (*Making It Happen: Technology, Finance and Statistics for Sustainable Development in Asia and the Pacific*, Asia-Pacific Regional MDGs Report 2014/15).

Sources: AIDSinfo online database (http://aidsinfoonline.org/, accessed 6 October 205); Food and Agriculture Organization of the United Nations, *Global Forest Resources Assessment 2015* (accessed 13 September 2015); United Nations. Millennium Development Goals Indicators Database (http://millenniumindicators.un.org/unsd/mdg/Data.aspx, accessed 14 July 2015); United Nations Educational, Scientific and Cultural Organization, Institute for Statistics (http://www.uis.unesco.org/, accessed 3 August 2015); World Health Organization. *Joint Child Malnutrition Estimates - Levels and Trends* (2015 edition) (http://www.who.int/nutgrowthdb/estimates2014/en/, accessed 28 September 2015); World Health Organization-United Nations International Children's Emergency Fund, Joint Monitoring Programme for Water Supply and Sanitation (http://www.wssinfo.org/, accessed 16 June 2015); and for Taipei,China, various economy sources.

(MDG 3) that have been largely in favor of boys have also been addressed in many countries, especially at the primary and secondary levels, but gender inequalities still persist in some developing economies in Asia and the Pacific, including disparities that are in favor of girls in some economies. Across Asia and the Pacific, child mortality and maternal mortality ratios (MDGs 4 and 5) have been reduced by more than half the 1990 baselines, but the targets for reductions in these mortality ratios by 2015 are not going to be met in most of the developing economies. In the area of health, the fight against HIV/AIDS, malaria, tuberculosis, and other diseases has been generally successful in the Asia and Pacific region (MDG 6), but some developing economies in the region have been regressing in the battle against HIV/AIDS. Carbon dioxide emissions have continued to increase rapidly in the region, but most economies in Asia and the Pacific have increased the land and sea areas under protection (MDG 7). Rapid steps have been made in Asia and the Pacific toward improving access of the population to safe drinking water, but the performance to improve the provision of sanitation across economies in Asia and the Pacific has been less satisfactory. The use of mobile phones has increased phenomenally in the region though access to internet still exhibits digital divide. Finally, global partnerships, particularly official flows from all sources to developing member economies, have improved in the MDG period, but only a few donors contributed more than 0.7% in terms of share of net overseas development assistance to gross national income (MDG 8).

Sustainable Development Goals – the Post-2015 Development Agenda

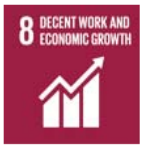
The tasks ahead are to build on the progress as well as the unfinished work in the MDGs; to integrate the economic, social, and environmental dimensions of sustainable development; and to aspire for everyone to have full opportunities to participate in growth processes in the post-2015. To pursue these aspirations, a new agenda "Transforming our world: the 2030 Agenda for Sustainable Development" was adopted by the world leaders at the United Nations Sustainable Development Summit held on 25–27 September 2015 in New York. This agenda recognizes that the greatest challenge and the undisputable requirement for sustainable development is to eradicate poverty in all its forms and dimensions, including extreme poverty. The world leaders pledged for an inclusive agenda that promises to leave no one behind and announced 17 Sustainable Development Goals (Table 3) and 169 targets reflecting an ambitious new universal agenda, which builds on the MDGs and integrates and balances the economic, social, and environmental dimensions of sustainable development. The associated indicators for measuring and monitoring progress for the targets are currently being developed. The new Sustainable Development Goals agenda will guide the development agenda between now and 2030.

Table 3: Sustainable Development Goals

SUSTAINABLE DEVELOPMENT GOALS	Transforming our world: the 2030 Agenda for Sustainable Development	1 NO POVERTY	End poverty in all its forms everywhere
2 ZERO HUNGER	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	3 GOOD HEALTH AND WELL-BEING	Ensure healthy lives and promote well-being for all at all ages
4 QUALITY EDUCATION	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	5 GENDER EQUALITY	Achieve gender equality and empower all women and girls

continued.

Table 3 *(continued)*

	Ensure availability and sustainable management of water and sanitation for all		Ensure access to affordable, reliable, sustainable, and modern energy for all
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all		Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
	Reduce inequality within and among countries		Make cities and human settlements inclusive, safe, resilient, and sustainable
	Ensure sustainable consumption and production patterns		Take urgent action to combat climate change and its impacts[a]
	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development		Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels		Strengthen the means of implementation and revitalize the global partnership for sustainable development

[a] Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

Source: United Nations, Sustainable Development Knowledge Platform https://sustainabledevelopment.un.org/index.html

Data sources and comparability with other publications

Data used for assessing the economies' progress in achieving the MDGs are presented in the statistical tables accompanying each MDG. The data were compiled from the United Nations (UN) Millennium Development Goals Database and the international agencies that have been officially designated to monitor the MDGs. For some indicators, data on the Pacific economies were sourced from the National Minimum Development Indicators Database maintained by the Secretariat of the Pacific Community. Data for Taipei,China were sourced from the Directorate-General of Budget, Accounting and Statistics website. New data points for earlier years are added, while the most recent estimates are revised whenever data become available. Data have been verified to the extent possible, but responsibility for the reliability of the statistics remains with the agencies that are listed as the sources of each table.

Differences between this publication and reports from other organizations on the performance of countries in meeting the MDGs may be due to several factors, including data sources, dates when statistics were collected and published, and different methodologies used in assessing the progress.

MDG 1: Eradicate Extreme Poverty and Hunger

Millennium Development Goal (MDG) 1 to eradicate extreme poverty and hunger has three targets:

1.A: *Halve, between 1990 and 2015, the proportion of people whose income is less than a dollar a day.* The $1-a-day poverty line is a purchasing power parity (PPP)-adjusted dollar that has the same purchasing power in all countries. This threshold was reviewed and increased to $1.25 (PPP) at 2005 prices. For convenience, the target is still referred to by its old name. Aside from poverty incidence (i.e. the proportion living below the poverty line), two other measures for this target are the poverty gap ratio and the share of the bottom 20% in national consumption. The poverty gap ratio is a measure of the depth of poverty by considering how far, on the average, the poor are from that poverty line, while the share of the bottom 20% in national consumption is a measure of inequality.

1.B: *Achieve full and productive employment and decent work for all, including women and young people.* Measures for this target are the employment-to-population ratio, the percentage of workers living on less than $1.25 (2005 PPP) a day, and the proportion of own-account and contributing family workers in total employment. The first indicator is a measure of the ability to provide employment in an economy, while the other two indicators are measures of decent work.

1.C: *Halve, between 1990 and 2015, the proportion of people who suffer from hunger.* Hunger and malnutrition are measured by the percentage of children under 5 years of age who are underweight (malnourished) and by the proportion of population consuming less than the daily minimum energy requirement (undernourished), respectively.

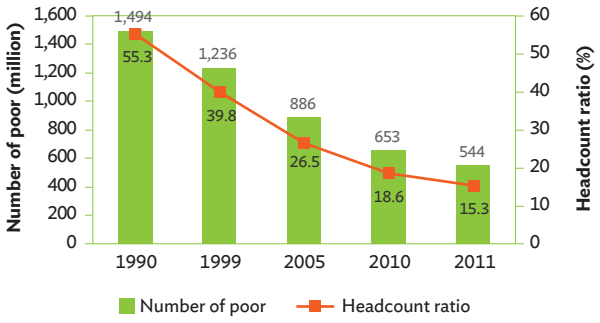
Snapshots

- Extreme poverty target has been achieved in most economies in developing Asia with around 950 million people lifted out of extreme poverty between 1990 and 2011, leading to cutting down the proportion of people living on less than $1.25 (2005 PPP) per day by more than two-thirds.
- Employment opportunities are improving in the Asia and Pacific region with employment-to-population ratios increasing in many economies, but a large workforce remains in low-paying vulnerable jobs in the informal sector in many developing economies.
- The proportion of workers living in extreme poverty is falling, suggesting progress in generating more decent jobs.
- Prevalence of hunger, as measured by the proportion of children under 5 years of age moderately or severely underweight, continues to decline, but remains a serious problem in many economies, with majority of the developing Asian economies unable to meet the hunger target.

Progress

A sizeable reduction of extreme poverty in developing Asia from 55.3% of the population in 1990 to 15.3% in 2011 has steered global progress in meeting the MDG extreme poverty target much ahead of the 2015 deadline. In the People's Republic of China (PRC) alone, extreme poverty (defined as people having an average income or consumption less than $1.25 a day in 2005 PPP prices) has been reduced from 60.7% of its population in 1990 to 6.3% in 2011. The number of extremely poor people in developing Asia also declined from nearly 1.5 billion in 1990 to about 544 million in the 2011 (Figure 1.1).

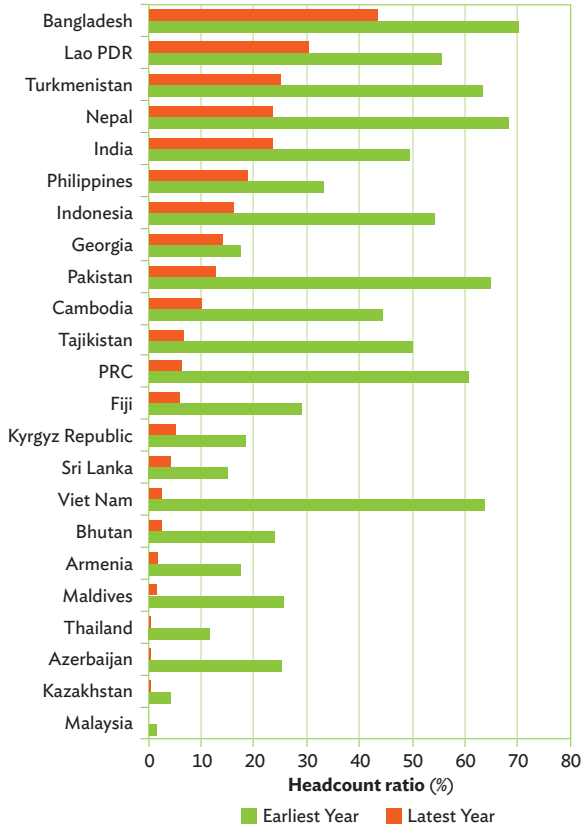
Figure 1.1: Number and Proportion of People in the Asia and Pacific Region Living on Less than $1.25 (2005 PPP) a Day



Source: Asian Development Bank estimates using data from PovcalNet (accessed 12 January 2015).

While most economies in Asia and the Pacific have met the MDG target to halve extreme poverty by 2015 from their baselines in 1990 (Figure 1.2), progress in extreme poverty reduction is uneven. Extreme poverty, however, continues to be pervasive, with at least one in every five persons living on less than $1.25 (2005 PPP) per day in some economies as seen from available data for recent years. These economies include Bangladesh (43.3%), India (23.6%), the Lao People's Democratic Republic (Lao PDR) (30.3%), Nepal (23.7%), and Timor-Leste (34.9%). The Federated States of Micronesia (FSM) (31.2%) and Turkmenistan (24.8%) too had poverty figures exceeding 20%, but their most recent available data are more than a decade old.

Figure 1.2: Proportion of Population Living on Less than $1.25 (2005 PPP) a day, Earliest (1990–2003) and Latest (1998–2012) Years



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.1.

Among the 21 economies in developing Asia with comparable data to track progress on extreme poverty target, 19 economies either had achieved the MDG target, or are expected to meet the target this year (Box 1.1). Bangladesh and Georgia have made slow progress in reducing extreme poverty and are expected to meet the target after 2015 only. With the exception of Fiji, Pacific economies have insufficient poverty data to assess progress.

At the time of finalizing this report, the international poverty line for estimating global poverty was updated to $1.90 per person per day in 2011 PPP by the World Bank. Updated estimates of global poverty from 33 developing member economies indicate a relatively small revision to poverty in developing Asia, from 15.3% to 14.8% in 2011 (Box 1.2).

Box 1.1: Progress Toward Achieving the $1.25 (2005 PPP) a Day Target

Achievers/on track	
Armenia	Lao PDR
Azerbaijan	Malaysia
Bhutan	Nepal
Cambodia	Pakistan
China, People's Rep. of	Philippines
Fiji	Sri Lanka
India	Tajikistan
Indonesia	Thailand
Kazakhstan	Viet Nam
Kyrgyz Republic	
Off track - slow	
Bangladesh	Georgia

Lao PDR = Lao People's Democratic Republic.
Source: Derived from Table 1.1.

Since 1990, the poverty gap ratio—a measure of depth of poverty—has been significantly reduced. The poverty gap ratio has declined from 26% or less in the earlier years to 11% or less in the latest years across the Asia and Pacific economies (Figure 1.3). The larger the poverty gap ratio, the more resources are needed to lift everyone out of poverty.

In the Asia and Pacific region, the income or consumption share of the bottom 20% is at under 10% for all economies. Figure 1.4a shows the income or consumption share of the poorest quintile for 24 developing economies in the region for latest

Box 1.2: Update to the "International Poverty Line" (defined earlier as "Proportion of population below $1.25 (2005 PPP) per person per day")

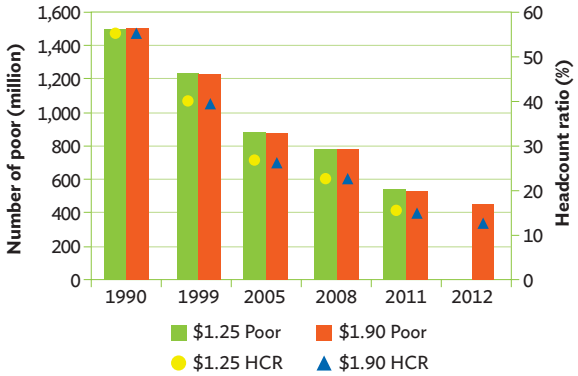
Since 2008, $1.25 (PPP) per day per person at 2005 prices has been used as the international poverty line to monitor the MDG target of reducing extreme poverty by half. This poverty line is based on the average of 15 national poverty lines from some of the world's poorest countries converted to a common currency using purchasing power parity (PPP) exchange rates. The PPP exchange rates were constructed from internationally comparable prices collected in 2005 as part of the International Comparison Program (ICP) 2005.

To capture differences in the cost of living across the world since 2005, the ICP 2011 was implemented globally and a new set of PPP exchange rates for 2011 were released in 2014. On 4 October 2015 the World Bank released the updated international poverty line equal to $1.90 per person per day using 2011 PPPs. The $1.90 PPP line is based on the national poverty lines of those same 15 poorest countries from 2005 and preserves their real purchasing power. Thus, $1.90 in 2011 prices buys the same goods and services as $1.25 bought in 2005.

Using the $1.90 (2011 PPP) poverty line, the estimate of global poverty for 2011 has been revised from 14.5% based on the earlier poverty line to 14.2% based on the updated poverty line (Ferreira, et al, 2015). The changes in the poverty rate for developing Asia are also relatively small, from 15.3% using $1.25 (2005 PPP) poverty line to 14.6% using $1.90 (2011 PPP) poverty line if we limit our attention to the original 26 ADB developing member economies (DMEs) for which poverty data was available. With additional data for 6 DMEs, bringing the total DMEs to 32, the 2011 poverty rate becomes 14.8% for $1.90 (2011 PPP) poverty line. The estimate of global poverty for 2012 using the $1.90 (2011 PPP) poverty line is 12.8% while that of developing Asia—based on 32 DMEs with data—is 12.5%. With 451 million poor living in these economies, developing Asia accounted for half of the world's poor in 2012. While the changes in the incidence of extreme poverty is small for developing Asia as a whole, there are some significant revisions in the poverty incidence of several economies. For more details please refer to the sources cited below. If the $1.90 (2011 PPP) poverty line is used to track progress of economies in Box 1.1, all economies with the exception of Bangladesh, Georgia, and the Lao People's Democratic Republic (Lao PDR) will be classified as "achievers/on track". This is same as the result based on the $1.25 (2005 PPP) poverty line with the exception of the Lao PDR. For the Lao PDR, the classification changes from "on track" (expected to achieve by 2015) to "off track-slow" meaning that the target will be achieved only after 2015, the reason being, revision in the poverty estimates for the Lao PDR for the earliest year (1992) from 55.7% to 42.6%.

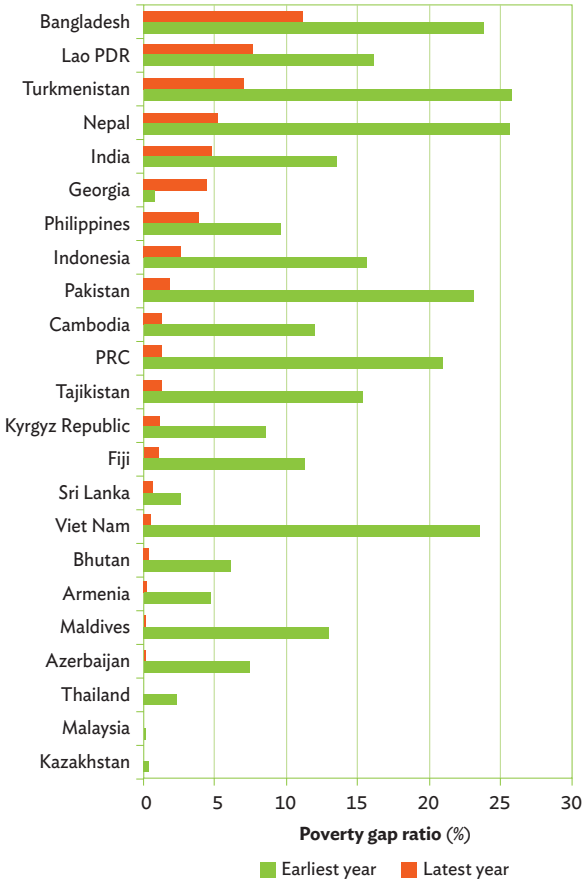
Sources: Francisco H. G. F., S. Chen, A. Dabalen, Y. Dikhanov, N. Hamadeh, D. Jolliffe, A. Narayan, E. B. Prydz, A. Revenga, P. Sangraula, U. Serajuddin and N. Yoshida. 2015. *A Global Count of the Extreme Poor in 2012: Data Issues, Methodology and Initial Results*. Policy Research Working Paper 7432. World Bank, Washington, DC; World Bank. PovcalNet Database. http://iresearch.worldbank.org/PovcalNet/index.htm?0 (accessed 12 January 2015 for $1.25 (2005 PPP) and 8 October 2015 for $1.90 (2011 PPP)).

Box Figure: Extreme Poverty in Developing Asia $1.25 (2005 PPP) a day vs. $1.90 (2011 PPP) a day



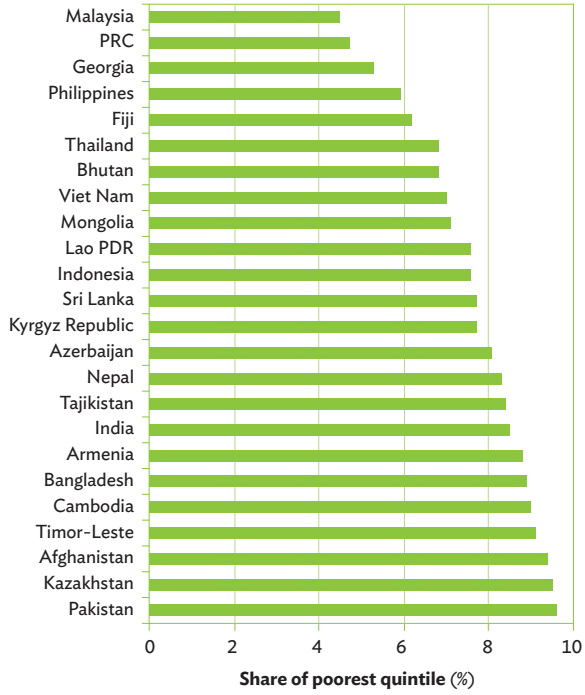
HCR = headcount ratio, PPP = puchasing power parity.
Note: Estimates for $1.25 (2005 PPP) a day poverty in developing Asia are based on data for 26 DMEs. Estimates for $1.90 (2011 PPP) a day poverty are based on 32 DMEs.

Figure 1.3: Poverty Gap Ratio, Earliest (1990–2003) and Latest (1998–2012) Years



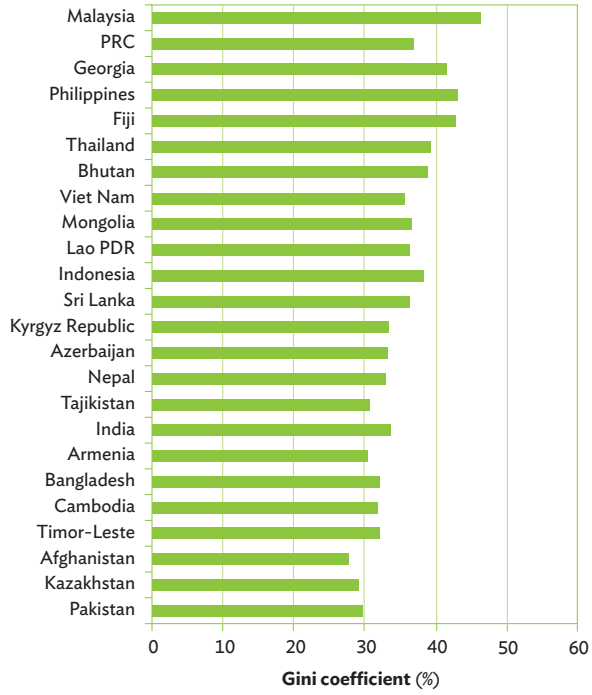
Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.1.

Figure 1.4a: Share of Poorest Quintile in National Income or Consumption Latest Years (2007–2012)



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: RT 1.9.

Figure 1.4b: Gini Coefficient, Latest Years (2007–2012)



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: RT 1.9.

data available between 2007 and 2014. Economies in developing Asia that have relatively low shares (below 5%) of national income or consumption for the poorest quintile include Malaysia, Georgia, and the PRC. These economies also have relatively high Gini coefficients (a common measure of income inequality) ranging from 30% to 60% (Figure 1.4b). When economies have high income inequality, overall economic growth translates less successfully into higher incomes for the poor. In addition, economies that are more unequal often grow less rapidly. Poverty reduction can be accelerated by strategies, programs, and policies that not only increase economic growth, but also make economic growth inclusive.

Employment opportunities appear to be slightly outpacing the growth of the labor force in the

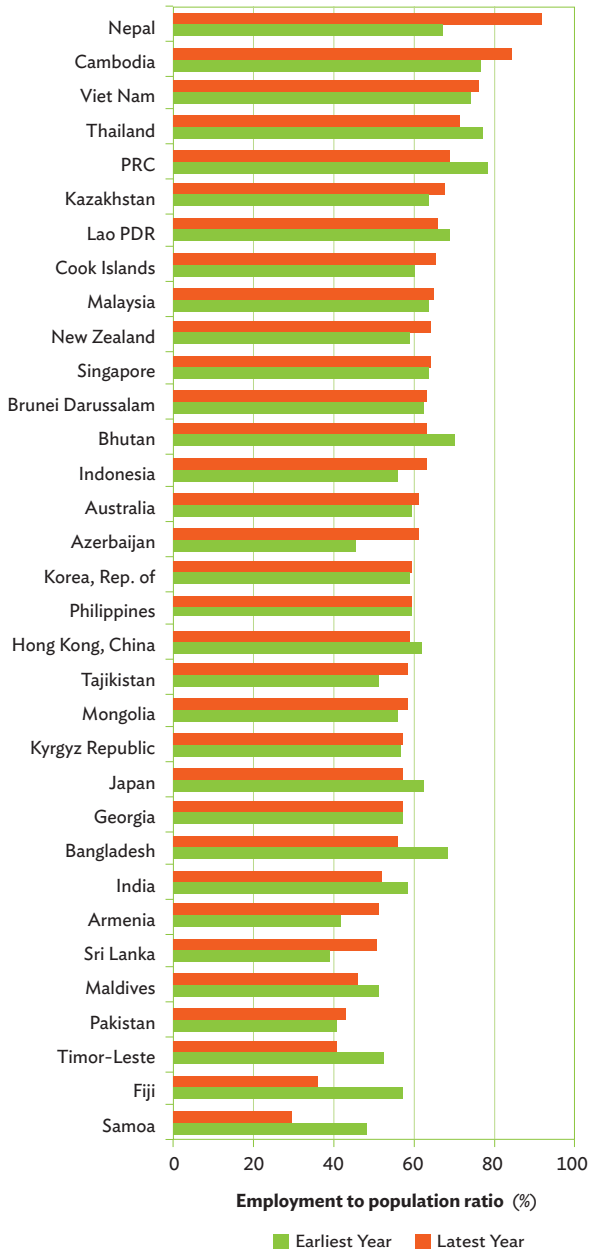
Asia and Pacific region. Employment-to-population ratios have marginally increased in most reporting economies between earliest and latest years. The employment-to-population ratio, the proportion of a country's working-age population that is employed, is an indicator of the economy's ability to provide employment. For many (16 out of 33) Asia and Pacific economies with available data for earliest and latest years, the ratios for the latest year had generally slightly improved, and these ratios were in the 30%–90% range (Figure 1.5). While economic growth has generally slowed down across the world since 2008, employment in the Asia and Pacific region is still expanding, but only slightly faster than the growth of the labor force.

With sharp declines in extreme poverty in the Asia and Pacific region in the past two and a half decades, a significant reduction in the proportion of working poor (i.e., workers living on less than $1.25 a day) has been achieved. In all economies in the region, the proportion of working poor substantially declined since 1990 (Figure 1.6). Out of 23 economies with comparable data for earliest year in the 1990s and latest year around the first decade of 2000s, the number of economies with percentage of working poor exceeding 20% declined from fourteen to five. Bhutan (4.0 percentage points), Fiji (3.4 percentage points), Tajikistan (4.4 percentage points), and Viet Nam (3.2 percentage points) have yielded the largest annual reductions (more than 3 percentage points) in the proportions of working poor.

Economies in developing Asia with still relatively high proportions of working poor (at least 25%) include Afghanistan (47%), Bangladesh (42%), the Lao PDR (33%), Myanmar (36%), Timor-Leste (31%), and India (29%) (Table 1.2).

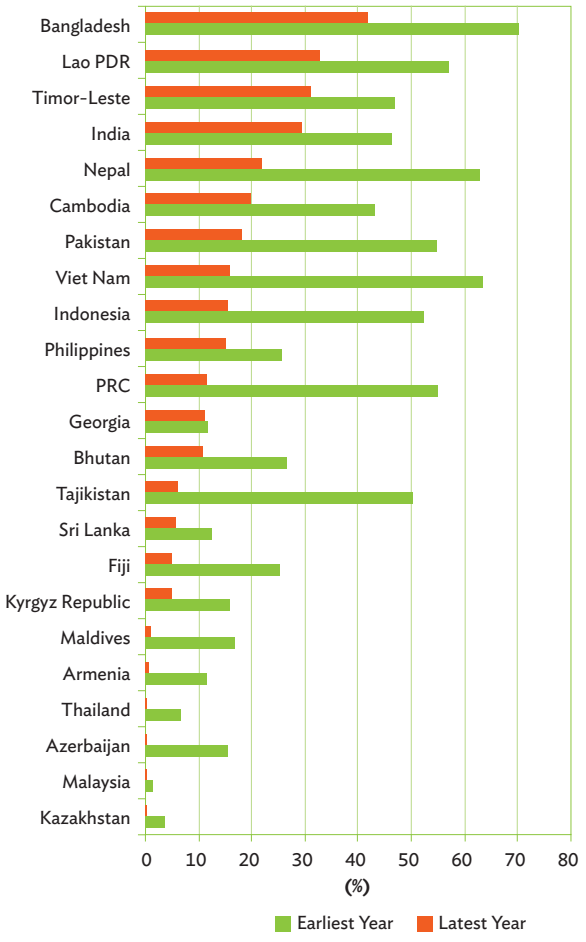
Across developing Asia, vulnerable employment (defined as the percentage of own-account and contributing or unpaid family workers in total employment) has declined, but it has remained high at over 40%. The rate of vulnerable employment is indicative of the proportion of workers in informal working arrangements where incomes received are low and adequate social protection is deficient. While the share of own-account and contributing or unpaid family workers to total employment has slightly reduced across economies in the Asia and Pacific region except for Bangladesh; Georgia; Hong

Figure 1.5: Employment-to-Population Ratio, Earliest (1990–2003) and Latest (2001–2013) Years



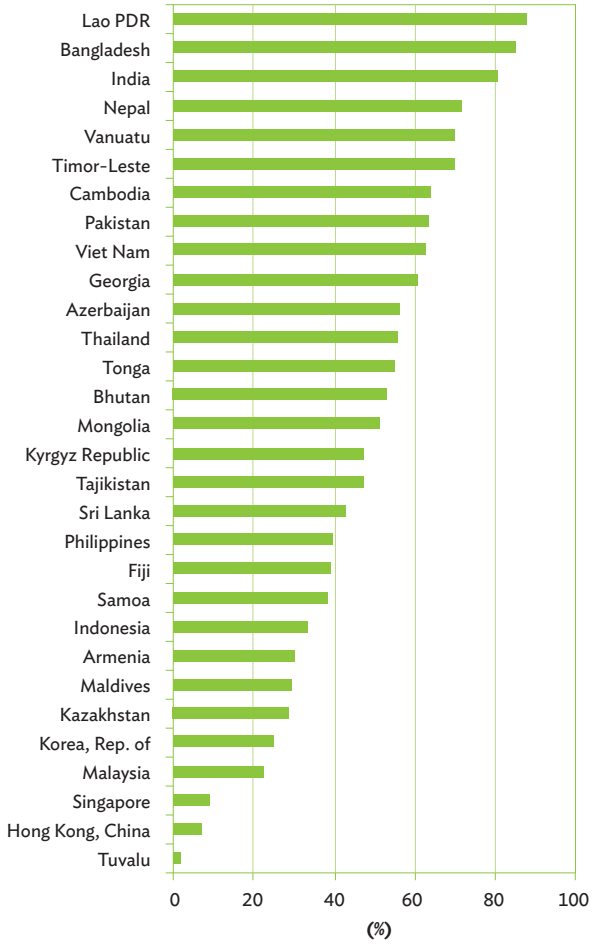
Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.1.

Figure 1.6: Proportion of Employed People Living Below $1.25 (2005 PPP) a Day, Earliest (1991-2003) and Latest (2004-2011) Years



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.2.

Figure 1.7: Proportion of Own-Account and Contributing Family Workers in Total Employment in the Asia and Pacific Region, Latest (2001–2013) Year



Lao PDR = Lao People's Democratic Republic.
Source: Table 1.2.

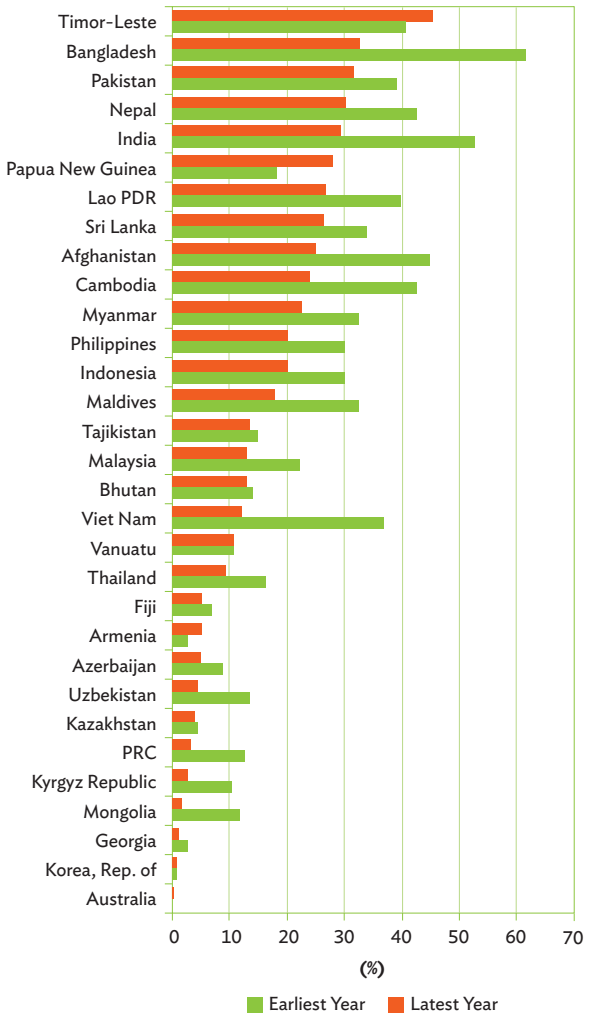
Kong, China; and Sri Lanka, vulnerable employment is still relatively high (50% or more) in 15 reporting economies (Figure 1.7). The vulnerable employment rate exceeds 80% in the Lao PDR (88%), Bangladesh (85%), and India (81%). In contrast, the rates are low at less than 10% in Hong Kong, China; Singapore; and Tuvalu. Large declines in the rates were achieved in the economies of Bhutan, Cambodia, Indonesia, the Maldives, Kazakhstan, Thailand, and Viet Nam between earliest and latest years for which data are available (Table 1.2).

Decent progress has been achieved in reducing hunger, but challenges to end hunger remain in developing Asia. The prevalence of moderately and severely underweight children under 5 years of age has decreased in 26 of the 31 economies with data for earliest and latest years (Figure 1.8). Afghanistan, Bangladesh, Cambodia, India, and Viet Nam have remarkable average annual reductions (of more than 1 percentage point per year) in the prevalence of underweight children since 1990. However, malnutrition remained high in 11 economies of the Asia and Pacific region (at more than 20%), which include the heavily populated economies of India (29.4%), Bangladesh (32.6%), and Pakistan (31.6%). Child malnourishment is a serious concern because it can affect children's health which, in turn, can

either lead to their early death or hamper their future capacities to become productive members of society.

Compared with the progress in meeting the MDG target to reduce extreme poverty, the Asia and Pacific region had much slower progress in meeting the hunger target. Box 1.3 shows the progress toward the hunger target as indicated by trends based on available data in the reduction of the percentage of underweight children under 5 years of age about two-fifths (11) of the 28 reporting economies had achieved or are expected to achieve the MDG target by 2015. Another 13 economies are making slow progress, with Cambodia and Azerbaijan expected to meet the target between 2016 and 2020, with another 9 economies between 2021 and 2030, and 3 economies beyond 2030. Kazakhstan is making slow progress, but it had relatively low prevalence of underweight children (4.4%) in 1995 and has reduced it further to 3.7% in 2010. A few economies, viz., Armenia (where a low prevalence of 2.7% in the year 1998 increased to 5.3 in 2010), Papua New Guinea, Timor-Leste, and Vanuatu, are seen to be regressing or making no progress.

Figure 1.8: Prevalence of Underweight Children Under 5 Years of Age, Earliest (1990–2005) and Latest (2004–2014) Years



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.3.

Box 1.3: Progress Toward the Hunger Target

Achievers/on track	
Afghanistan	Maldives
Bangladesh	Mongolia
China, People's Rep. of	Thailand
Georgia	Uzbekistan
Kyrgyz Republic	Viet Nam
Malaysia	
Off track - slow	
Azerbaijan	Myanmar
Bhutan	Nepal
Cambodia	Pakistan
India	Philippines
Indonesia	Sri Lanka
Kazakhstan	Tajikistan
Lao PDR	
No progress/regressing	
Armenia	Timor-Leste
Papua New Guinea	Vanuatu

Lao PDR = Lao People's Democratic Republic.
Source: Table 1.3.

Data issues and comparability

All the three indicators for monitoring poverty require information from household income or household consumption expenditure, with two of them (the incidence and depth of extreme poverty) also requiring the PPP dollar conversion rate for 2005. Both the measurement of household income or expenditure in national currencies as well as the calculation of 2005 PPPs will have relatively high error margins in some countries. Poverty data based on the $1.25 (2005 PPP) a day poverty line are also not available for almost all the Pacific island economies. For the number of poor, population data

from the World Bank's PovcalNet Database were used to maintain consistency.

The computation of labor productivity (or gross domestic product per person employed) uses data on the number of persons employed, which does not take into account the actual number of hours worked. Assuming a constant mix of economic activities, the best measure of labor input to compute labor productivity is the "total number of annual hours actually worked by all persons employed." In addition, differences in the coverage of informal sector activities in the statistics of developing members may hamper cross-country comparability of estimates of labor productivity growth.

For the employment-to-population ratio, estimates across countries often are not strictly comparable because nationally reported data differ, mostly in age coverage.

The proportion of own-account and contributing family workers in total employment may not be able to capture vulnerable employment thoroughly because, while most own-account workers are more vulnerable or worse off than salaried workers, this is not always the case. Some salaried workers are in casual contracts, offering little or no social protection at all. This, however, does not diminish the indicator's usefulness and relevance because high poverty rates are strongly correlated with large shares of vulnerable employment in developing economies.

The hunger indicators are based on standards devised by the Food and Agriculture Organization of the United Nations, the United Nations Children's Fund, and the World Health Organization. While countries attempt to use the same standards, comparability is compromised by lack of regular data collection in many countries. Statistical techniques are typically used to extend data collected from household surveys to the full population. Such estimates may have large error margins.

Post-2015 agenda

Although the target for extreme poverty has been achieved and hunger has been considerably reduced, eradication of extreme poverty and hunger is far from being a reality. The reduction of poverty and hunger (to zero) will continue to be part of the global development goals in the post-2015 era.

A finer granularity of data on poverty and hunger will be required to monitor progress in each economy so as not to leave anyone behind. Across developing Asia, the latest poverty data as well as data from earliest years in the MDG period show that most economies have higher rural poverty rates than those in urban area. The rural population is significantly more at risk of being poor than the urban population among these developing economies. Improved poverty reduction requires more focused attention on improving opportunities and livelihoods in the rural areas in order to bridge rural–urban disparities. In an economy, disparities across subpopulations will need regular monitoring so that gaps can be narrowed. Those who have managed to exit poverty will have high risks of sliding back into poverty, with the effects of shocks, such as the loss of a job, death or sickness in the family, as well as harmful effects on livelihood by price volatilities, conflicts, and natural disasters.

More timely data on poverty, inequality, and hunger will be helpful for accelerating assistance to those who need help the most. The use of information and communication technology tools for improved data capture and the applications of big data such as the use of telecommunication for yielding small area estimates of poverty, appear to be promising means of getting poverty information faster for appropriate policy action.

Goal 1 Targets and Indicators

Table 1.1: Target 1.A—Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day

Regional Member	1.1 Proportion of Population below the Poverty Line (%)				1.2 Poverty Gap Ratio[a]		1.3 Share of Poorest Quintile in National Income or Consumption (%)[a]
	$1.25 a Day (PPP)[a]		National[b]				
	Earliest Year	Latest Year	Earliest Year	Latest Year	Earliest Year	Latest Year	Latest Year
Developing Member Economies							
Central and West Asia							
Afghanistan	...	...	36.3 (2007)	35.8 (2011)	...	...	9.4 (2007)
Armenia	17.5 (1996)	1.8 (2012)	48.3 (2001)	32.0 (2013)	4.7 (1996)	0.3 (2012)	8.8 (2012)
Azerbaijan	25.2 (1995)	0.3 (2008)	49.6 (2001)	5.3 (2013)	7.5 (1995)	0.1 (2008)	8.1 (2008)
Georgia	17.5 (1997)	14.1 (2012)	24.6[c] (2004)	21.4[c] (2014)	6.0 (1997)	4.5 (2012)	5.3 (2012)
Kazakhstan	4.2 (1993)	0.1 (2010)	46.7 (2001)	2.9 (2013)	0.5 (1993)	0.0 (2010)	9.5 (2010)
Kyrgyz Republic	18.6 (1993)	5.1 (2011)	56.4 (2001)	30.6 (2014)	8.6 (1993)	1.2 (2011)	7.7 (2011)
Pakistan	64.7 (1990)	12.7 (2010)	30.6 (1998)	12.4 (2011)	23.2 (1990)	1.9 (2010)	9.6 (2010)
Tajikistan	50.1 (1999)	6.5 (2009)	96.0 (1999)	35.6 (2013)	15.4 (1999)	1.3 (2009)	8.4 (2009)
Turkmenistan	63.5 (1993)	24.8 (1998)	...	...	25.8 (1993)	7.0 (1998)	6.1 (1998)
Uzbekistan	...	...	27.5 (2001)	14.1 (2013)	...	...	7.4 (2003)
East Asia							
China, People's Rep. of	60.7[d] (1990)	6.3[d] (2011)	6.0 (1996)	8.5[e] (2013)	21.0[d] (1990)	1.3[d] (2011)	4.7 (2010)
Hong Kong, China	...	...	...	...	...	...	...
Korea, Rep. of	...	...	...	16.5[f] (2012)	...	...	...
Mongolia	...	...	38.7 (2010)	27.4 (2012)	...	...	7.1 (2007)
Taipei,China	...	...	0.6[g] (1993)	1.6[g] (2013)	...	...	...
South Asia							
Bangladesh	70.2 (1991)	43.3 (2010)	56.6 (1991)	31.5 (2010)	23.8 (1991)	11.2 (2010)	8.9 (2010)
Bhutan	24.0 (2003)	2.4 (2012)	23.2 (2007)	12.0 (2012)	6.1 (2003)	0.4 (2012)	6.8 (2012)
India	49.4[d] (1993)	23.6[d] (2011)	45.3[h] (1993)	21.9[h] (2011)	13.6[d] (1993)	4.8[d] (2011)	8.5 (2009)
Maldives	25.6 (1998)	1.5 (2004)	21.0[i] (2003)	15.0[j] (2010)	13.1 (1998)	0.1 (2004)	6.5 (2004)
Nepal	68.0 (1995)	23.7 (2010)	41.8 (1996)	25.2 (2010)	25.6 (1995)	5.2 (2010)	8.3 (2010)
Sri Lanka	15.0 (1990)	4.1 (2009)	26.1 (1990)	6.7 (2013)	2.7 (1990)	0.7 (2009)	7.7 (2009)
Southeast Asia							
Brunei Darussalam	...	...	...	...	...	...	...
Cambodia	44.5 (1994)	10.1 (2011)	50.2 (2004)	18.9[k] (2012)	12.0 (1994)	1.4 (2011)	9.0 (2011)
Indonesia	54.3[d] (1990)	16.2[d] (2011)	17.6 (1996)	11.3 (2014)	15.6[d] (1990)	2.7[d] (2011)	7.6 (2010)
Lao PDR	55.7 (1992)	30.3 (2012)	46.0 (1992)	23.2 (2012)	16.2 (1992)	7.7 (2012)	7.6 (2012)
Malaysia	1.6 (1992)	0.0 (2009)	12.4 (1992)	1.7 (2012)	0.1 (1992)	0.0 (2009)	4.5 (2009)
Myanmar	...	...	32.1 (2005)	25.6 (2010)	...	...	...
Philippines	33.2 (1991)	19.0 (2012)	34.4 (1991)	25.2 (2012)	9.7 (1991)	4.0 (2012)	5.9 (2012)
Singapore	...	...	...	...	...	...	...
Thailand	11.6 (1990)	0.3 (2010)	58.1[l] (1990)	12.6[l] (2012)	2.4 (1990)	0.0 (2010)	6.8 (2010)
Viet Nam	63.8 (1993)	2.4 (2012)	20.7[m] (2010)	9.8 (2013)	23.6 (1993)	0.6 (2012)	7.0 (2012)
The Pacific							
Cook Islands	...	...	...	28.4[n] (2006)	...	...	...
Fiji	29.2 (2002)	5.9 (2008)	35.0[n] (2003)	35.2[n] (2008)	11.3 (2002)	1.1 (2008)	6.2 (2008)
Kiribati	...	...	...	21.8[n] (2006)	...	...	...
Marshall Islands	...	...	20.0[n] (1999)	52.7[n] (2002)	...	...	1.1 (1999)
Micronesia, Fed. States of	...	31.2[o] (2000)	27.9[n] (1998)	31.4[n] (2005)	...	16.3[o] (2000)	1.6[o] (2000)
Nauru	...	...	...	25.1[n] (2001)	...	...	...
Palau	...	...	...	24.9[n] (2006)	...	...	...
Papua New Guinea	35.8 (1996)	...	37.5[n] (1996)	28.0[n] (2009)	...	12.3 (1996)	4.5 (1996)
Samoa	...	...	22.9[n] (2002)	26.9[n] (2008)	...	...	...
Solomon Islands	...	...	...	22.7[n] (2006)	...	...	...
Timor-Leste	...	34.9 (2007)	36.3[n] (2001)	49.9[n] (2007)	...	8.1 (2007)	9.1 (2007)
Tonga	...	...	16.2[n] (2001)	22.5[n] (2009)	...	...	...
Tuvalu	...	...	21.2[n] (2004)	26.3[n] (2010)	...	...	...
Vanuatu	...	...	13.0[n] (2006)	12.7[n] (2010)	...	...	...
Developed Member Economies							
Australia	...	...	...	...	...	...	7.0 (2003)
Japan	...	...	...	...	...	...	7.4 (2008)
New Zealand	...	...	...	...	...	...	...

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic, PPP = purchasing power parity.

a Data are consumption-based, except for Armenia (1996), Kazakhstan (1993), Malaysia (1992 and 2009), the Federated States of Micronesia (2000), and Turkmenistan (1993), which are income-based.
b Data are consumption-based, except for the People's Republic of China; the Republic of Korea; Malaysia; the Philippines; and Taipei,China, which are income-based.
c Data refers to share of population under 60% of the median consumption.
d Weighted average of urban and rural estimates.
e Based on new national poverty line stipulated in the country's rural poverty reduction target for 2012.
f Estimated using the equivalized disposable income based on 50% of the median income.
g Refers to percentage of low-income population to total population.
h Based on Tendulkar methodology, using mixed reference period.
i Data are adjusted for inflation.
j Based on half the median of Atoll expenditure per person per day (Rf. 22).
k Data are based on the new poverty line using the 2009 Cambodia Socioeconomic Survey and cannot be compared with previous published series.
l The entire series is updated based on revised national poverty line in 2013 and cannot be compared with previous published series.
m Data is based on the 2010 revised World Bank and General Statistics Office of Viet Nam expenditure poverty line and thus cannot be compared with the prior series. An alternative poverty headcount rate released by the goverment is 14.2, which is based on the official Ministry of Labour – Invalids and Social Affairs poverty lines (revised every 5 years for the Socio-economic Development Plan) and a "bottom up" system using community-level poverty counts aggregated up to district, province, and national levels.
n Data refer to percentage of population below the basic needs poverty line.
o Refers to urban areas only.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 6 July 2015); Pacific Regional Information System. National Minimum Development Indicators Database. http://www.spc.int/nmdi/ (accessed 16 July 2015); economy sources.

Table 1.2: Target 1.B—Achieve full and productive employment and decent work for all, including women and young people

Regional Member	1.4 Growth Rate of GDP per Person Employed (%, at constant 1990 US$ PPP)		1.5 Employment-to-Population Ratio (%, aged 15 years and over)		1.6 Proportion of Employed People Living Below $1.25 (PPP) per Day (%)		1.7 Proportion of Own-Account and Contributing Family Workers in Total Employment (%)	
	Earliest Year	Latest Year	Earliest Year	Latest Year	Earliest Year	Latest Year	Earliest Year	Latest Year
Developing Member Economies								
Central and West Asia								
Afghanistan	...	...	...	...	...	46.8 (2005)	...	...
Armenia	9.4 (1994)	5.6 (2011)	41.9 (2001)	51.4 (2011)	11.3 (1998)	0.6 (2008)	35.7 (2007)	29.8 (2011)
Azerbaijan	–1.5 (1991)	0.6 (2012)	45.4 (2002)	60.9 (2011)	15.4 (1995)	0.3 (2008)	62.4 (2003)	56.4 (2013)
Georgia	2.6 (1999)	2.5 (2012)	57.3 (1998)	56.8 (2012)	11.9 (2002)	11.2 (2008)	53.9 (1998)	60.6 (2010)
Kazakhstan	–7.5 (1994)	2.5 (2012)	63.6 (2002)	67.9 (2012)	3.6 (1996)	0.1 (2009)	40.0 (2001)	28.6 (2013)
Kyrgyz Republic	–8.2 (1991)	12.1 (2013)	56.3 (2002)	57.3 (2013)	16.0 (1993)	5.0 (2009)	51.5 (2002)	47.3 (2006)
Pakistan	9.2 (1991)	–1.3 (2008)	40.5 (1990)	42.8 (2007)	54.7 (1991)	18.1 (2007)	64.9 (1995)	63.1 (2008)
Tajikistan	–26.7 (1992)	20.9 (2009)	50.9 (2003)	58.4 (2004)	50.2 (1999)	5.9 (2009)	...	47.1 (2009)
Turkmenistan	–17.7 (1992)	12.3 (1999)	...	...	16.8 (1998)	...	...	...
Uzbekistan	–11.5 (1992)	7.0 (2007)	...	...	...	...	...	...
East Asia								
China, People's Rep. of	8.0 (1991)	7.3 (2013)	78.3 (1990)	68.6 (2013)	55.2 (1993)	11.5 (2008)	...	...
Hong Kong, China	4.1 (1991)	1.3 (2013)	61.5 (1990)	59.1 (2013)	...	...	5.5 (1993)	6.9 (2012)
Korea, Rep. of	6.4 (1991)	1.3 (2013)	58.6 (1990)	59.5 (2013)	...	...	30.0 (2000)	24.8 (2008)
Mongolia	2.9 (1994)	10.3 (2012)	55.9 (1998)	58.3 (2012)	...	...	56.6 (2000)	51.4 (2012)
Taipei,China	...	...	...	...	...	...	...	...
South Asia								
Bangladesh	...	...	68.2 (1991)	56.0 (2005)	70.4 (1991)	41.7 (2010)	69.4 (1996)	85.0 (2005)
Bhutan	–9.0 (1999)	3.2 (2012)	69.8 (2003)	63.1 (2012)	26.8 (2003)	10.7 (2007)	68.0 (2006)	53.1 (2012)
India	–9.3 (1995)	9.2 (1998)	58.3 (1994)	51.5 (2012)	46.3 (1994)	29.3 (2010)	83.1 (1994)	80.8 (2010)
Maldives	...	...	51.3 (1995)	46.0 (2010)	16.9 (1998)	1.1 (2004)	46.3 (1990)	29.6 (2006)
Nepal	...	...	67.2 (1996)	91.6 (2003)	62.9 (1996)	21.9 (2010)	...	71.6 (2001)
Sri Lanka	5.3 (1991)	7.2 (2012)	38.6 (1990)	50.5 (2012)	12.4 (1991)	5.8 (2007)	43.0 (1990)	43.1 (2013)
Southeast Asia								
Brunei Darussalam	...	...	62.6 (1991)	63.1 (2001)	...	...	4.1 (1991)	...
Cambodia	–5.8 (2001)	9.9 (2012)	76.4 (2000)	84.1 (2012)	43.3 (1994)	19.9 (2008)	84.5 (2000)	64.1 (2012)
Indonesia	8.1 (1991)	3.8 (2013)	55.7 (1992)	62.7 (2013)	52.3 (1993)	15.5 (2011)	62.8 (1997)	33.0 (2013)
Lao PDR	...	...	68.6 (1995)	65.7 (2005)	57.1 (1992)	32.8 (2008)	90.1 (1995)	88.0 (2005)
Malaysia	4.9 (1993)	0.9 (2013)	63.5 (1990)	65.0 (2013)	1.3 (1992)	0.1 (2009)	28.8 (1991)	22.2 (2013)
Myanmar	...	...	...	...	...	35.6 (2005)	...	...
Philippines	–2.5 (1991)	6.4 (2013)	59.3 (1990)	59.4 (2013)	25.7 (1991)	15.2 (2009)	44.9 (1998)	39.8 (2012)
Singapore	17.9 (1991)	1.3 (2012)	63.6 (1990)	64.1 (2012)	...	...	8.8 (1991)	8.7 (2013)
Thailand	7.5 (1991)	2.4 (2013)	76.9 (1990)	71.0 (2013)	6.6 (1992)	0.3 (2009)	70.3 (1990)	55.9 (2013)
Viet Nam	3.6 (1991)	4.4 (2013)	74.3 (1996)	76.0 (2013)	63.4 (1993)	15.8 (2008)	82.1 (1996)	62.6 (2013)
The Pacific								
Cook Islands	...	...	60.0 (2001)	65.2 (2011)	...	...	...	...
Fiji	5.2 (2004)	–2.3 (2009)	57.2 (1996)	35.9 (2009)	25.4 (2002)	5.0 (2008)	46.7 (2002)	38.8 (2008)
Kiribati	...	...	...	80.1 (2000)	...	...	...	...
Marshall Islands	...	...	...	...	...	...	26.7 (1999)	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	34.2 (1996)	...	...	...
Samoa	...	31.3 (2012)	48.2 (2001)	29.4 (2012)	...	...	47.7 (2006)	38.1 (2011)
Solomon Islands	...	...	23.1 (1999)	...	...	23.6 (2005)	...	...
Timor-Leste	...	...	52.4 (2001)	40.2 (2010)	47.0 (2001)	30.9 (2007)	...	69.6 (2010)
Tonga	...	...	50.6 (1996)	...	...	...	57.0 (1996)	55.2 (2003)
Tuvalu	...	...	...	53.3 (2002)	...	...	...	2.0 (2002)
Vanuatu	...	...	...	67.6 (2009)	...	...	...	70.0 (2009)
Developed Member Economies								
Australia	2.0 (1991)	1.5 (2013)	59.3 (1990)	61.3 (2013)	...	...	10.3 (1990)	9.0 (2008)
Japan	1.5 (1991)	0.9 (2013)	62.1 (1990)	56.9 (2013)	...	...	19.2 (1990)	10.5 (2008)
New Zealand	1.1 (1991)	0.4 (2013)	59.1 (1990)	64.1 (2013)	...	...	12.7 (1991)	12.1 (2008)

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic, PPP = purchasing power parity.

Source: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 7 July 2015).

Goal 1 Targets and Indicators

Table 1.3: Target 1.C—Halve, between 1990 and 2015, the proportion of people who suffer from hunger

Regional Member	1.8 Prevalence of Underweight Children under 5 Years of Age (%)		1.9 Proportion of Population below Minimum Level of Dietary Energy Consumption (%)		
	Earliest Year	Latest Year			
	Total	Total	1991[a]	2000[b]	2014[c]
Developing Member Economies					
Central and West Asia					
Afghanistan	44.9 (1997)	25.0 (2013)	30	45	27
Armenia	2.7 (1998)	5.3 (2010)	27	21	6
Azerbaijan	8.8 (1996)	4.9 (2013)	24	23	<5
Georgia	2.7 (1999)	1.1 (2009)	57	15	7
Kazakhstan	4.4 (1995)	3.7 (2010)	<5	<5	<5
Kyrgyz Republic	10.4 (1997)	2.8 (2014)	16	15	6
Pakistan	39.0 (1991)	31.6 (2012)	25	22	22
Tajikistan	14.9 (2005)	13.3 (2012)	28	39	33
Turkmenistan	...	10.5 (2000)	9	9	<5
Uzbekistan	13.3 (1996)	4.4 (2006)	<5	12	<5
East Asia					
China, People's Rep. of	12.6 (1990)	3.4 (2010)	24	16	9
Hong Kong, China	...	...	...	...	...
Korea, Rep. of	0.9 (2003)	0.7 (2010)	<5	<5	<5
Mongolia	11.8 (1992)	1.6 (2013)	30	38	21
Taipei,China	...	...	...	...	...
South Asia					
Bangladesh	61.5 (1990)	32.6 (2014)	33	23	16
Bhutan	14.1 (1999)	12.8 (2010)	...	...	...
India	52.8 (1992)	29.4 (2014)	24	17	15
Maldives	32.5 (1994)	17.8 (2009)	12	12	<5
Nepal	42.6 (1995)	30.1 (2014)	23	22	8
Sri Lanka	33.8 (1993)	26.3 (2012)	31	30	22
Southeast Asia					
Brunei Darussalam	...	9.6 (2009)	<5	<5	<5
Cambodia	42.6 (1996)	23.9 (2014)	32	32	14
Indonesia	29.8 (1992)	19.9 (2013)	20	17	8
Lao PDR	39.8 (1993)	26.5 (2011)	43	39	19
Malaysia	22.1 (1990)	12.9 (2006)	<5	<5	<5
Myanmar	32.5 (1990)	22.6 (2009)	63	52	14
Philippines	29.9 (1990)	19.9 (2013)	26	21	14
Singapore	...	3.3 (2000)	...	...	...
Thailand	16.3 (1993)	9.2 (2012)	35	19	7
Viet Nam	36.9 (1993)	12.1 (2013)	46	28	11
The Pacific					
Cook Islands	...	...	...	...	...
Fiji	6.9 (1993)	5.3 (2004)	7	<5	<5
Kiribati	...	14.9 (2009)	8	<5	<5
Marshall Islands	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...
Nauru	...	4.8 (2007)	...	...	...
Palau	...	...	...	...	...
Papua New Guinea	18.1 (2005)	27.9 (2010)	...	...	...
Samoa	1.7 (1999)	...	11	7	<5
Solomon Islands	...	11.5 (2007)	25	15	11
Timor-Leste	40.6 (2002)	45.3 (2009)	45	44	27
Tonga	...	1.9 (2012)	...	...	...
Tuvalu	...	1.6 (2007)	...	...	...
Vanuatu	10.6 (1996)	10.7 (2013)	11	8	6
Developed Member Economies					
Australia	– (1995)	0.2 (2007)	<5	<5	<5
Japan	...	3.4 (2010)	<5	<5	<5
New Zealand	...	...	<5	<5	<5

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Data refer to 3-year average from 1990 to 1992.
b Data refer to 3-year average from 1999 to 2001.
c Data refer to 3-year average from 2014 to 2016.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 7 July 2015) and World Health Organization. Joint child malnutrition estimates - Levels and trends (2015 edition). http://www.who.int/nutgrowthdb/estimates2014/en/ (accessed 28 September 2015).

MDG 2: Achieve Universal Primary Education

The sole target for Millennium Development Goal (MDG) 2 is to *ensure that by 2015, children everywhere—boys and girls alike—will be able to complete a full course of primary schooling*. Primary education usually starts at 5–6 years of age and continues through 11–12, although age requirements differ among countries.

To achieve this MDG target, countries need to ensure that primary school-age children are enrolled and that they complete the full primary years. Although the target is 100% enrollment and completion, a cutoff rate of 95% is set to track the progress toward achieving the target.

Youth literacy (among 15–24-year-olds) is an indicator of the quality and effectiveness of the primary educational system. The youth literacy rate indicates how well basic reading and writing skills acquired in primary school have prepared the young people to join the workforce or pursue higher education.

The reference year used in reporting the latest data available from the United Nations Educational Scientific and Cultural Organizations (UNESCO) Institute for Statistics (UIS) is (i) 2013 for net enrollment ratio in primary school, (ii) 2012 for the proportion of pupils starting the first grade that is expected to reach the last grade of primary school, and (iii) 2012 for youth literacy rates. However, actual latest available data range from 2005 to 2014 for net enrollment ratios, except in two cases where the data are either for 1993 or 1997; from 1997 to 2013, for the proportion of pupils starting the first grade that is expected to reach the last grade of primary school; and from 2005 to 2012, for youth literacy rates.

Snapshots

- Significant strides have been made in having primary age children attend school with the region's net enrollment ratio rising from 86% in 1990 to 95% in 2013.
- Among developing economies where primary age boys had an advantage over girls for schooling in early 1990s, these gaps have narrowed considerably, with some economies now having gaps slightly in favor of girls.
- Number of out-of-school children of primary school age fell from around 45 million in 1990 to 17 million in 2013. Much of this reduction was achieved by a reduction in number of out-of-school girls from 31 million to 8 million during the same period.
- In only 13 out of 36 economies of developing Asia, 95% or more pupils who started grade 1 are able to reach the last grade of primary schooling, implying continued constraints in achieving universal primary education.
- Since 1990, literacy rates have improved in the region, with gaps falling in literacy rates between young males and young females.

Progress

The Asia and Pacific region has achieved significant strides toward universal primary education, with most developing economies having attained 95% net enrollment ratio in primary education. As many as 25 out of 42 economies (with latest data available from 2005 to 2014) in Asia and the Pacific

region have succeeded in enrolling at least 95% of the primary age children in schools. Among the 15 economies that have fallen short of 95% primary school enrolment, 6 have still improved their net enrollment ratios in recent years, and 8 of them have high baseline net enrollment ratios of at least 90% (Figure 2.1a). Among the economies that have shown regression in the enrollment rates as evidenced from recent data, include the Philippines, Sri Lanka, and Tonga where the decline has exceeded 5 percentage points each.

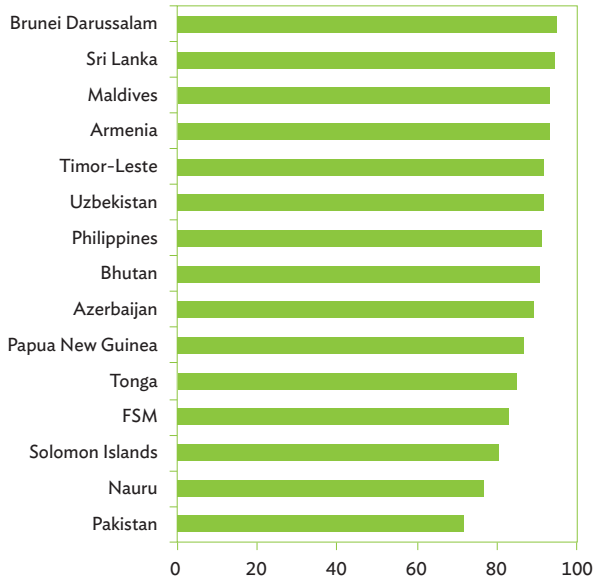
Bhutan and the Lao People's Democratic Republic (Lao PDR) have the largest increases in primary net enrollment of at least 30 percentage points. Bangladesh, India, Nepal and Timor-Leste improved their enrollment rates by at least 20 percentage points. In Pakistan and Nauru, at least one in five children of primary school age is out of school, but Pakistan has improved its net enrollment ratio by 16 percentage points relative to the earliest year data.

In most economies, the enrollment ratios are generally gender neutral, the largest gap is in Pakistan, where the net enrollment ratio in primary education for boys is 9.9 percentage points higher than that for girls, but this gender gap has narrowed significantly from 21.1 percentage points in 2002. In other economies where enrollment ratios have been in favor of boys in earlier years, the gender gaps have also narrowed, with the advantages slightly reversing in favor of girls in latest years for Bangladesh, Bhutan, Georgia, Indonesia, and the Philippines.

The significant gains in primary school enrollments are exhibited in the reductions in the number of out-of-school children of primary school age. Thus, between 1990 and 2013, the number of out-of-school children in developing Asia declined from around 45 million in 1990 to around 17 million in 2013 (Figure 2.1b). Much of these reductions came with more and more girls going to the primary schools with the decline from an out-of-school population of around 31 million to around 8 million between 1990 and 2013.

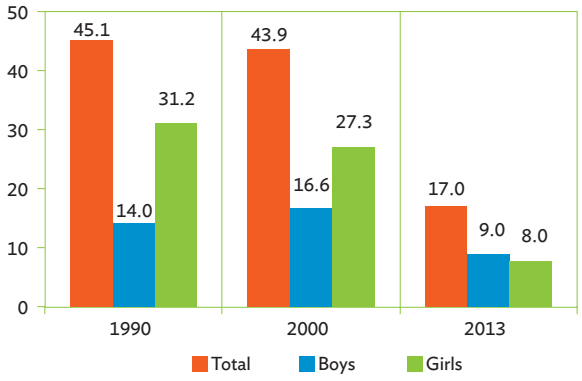
Box 2.1 shows that three-quarters (24) of 32 developing member economies either had achieved, or are expected to achieve, the MDG target cutoff of

Figure 2.1a: Net Enrollment Ratio in Primary Education Below 95%, Both Sexes, Latest Year, 2007–2014
(%)



FSM = Federated States of Micronesia.
Source: Table 2.1.

Figure 2.1b: Out-of-School Children in Primary Age, Total, Boys, and Girls, 1990, 2000, and 2013
(million)



Source: United Nations Educational, Scientific and Cultural Organization Institute for Statistics.

Box 2.1: Progress Toward Achieving the Primary School Enrollment Target

Achievers/on track	
Armenia	Kyrgyz Republic
Bangladesh	Lao PDR
Brunei Darussalam	Malaysia
Cambodia	Marshall Islands
Cook Islands	Mongolia
Fiji	Nepal
Georgia	Samoa
Hong Kong, China	Tajikistan
India	Thailand
Indonesia	Tonga
Kazakhstan	Vanuatu
Korea, Republic of	Viet Nam
Off track - slow	
Bhutan	Pakistan
Maldives	Timor-Leste
No progress/regressing	
Azerbaijan	Sri Lanka
Philippines	Uzbekistan

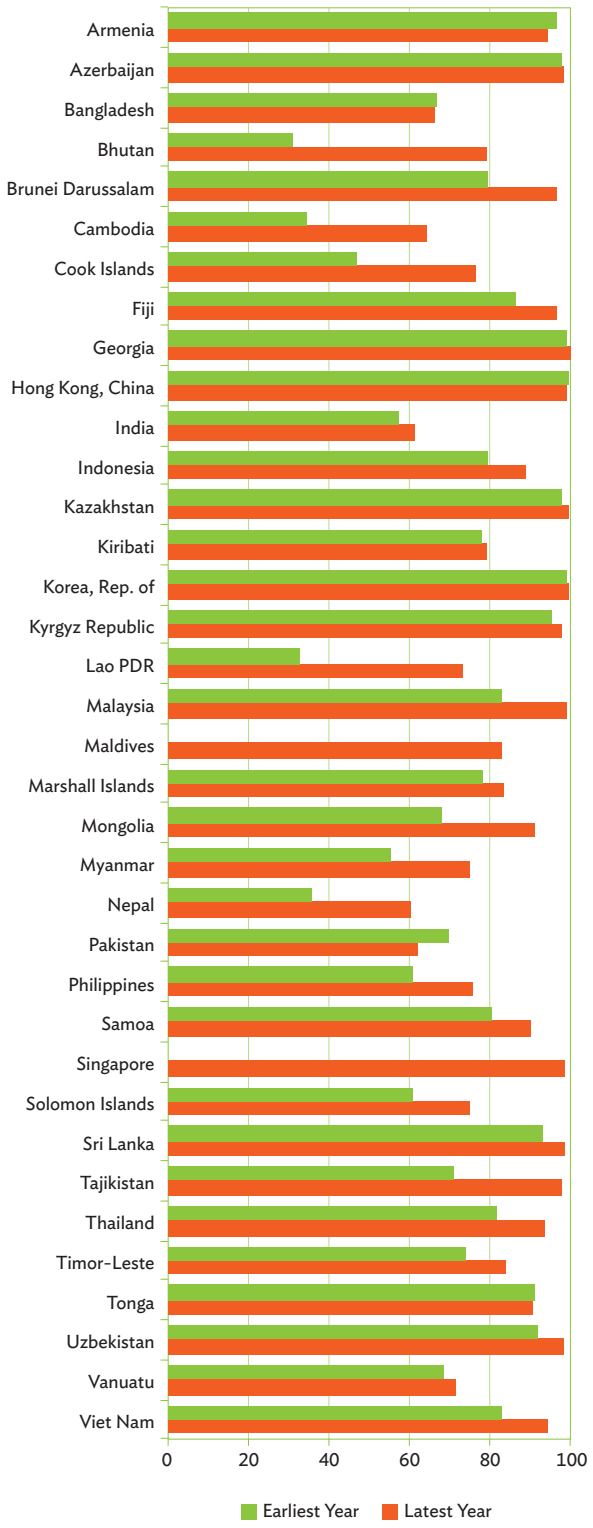
Lao PDR =Lao People's Democratic Republic.
Source: Table 2.1.

95% net primary school enrollment by 2015. Based on past trends, four economies are expected to meet the target after 2015 with Bhutan and Timor-Leste between 2016 and 2030, and Pakistan and the Maldives after 2030. Four economies—Azerbaijan, the Philippines, Sri Lanka, and Uzbekistan—are either having no significant progress or regressing in primary school enrollment. It may however be noted that these four economies along with the Maldives have net enrolment ratios nearly 90% or higher but their net enrollment ratios have shown decline in the recent years from much higher ratios in earlier years.

More children are completing primary school in the Asia and Pacific region. In recent years, less than a quarter of children in Asia and the Pacific region who enrolled in grade one were not able to reach grade five, as against one in three children in early 1990s. Only in a few (13 out of 36) developing economies with most recent data in 2000s, 95% or more children reached the last grade of primary schooling (Figure 2.2).

Among the 23 economies that fell short of the 95% mark for completion of last grade of primary school (Figure 2.2), five economies with the lowest

Figure 2.2: Percentage of Pupils Starting Grade 1 Who Reach the Last Grade of Primary, Earliest (1990–2008) and Latest Years (1997–2013)



Lao PDR = Lao People's Democratic Republic.
Source: Table 2.1.

ratios (below 70%) are, Nepal (60.4%), India (61.4%), Pakistan (62.2%), Cambodia (64.2%), and Bangladesh (66.2%). However, more economies have improved their expected primary school completion rates, with significant increases of at least 20 percentage points (pp) in Bhutan (48 pp), Cook Islands (30 pp), Cambodia (30 pp), the Lao PDR (41 pp), Mongolia (23 pp), Nepal (25 pp) and Tajikistan (27 pp). Armenia's latest rate (94.2%) is slightly below 95% and has just fallen slightly from its 1997 baseline rate (96.5%).

Children have a basic right to primary school and completion of which provides them basic literacy and numeracy competencies. However, many children drop out before the last year of primary school. Poverty is the most significant barrier and bottleneck for primary age children to attend and complete their primary education.

The progress toward the MDG target with a cutoff 95% of pupils starting grade 1 who reach the last grade of primary school is summarized in Box 2.2 based on the available data between 1990 and 2013. Progress in primary school completion is much slower than that of school participation of primary age children. Only 14 of the 32 economies of developing Asia for which sufficient data are available for tracking progress, have achieved the MDG target for reaching the last grade of primary school, or expected to meet the target by 2015. Given their respective paces of improvement, another two developing economies are expected to meet the target between 2016 and 2020, while 11 economies (mainly from South Asia and Southeast Asia) are expected to meet the target only after 2030. The remaining four developing economies, which include Armenia with a high completion rate of 94.2% but has regressed from an earlier 97.5%, are either having no significant progress or have been regressing.

About 9 out 10 youth aged 15–24 years old in Asia and the Pacific can read and write, with young males (93.2%) having the advantage in literacy over females (87.6%) by 5.5 percentage points. Out of 31 developing member economies that have reported data on literacy of 15–24-year-olds, most (20) have youth literacy rates of 95% or higher. These economies also have had gender parity in youth literacy. In all Central and West Asia economies, except for Afghanistan and Pakistan, youth literacy rates are at least 99%. The rates are also at least 99% in Brunei Darussalam, the Maldives, the PRC, Singapore, and some Pacific economies (Samoa, Timor-Leste, and Tonga).

Gender disparities in youth literacy rates have narrowed between the earliest and the latest years for which data are available for all developing economies. Six economies namely, Afghanistan, Bhutan, the Lao PDR, Nepal, India and Pakistan exhibit high gender disparities, with literacy rates for male youth higher by at least 10 percentage points, in the most recent years for which data are available. (Figure 2.3). Developing economies with youth literacy rates below 80% include Afghanistan (47.0%), Bangladesh (79.9%), Bhutan (74.4%), Pakistan (70.8%), and Papua New Guinea (71.2%).

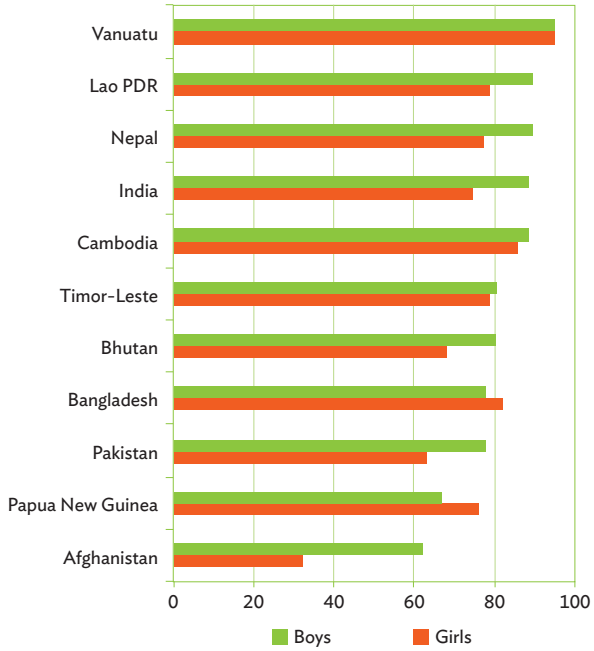
Primary education is preparation for secondary and higher education, but completion of primary education does not necessarily ensure adequate literacy and numeracy skills. The youth literacy rate is an indicator of the quality of education, although it merely captures basic reading and writing skills.

Box 2.2: Progress Toward Achieving the Target for Completion of Last Grade of Primary School

Achievers/on track	
Azerbaijan	Kyrgyz Republic
Brunei Darussalam	Malaysia
Fiji	Mongolia
Georgia	Sri Lanka
Hong Kong, China	Tajikistan
Kazakhstan	Uzbekistan
Korea, Rep. of	Viet Nam
Off track - slow	
Bhutan	Myanmar
Cambodia	Nepal
Cook Islands	Philippines
India	Samoa
Indonesia	Solomon Islands
Lao PDR	Vanuatu
Marshall Islands	
No progress/regressing	
Armenia	Pakistan
Kiribati	Tonga

Lao PDR =Lao People's Democratic Republic.
Source: Table 2.1.

Figure 2.3: Literacy Rate Below 95% Among 15–24 Years Old, Either Boys and Girls, Latest Year, 2005–2012
(%)



Lao PDR = Lao People's Democratic Republic.
Source: Table 2.1.

Data issues and comparability

Most of the statistics for MDG 2 are from the UNESCO Institute for Statistics (UIS). For MDG 2.1 – the actual indicators used is the 'adjusted net enrollment ratio' (which includes only school going children of the primary school age group) in primary education and the proportion of children starting first grade who will continue to the last grade of primary school. The UIS obtains data on enrollment and repeaters from education ministries or national statistics offices and uses population estimates prepared by the United Nations Population Division. While national data derived from administrative records are not necessarily based on the same classification over time and may not be comparable with data for other countries, the UIS adjusts the enrollment data to be consistent with the International Standard Classification of Education, thus making it comparable across countries. Also, whenever necessary, the UIS adjusts nationally reported data to take into account either under- or over-reporting. Countries have their own projections of the population of school age children for generating country estimates of primary net enrollment ratios.[1] Severe data gaps exist with the most recent data available for many countries ranging from 2005 to 2014.

Basic literacy data are sourced primarily from population and housing censuses. Other sources include national sample surveys and international sample surveys such as United Nations Children's Fund's Multiple Indicator Cluster Surveys, both of which involve using a literacy variable in a household or an individual sample survey. To improve the international comparability of literacy data, the UIS applies the following to help determine the suitability of national data for reporting at the international level. The survey must (i) incorporate a direct question to assess literacy as part of its methodology, (ii) receive a satisfactory evaluation by the UIS that is based on the responses to the questionnaire's metadata section, and (iii) be able to provide data in the format required by the UIS. Population estimates, produced by the United Nations Population Division using the same methodology and assumptions across countries, are used to calculate the number of literate and illiterate people, thus ensuring further international comparability.

Post–2015 agenda

Although the world has achieved considerable progress from the Millennium Declaration up to the MDG target year in having more primary age children go to school, there are still some primary age children across economies who have been left behind. Keeping primary age children in school will

1 In the July 2010 No. 2 issue of ADB Briefs entitled *Is the Net Enrollment Rate Estimate of the Philippines Accurate?*, it was mentioned that the rapid decline in net enrollment ratio in the Philippines is mainly due to the obsolete and inaccurate population age-group projections and that more careful estimation suggests that the actual decline may not be as severe as the official statistics released by the Philippines' Department of Education.

require continued attention and resources in the post-2015 agenda along with next steps toward the attainment of universal secondary education.

In the post–2015 world, it will not be enough to have children go to school and stay in school, it will also be important to provide them quality learning. There ought to be global attention in measuring the quality of learning. Ideally, standardized assessments should be taken by students at the same grade level or age across the world. In the absence of such internationally comparable measures of education quality, proxy indicators on inputs are used.

Disaggregated data on education indicators suggests inequities in education and learning opportunities within countries. More granular and timely data will be required to attain the right to education of every single child.

Table 2.1: Target 2.A—Ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling

Regional Member	2.1 Net Enrollment Ratio in Primary Education (%)					
	Total		Girls[a]		Boys[a]	
	1990	2013	1990	2013	1990	2013
Developing Member Economies						
Central and West Asia	**58.7 (2001)**	**73.0**	**48.8 (2001)**	**67.3**	**68.1 (2001)**	**78.3**
Afghanistan	28.0 (1993)	...	14.1 (1993)	...	41.0 (1993)	...
Armenia	87.3 (2002)	92.9 (2007)	88.6 (2002)	97.8 (2007)	86.1 (2002)	89.0 (2007)
Azerbaijan	92.0 (1991)	89.3 (2012)	90.9 (1991)	88.1 (2012)	93.1 (1991)	90.3 (2012)
Georgia	83.8 (1995)	96.7	83.0 (1995)	97.3	84.5 (1995)	96.2
Kazakhstan	96.4 (2000)	98.7	97.6 (2000)	99.6	95.2 (2000)	97.9
Kyrgyz Republic	92.0 (1996)	99.3	90.0 (1996)	97.7 (2012)	94.0 (1996)	99.0 (2012)
Pakistan	56.2 (2002)	71.9	45.4 (2002)	66.7	66.5 (2002)	76.6
Tajikistan	94.5 (2000)	95.6 (2014)	91.1 (2000)	94.9 (2014)	97.7 (2000)	96.3 (2014)
Turkmenistan	...	...	...	...	...	...
Uzbekistan	92.7 (2007)	91.5 (2011)	91.6 (2007)	90.2 (2011)	93.9 (2007)	92.8 (2011)
East Asia	**97.1**	**96.8**	**95.4**	**97.0**	**98.8**	**96.7**
China, People's Rep. of	97.0	86.9 (1997)	92.9 (1991)	86.7 (1997)	98.3 (1991)	87.0 (1997)
Hong Kong, China	92.2 (1995)	99.2	92.9 (1995)	98.8	91.6 (1995)	99.7
Korea, Rep. of	99.4	97.8 (2014)	99.5 (1998)	97.5 (2014)	98.1 (1998)	98.1 (2014)
Mongolia	81.1 (1995)	95.2	81.9 (1995)	94.4	80.3 (1995)	96.0
Taipei,China	98.0	97.6 (2014)	97.9	97.5 (2014)	98.2	97.7 (2014)
South Asia	**77.9**	**98.4**	**66.8**	**99.8**	**88.3**	**97.1**
Bangladesh	72.0	96.2 (2010)	66.3	98.4 (2010)	77.5	94.0 (2010)
Bhutan	55.0 (1998)	90.7	51.1 (1998)	92.0	58.9 (1998)	89.3
India	78.2	98.6 (2012)	66.1	89.2 (2003)	89.5	92.2 (2003)
Maldives	96.2 (1997)	93.1 (2007)	96.3 (1997)	93.5 (2007)	96.2 (1997)	92.8 (2007)
Nepal	69.3 (1999)	98.7	60.2 (1999)	97.4 (2012)	77.9 (1999)	97.9 (2012)
Sri Lanka	99.8 (2001)	94.3	99.9 (2002)	94.2	99.6 (2002)	94.3
Southeast Asia	**93.1**	**94.4**	**91.5**	**94.4**	**94.7**	**94.4**
Brunei Darussalam	91.5 (1991)	94.9	90.4 (1991)	95.0	92.5 (1991)	94.8
Cambodia	82.7 (1997)	98.4 (2012)	75.9 (1997)	97.0 (2012)	89.3 (1997)	99.7 (2012)
Indonesia	97.9	95.3 (2012)	95.9	95.9 (2012)	99.7	94.7 (2012)
Lao PDR	64.9	97.3	53.9 (1992)	96.5	62.2 (1992)	98.1
Malaysia	96.2 (1994)	97.0 (2005)	96.3 (1994)	95.0 (2003)	96.0 (1994)	98.5 (2003)
Myanmar	...	...	...	...	...	...
Philippines	98.4	90.9	97.5	91.1	99.3	90.8
Singapore	...	...	...	...	...	...
Thailand	93.9 (2006)	95.6 (2009)	93.1 (2006)	94.9 (2009)	94.6 (2006)	96.2 (2009)
Viet Nam	97.9 (1998)	98.1	...	...	...	...
The Pacific	**70.2**	**88.4**	**66.1**	**85.9**	**74.2**	**90.9**
Cook Islands	90.8 (1998)	97.8	89.2 (1998)	97.4	92.3 (1998)	98.3
Fiji	96.7 (1992)	98.7 (2012)	96.7 (1992)	99.8 (2011)	96.6 (1992)	97.9 (2011)
Kiribati	99.7 (1991)	98.1 (1993)	...	...	...	...
Marshall Islands	98.0 (2002)	99.7 (2011)	97.4 (2002)	...	98.6 (2002)	...
Micronesia, Fed. States of	...	83.1 (2014)	...	84.0 (2014)	...	82.3 (2014)
Nauru	...	76.7 (2012)	...	77.9 (2012)	...	75.5 (2012)
Palau	98.8	99.1 (2014)	...	...	...	...
Papua New Guinea	...	86.8 (2012)	...	83.3 (2012)	...	90.0 (2012)
Samoa	93.4 (1994)	96.1 (2012)	95.0 (1994)	97.4 (2012)	91.9 (1994)	94.9 (2012)
Solomon Islands	75.6 (2005)	80.7 (2007)	74.0 (2005)	79.3 (2007)	77.0 (2005)	82.1 (2007)
Timor-Leste	71.3 (2008)	91.7 (2011)	70.3 (2008)	90.9 (2011)	72.3 (2008)	92.5 (2011)
Tonga	92.3	84.6	93.2	85.7	91.5	83.5
Tuvalu	...	...	...	...	...	...
Vanuatu	98.1 (1998)	99.2 (2005)	97.0 (1999)	97.4 (2004)	98.3 (1999)	97.9 (2004)
Developed Member Economies	**99.6**	**99.3**	**99.7**	**99.4**	**99.6**	**99.3**
Australia	97.5	97.5	97.8	97.7	97.2	97.3
Japan	100.0	100.0 (2012)	100.0 (2010)	99.9 (2012)	99.9 (2010)	100.0 (2012)
New Zealand	99.5	97.9	98.7 (1991)	98.1	99.0 (1991)	97.8
DEVELOPING MEMBER ECONOMIES[c]	**85.4**	**94.7**	**79.3**	**94.8**	**91.2**	**94.7**
REGIONAL MEMBERS[c]	**85.9**	**94.8**	**80.0**	**94.9**	**91.5**	**94.8**
WORLD	**82.4**	**91.0**	**77.9**	**90.3**	**86.6**	**91.7**

continued

Goal 2 Targets and Indicators

Table 2.1: Target 2.A—Ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling *(continued)*

Regional Member	2.2 Proportion of Pupils Starting Grade 1 Who Reach the Last Grade of Primary (%)					
	Total		Girls[a]		Boys[a]	
	1990	2012	1990	2012	1990	2012
Developing Member Economies						
Central and West Asia	**77.1 (1994)**	**73.4**	**81.6 (1999)**	**72.7**	**77.5 (1999)**	**74.0**
Afghanistan	87.8 (1993)	...	87.8 (1993)	...	87.8 (1993)	...
Armenia	96.5 (1997)	94.2 (2011)	95.6 (2002)	94.3 (2011)	95.9 (2002)	94.2 (2011)
Azerbaijan	97.8 (1993)	98.2 (2011)	96.9 (1993)	98.9 (2011)	98.6 (1993)	97.6 (2011)
Georgia	99.1 (1999)	99.8	99.8 (1999)	99.8	98.5 (1999)	99.8
Kazakhstan	97.9 (1994)	99.3	99.6 (1994)	99.5	96.3 (1994)	99.1
Kyrgyz Republic	95.1 (1995)	97.7	93.9 (1999)	98.3	95.1 (1999)	97.2
Pakistan	69.7 (2004)	62.2	72.4 (2004)	60.8	67.8 (2004)	63.3
Tajikistan	70.9 (1997)	98.0 (2011)	99.2 (2008)	99.2 (2011)	98.2 (2008)	96.9 (2011)
Turkmenistan	...	...	...	...	...	...
Uzbekistan	91.8 (1995)	98.1 (2010)	96.9 (2000)	98.3 (2010)	98.6 (2000)	97.8 (2010)
East Asia	**87.3**	**97.7**	**82.4 (1994)**	**97.9**	**85.6 (1994)**	**97.6**
China, People's Rep. of	87.3	81.1 (1997)	74.8 (1996)	79.8 (1997)	77.9 (1996)	82.3 (1997)
Hong Kong, China	99.3 (2002)	99.0	100.0 (2002)	98.9	98.7 (2002)	99.1
Korea, Rep. of	99.2 (1998)	99.6 (2013)	99.0 (1998)	99.5 (2013)	99.4 (1998)	99.7 (2013)
Mongolia	68.2 (1995)	90.9 (2003)	70.5 (1995)	91.3 (2003)	65.8 (1995)	90.5 (2003)
Taipei,China	...	...	...	...	...	...
South Asia	**53.1**	**62.2 (2011)**	**49.0**	**64.6**	**56.3**	**60.0**
Bangladesh	66.6 (2008)	66.2 (2009)	66.1 (2008)	70.6 (2009)	67.1 (2008)	61.9 (2009)
Bhutan	31.0 (1993)	78.9	29.3 (1993)	79.4	32.3 (1993)	78.3
India	57.3 (1995)	61.4 (2001)	54.1 (1995)	63.5 (2001)	59.8 (1995)	59.7 (2001)
Maldives	...	82.8 (2011)	...	...	...	...
Nepal	35.7 (1991)	60.4 (2013)	32.3 (1992)	61.9 (2013)	43.9 (1992)	58.8 (2013)
Sri Lanka	93.2	98.5	94.1	98.6	92.2	98.4
Southeast Asia	**68.6**	**85.1**	**70.0**	**87.9**	**67.3**	**82.5**
Brunei Darussalam	79.7 (1991)	96.4 (2011)	95.1 (2003)	95.1 (2011)	99.0 (2003)	97.6 (2011)
Cambodia	34.4 (1994)	64.2	34.9 (1995)	68.5 (2011)	44.2 (1995)	63.6 (2011)
Indonesia	79.7	89.0 (2011)	92.7 (1995)	82.8 (2007)	86.1 (1995)	77.4 (2007)
Lao PDR	32.7	73.3	32.1 (1992)	74.4	33.9 (1992)	72.4
Malaysia	83.0	99.1 (2011)	83.3	99.8 (2011)	82.7	98.5 (2011)
Myanmar	55.2 (2000)	74.8 (2009)	55.2 (2000)	77.5 (2009)	55.3 (2000)	72.2 (2009)
Philippines	60.9	75.8 (2008)	75.9 (1998)	80.0 (2008)	65.3 (1998)	72.0 (2008)
Singapore	...	98.7 (2008)	...	98.8 (2008)	...	98.5 (2008)
Thailand	81.5 (1999)	93.6 (2000)	84.6 (1999)	95.5 (2000)	78.7 (1999)	92.0 (2000)
Viet Nam	82.8 (1999)	94.5	86.2 (1999)	94.5	86.1 (2000)	94.5
The Pacific	**61.5**	**69.5**	**61.8**	**70.7**	**61.2**	**68.4**
Cook Islands	46.9 (1998)	76.6	...	74.0	...	79.0
Fiji	86.2 (1992)	96.5 (2011)	88.6 (1992)	98.1 (2011)	84.0 (1992)	95.0 (2011)
Kiribati	78.0 (1995)	78.9 (2003)	67.2 (2001)	86.1 (2003)	71.7 (2001)	72.7 (2003)
Marshall Islands	78.4 (2005)	83.5 (2008)	72.4 (2006)	79.5 (2008)	69.4 (2006)	87.3 (2008)
Micronesia, Fed. States of	...	...	...	...	...	...
Nauru	...	...	...	...	...	...
Palau	...	...	...	...	...	...
Papua New Guinea	48.4	45.5 (1997)	46.6	44.6 (1997)	49.9	46.2 (1997)
Samoa	80.5 (1994)	90.0 (2011)	91.7 (1999)	89.3 (2011)	88.5 (1999)	90.7 (2011)
Solomon Islands	60.6	74.9	75.7 (2010)	77.2	74.7 (2010)	72.8
Timor-Leste	74.2 (2008)	83.6 (2010)	77.9 (2008)	85.1 (2010)	70.8 (2008)	82.1 (2010)
Tonga	91.1 (2000)	90.4 (2005)	...	91.4 (2005)	...	89.4 (2005)
Tuvalu	...	...	...	...	...	...
Vanuatu	68.5 (1992)	71.5 (2008)	59.5 (1994)	69.3 (2008)	63.0 (1994)	73.5 (2008)
Developed Member Economies	**91.7**	**94.5**	**91.5**	**94.5**	**91.9**	**94.5**
Australia	...	...	...	...	...	...
Japan	100.0 (1998)	99.8 (2011)	100.0 (1998)	99.8 (2011)	100.0 (1998)	99.9 (2011)
New Zealand	...	...	...	...	...	...
DEVELOPING MEMBER ECONOMIES[c]	**68.5**	**76.3**	**67.1**	**77.8**	**69.6**	**75.0**
REGIONAL MEMBERS[c]	**69.0**	**76.7**	**67.8**	**78.1**	**70.1**	**75.4**
WORLD	**69.8**	**74.9**	**69.2**	**76.1**	**70.3**	**73.8**

continued

Table 2.1: Target 2.A—Ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling *(continued)*

Regional Member	2.3 Literacy Rate of 15–24-Year Olds (%)					
	Total		Girls[a]		Boys[a]	
	1990	2012	1990	2012	1990	2012
Developing Member Economies						
Central and West Asia[d]	**67.1 (2004)**	**76.3**	**58.6 (2004)**	**70.1**	**90.4 (2004)**	**82.3**
Afghanistan	...	47.0 (2011)	...	32.1 (2011)	...	61.9 (2011)
Armenia	99.8 (2001)	99.7	99.9 (2001)	99.8	99.8 (2001)	99.7
Azerbaijan	99.9 (1999)	99.9	99.9 (1999)	99.9	99.9 (1999)	100.0
Georgia	99.8 (2002)	99.8	99.9 (2002)	99.9	99.8 (2002)	99.7
Kazakhstan	99.8 (1999)	99.8 (2009)	99.9 (1999)	99.9 (2009)	99.8 (1999)	99.8 (2009)
Kyrgyz Republic	99.7 (1999)	99.8 (2009)	99.7 (1999)	99.8 (2009)	99.7 (1999)	99.7 (2009)
Pakistan	55.3 (1998)	70.8 (2011)	43.1 (1998)	63.1 (2011)	67.1 (1998)	78.0 (2011)
Tajikistan	99.8 (2000)	99.9	99.8 (2000)	99.9	99.8 (2000)	99.9
Turkmenistan	99.8 (1995)	99.8	99.8 (1995)	99.9	99.8 (1995)	99.8
Uzbekistan	99.9 (2000)	99.9	99.9 (2000)	100.0	99.9 (2000)	99.9
East Asia[d]	**98.9 (2004)**	**99.6**	**98.6 (2004)**	**99.6**	**99.2 (2004)**	**99.7**
China, People's Rep. of	94.3	99.6 (2010)	91.5	99.6 (2010)	97.0	99.7 (2010)
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	...	...	...	...	...	...
Mongolia	97.7 (2000)	98.5 (2010)	98.4 (2000)	98.9 (2010)	97.0 (2000)	98.0 (2010)
Taipei,China[e]	92.4	98.5 (2014)	...	...	...	...
South Asia[d]	**75.1 (2004)**	**81.2**	**67.1 (2004)**	**75.7**	**82.3 (2004)**	**87.3**
Bangladesh	44.7 (1991)	79.9	38.0 (1991)	81.9	51.7 (1991)	78.0
Bhutan	...	74.4 (2005)	...	68.0 (2005)	...	80.0 (2005)
India	61.9 (1991)	81.1 (2006)	49.3 (1991)	74.4 (2006)	73.5 (1991)	88.4 (2006)
Maldives	98.2	99.3 (2006)	98.3	99.4 (2006)	98.1	99.2 (2006)
Nepal	49.6 (1991)	82.4 (2011)	32.7 (1991)	77.5 (2011)	68.2 (1991)	89.2 (2011)
Sri Lanka	95.6 (2001)	98.2 (2010)	...	98.6 (2010)	95.1 (2001)	97.7 (2010)
Southeast Asia[d]	**96.3 (2004)**	**97.4**	**96.1 (2004)**	**97.3**	**96.6 (2004)**	**97.4**
Brunei Darussalam	98.1 (1991)	99.8	98.1 (1991)	99.7	98.1 (1991)	99.8
Cambodia	76.3 (1998)	87.1 (2009)	71.1 (1998)	85.9 (2009)	81.8 (1998)	88.4 (2009)
Indonesia	96.2	98.8 (2011)	95.1	98.8 (2011)	97.4	98.8 (2011)
Lao PDR	71.1 (1995)	83.9 (2005)	64.1 (1995)	78.7 (2005)	78.8 (1995)	89.2 (2005)
Malaysia	95.6 (1991)	98.4 (2010)	95.2 (1991)	98.5 (2010)	95.9 (1991)	98.4 (2010)
Myanmar	94.6 (2000)	96.0	93.5 (2000)	95.8	95.8 (2000)	96.2
Philippines	96.6	97.8 (2008)	96.9	98.5 (2008)	96.3	97.0 (2008)
Singapore	99.0	99.8	99.1	99.8	98.9	99.8
Thailand	98.0 (2000)	98.1 (2005)	97.8 (2000)	96.6 (2010)	98.1 (2000)	96.6 (2010)
Viet Nam	93.9 (1999)	97.1 (2009)	93.6 (1999)	96.8 (2009)	94.2 (1999)	97.4 (2009)
The Pacific[d]	**73.5 (2004)**	**76.5**	**71.1 (2004)**	**79.3**	**75.8 (2004)**	**73.9**
Cook Islands	...	...	...	...	...	...
Fiji	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...
Nauru	...	...	...	...	...	...
Palau	...	...	...	...	...	...
Papua New Guinea	66.7 (2000)	71.2	64.1 (2000)	75.8	69.1 (2000)	66.8
Samoa	99.0 (1991)	99.5	99.0 (1991)	99.6	99.1 (1991)	99.4
Solomon Islands	85.0 (1999)	...	80.0 (1999)	...	90.0 (1999)	...
Timor-Leste	75.1 (2001)	99.4 (2011)	...	78.6 (2010)	...	80.5 (2010)
Tonga	99.3 (1996)	99.4 (2006)	99.4 (1996)	99.6 (2006)	99.3 (1996)	99.4 (2011)
Tuvalu	...	...	...	...	...	...
Vanuatu	86.3 (1994)	94.9	85.2 (1994)	95.1	87.3 (1994)	94.7
Developed Member Economies	**...**	**...**	**...**	**...**	**...**	**...**
Australia	...	...	...	...	...	...
Japan	...	...	...	...	...	...
New Zealand	...	...	...	...	...	...
DEVELOPING MEMBER ECONOMIES[c,d]	**86.5 (2004)**	**90.1**	**82.6 (2004)**	**87.4**	**90.2 (2004)**	**93.0**
REGIONAL MEMBERS[c,d]	**86.9 (2004)**	**90.3**	**83.1 (2004)**	**87.6**	**90.4 (2004)**	**93.2**
WORLD	**83.2**	**89.4**	**69.2**	**76.1**	**70.3**	**73.8**

... = data not available at cutoff date, Lao PDR = Lao People's Democractic Republic.

a Figures refer to the same year as indicated in the column for "total" except indicated otherwise.
b Data for 2000 and 2009 apply to reference periods 1997–2000 and 2007–2009, respectively.
c For reporting economies only.
d Data for 2004 refers to regional averages calculated using the weighted average of the latest available observed data point between 1995–2004 or UNESCO Institute for Statistics (UIS) 2004 Global Age-specific Literacy Projections (GALP) estimate for the country or territory without any observed data point between 1995 and 2004. Whereas, regional data for 2012 are regional averages calculated using the weighted average of the latest available observed data point between 2005 and 2012 or UIS 2012 GALP estimate for the country or territory without any observed data point between 2005 and 2012. UIS estimates have been used for countries with missing data.
e Refers to literacy rate among persons aged 15 and above.

Sources: United Nations. United Nations Millennium Indicators Database Online. http://mdgs.un.org/unsd/mdg/Default.aspx (accessed 9 July 2015); UNESCO Institute for Statistics, Online Database (accessed 3 August 2015); and for Taipei,China (Indicators 2.1 and 2.3): Ministry of Education. Educational Statistical Indicators Online. http://english.moe.gov.tw/ct.asp?xItem=14504&ctNode=11430&mp=1 (accessed 14 July 2015).

MDG 3: Promote Gender Equality and Empower Women

The target for Millennium Development Goal (MDG) 3 is to eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015.

The gender parity index (GPI) is used to track this target. This index refers to the female-to-male gross enrollment ratios of the relevant age group at each level of education. An economy with a GPI of 1.00 has achieved parity between the sexes, and a GPI less or greater than 1.00 indicates a disparity in favor of males or females, respectively. The accepted measure for gender parity in education is 0.97–1.03. In practice, however, for tracking MDG target, cutoff ratios of '0.95 and above' are accepted as approximations for tracking progress in achieving gender equality, although gender parity ratios higher than 1.05 can be considered as unfavourable for boys.

MDG 3 also monitors gender parity in nonagricultural wage employment and women's political empowerment.

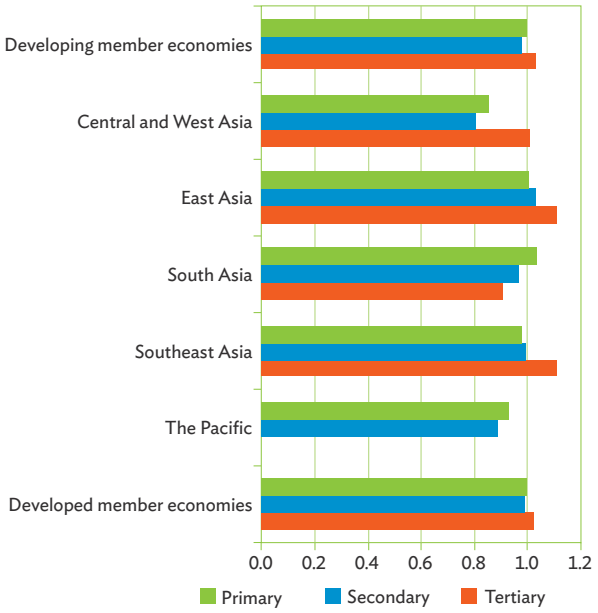
Snapshots

- Substantial progress has been achieved in narrowing down the gender gaps in education with gender parity having been achieved in almost all economies of developing Asia at the primary level. From around 86 girls enrolled per 100 boys in the primary education in 1991 in developing Asia, gender parity has been achieved in the enrollments in 2013.
- Gender gaps have also reduced at the secondary and tertiary levels, with parity ratios exceeding 1.0 in many economies, implying higher enrollment among girls than boys in these economies.
- While women's access to paid employment in the nonagriculture sector is increasing, it is still low in some developing economies with shares below 20%.
- In terms of political empowerment of women, the proportion of parliamentary seats held by women has increased between 1990 and 2015. However, conditions are far from parity: in a dozen economies of South Asia, Southeast Asia, and the Pacific, the proportions remain below 10%.

Progress

The Asia and Pacific region has made substantial gains in narrowing down the gender gaps at all levels of education. In the past 2 decades, various regions across Asia and the Pacific have substantially narrowed the gender gap in education that used to favor males (Table 3.1, Figure 3.1). South Asia has made the biggest improvement in narrowing the gap at the primary and secondary levels with GPI increasing from 0.77 in 1991 to 1.03 in 2013 at the primary level, and from 0.60 in 1991 to 0.97 in 2013 at the secondary level. The gender gap considerably narrowed also in the Central and West Asia region at the primary level, and in East Asia at the secondary level. As regards tertiary education, Central and West Asia achieved gender parity, while in other regions in Asia and the Pacific substantially improved female

Figure 3.1: Gender Parity Index in Primary, Secondary, and Tertiary Education, 2013



Source: Table 3.1.

Box 3.1: Progress Toward the Target for Gender Equality in Primary Education

Achievers/on track	
Armenia	Micronesia, Fed. States of
Azerbaijan	Mongolia
Bangladesh	Myanmar
Bhutan	Nauru
Brunei Darussalam	Nepal
Cambodia	Pakistan
China, People's Rep. of	Palau
Cook Islands	Philippines
Fiji	Samoa
Georgia	Solomon Islands
Hong Kong, China	Sri Lanka
India	Taipei,China
Indonesia	Tajikistan
Kazakhstan	Thailand
Kiribati	Timor-Leste
Korea, Rep. of	Tonga
Kyrgyz Republic	Tuvalu
Lao PDR	Uzbekistan
Maldives	Vanuatu
Marshall Islands	Viet Nam
Off track - slow	
Expected to meet target between 2021 and 2030	
Afghanistan	
Expected to meet target after 2030	
Papua New Guinea	
No progress/regressing	
Malaysia	

Lao PDR = Lao People's Democratic Republic.
Source: Table 3.1.

enrollment in over 2 decades, with East Asia (1.11) and Southeast Asia (1.11) both having advantage for females, while in South Asia the advantage is for males (0.91).

About four-fifths (36) of 44 developing Asian economies, for which data are available, have attained gender parity in enrollment at the primary level. Their GPIs in primary education enrollment are within a range of 0.95–1.05 by 2013 (or latest year). Afghanistan (0.70), Cambodia (0.93), Malaysia (0.94, latest data for 2005 only), Papua New Guinea (0.91), and Pakistan (0.87) have had disparities favoring boys at the primary level. In Armenia (1.14), Bangladesh (1.06), and Nepal (1.09), the gender bias at the primary level is in favor of girls in the most recent years.

Box 3.1 shows how economies have fared in achieving gender parity in primary education. Of the 43 economies with available data for monitoring trends, 40 economies either had already achieved or are likely to achieve gender parity of 0.95 or more in 2015. With the current trends, Papua New Guinea is not expected to meet the target even by 2030. Afghanistan's progress is slow, and Malaysia is seen regressing from full parity in 1990 although the most recent available data is only for 2005.

There is far less gender parity in enrollment at the secondary and tertiary levels among developing economies of Asia (compared with the primary level). Less than half (19) out of 43 developing economies in the Asia and Pacific region have GPIs for secondary education within the range of 0.95–1.05.

The GPI for enrollment at the secondary level is below 0.8 in three economies—Afghanistan (0.55), Pakistan (0.73), and Papua New Guinea (0.76). Economies where enrollment rates of females in secondary schools highly surpass that of males include Armenia (1.15), Bangladesh (1.14), the Maldives (1.13), as well as some Pacific economies

such as the Cook Islands (1.16), Fiji (1.11), Kiribati (1.11), Samoa (1.11), and Tuvalu (1.25).

Box 3.2 shows how developing economies fare in the MDG target for gender parity in secondary enrollment. Of the 40 developing economies with available data, 34 economies have either achieved or are on track to achieve the gender parity target for enrollment in secondary education by 2015. Five economies—Afghanistan, the Lao People's Democratic Republic, Pakistan, Papua New Guinea, and Tajikistan—are making slow progress and are likely to attain the target after 2015 only. Malaysia has been regressing with sliding gender parity ratio from 1.05 in 1991 to 0.94 in 2012.

At the tertiary level, except for only three economies—Azerbaijan (1.05), Pakistan (0.98), and Indonesia (1.03)—all other economies have gender parity ratios either below 0.95 or above 1.05, thus highly favoring a particular gender. Despite this, developing Asia's ratio of 1.03 exhibits overall parity as the highly variable gender parity ratios in tertiary education cancelling out at the aggregate level. Eight of the 39 developing economies, led by Brunei Darussalam (1.82), Tonga (1.66), and the Kyrgyz Republic (1.61), had GPIs for tertiary enrollment above 1.3. Seven economies had GPIs for tertiary enrollment below 0.7. The biggest gender disparities in tertiary education favoring males are in Afghanistan (0.33), Papua New Guinea (0.57), and Vanuatu (0.59). Both Afghanistan and Papua New Guinea have severe gender disparities across all educational levels.

Box 3.3 shows how developing economies are faring in gender parity target for tertiary education. Only half of the 39 reporting economies have achieved or are expected to achieve by 2015 the target for gender parity (0.95 or above). Eight economies making slow progress are expected to meet the MDG target on tertiary education after 2015. Based on current trends, another four economies—Afghanistan, the Marshall Islands, Timor-Leste, and Uzbekistan—are either not making significant progress or are regressing.

While the access of women to paid employment (measured as women's share in nonagricultural wage employment) has improved but remains low in many developing economies. Figure 3.2 shows the share of women's participation in nonagricultural wage employment in developing economies of the Asia and Pacific region for 1990 (or earliest year) and 2013 (or latest year). Women account for about half of nonfarm-paid employment in Hong Kong, China (49.6%); Kazakhstan (50.6%); and Mongolia (49.9%). In another 20 economies of the region, including three developed economies, more than 40% of nonagricultural employment is held by women in years for which data are available. The shares of women in nonfarm-paid employment were below 20% in Afghanistan (18.4%), Bangladesh (18.3%), India (19.3%), and Pakistan (12.6%).

Box 3.2: Progress Toward the Target for Gender Equality in Secondary Education

Achievers/on track	
Armenia	Marshall Islands
Azerbaijan	Mongolia
Bangladesh	Myanmar
Bhutan	Nauru
Brunei Darussalam	Nepal
Cambodia	Palau
China, People's Rep. of	Philippines
Cook Islands	Samoa
Fiji	Solomon Islands
Georgia	Sri Lanka
Hong Kong, China	Taipei,China
India	Thailand
Indonesia	Timor-Leste
Kazakhstan	Tonga
Kiribati	Tuvalu
Korea, Rep. of	Uzbekistan
Kyrgyz Republic	Vanuatu
Off track - slow	
Expected to meet target between 2016 and 2020	
Lao PDR	Pakistan
Expected to meet target between 2021 and 2030	
Tajikistan	
Expected to meet target after 2030	
Afghanistan	Papua New Guinea
No progress/regressing	
Malaysia	

Lao PDR = Lao People's Democratic Republic.
Source: Table 3.1.

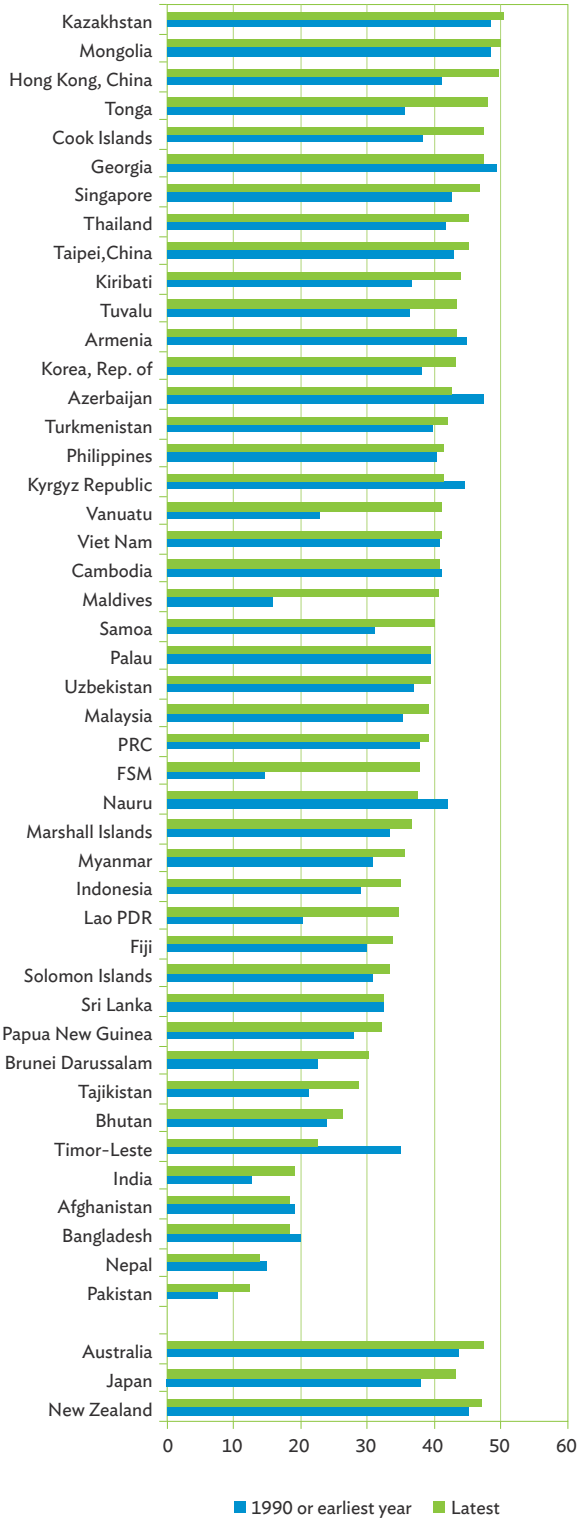
Box 3.3: Progress Toward the Target for Gender Equality in Tertiary Education

Achievers/on track	
Armenia	Mongolia
Azerbaijan	Myanmar
Brunei Darussalam	Pakistan
China, People's Rep. of	Palau
Georgia	Philippines
Hong Kong, China	Sri Lanka
Indonesia	Taipei,China
Kazakhstan	Thailand
Kyrgyz Republic	Tonga
Malaysia	Viet Nam
Maldives	
Off track - slow	
Expected to meet target between 2016 and 2020	
Bangladesh	Lao PDR
Cambodia	
Expected to meet target between 2021 and 2030	
India	Nepal
Korea, Rep. of	
Expected to meet target after 2030	
Bhutan	Tajikistan
No progress/regressing	
Afghanistan	Timor-Leste
Marshall Islands	Uzbekistan

Lao PDR = Lao People's Democratic Republic.
Source: Table 3.1.

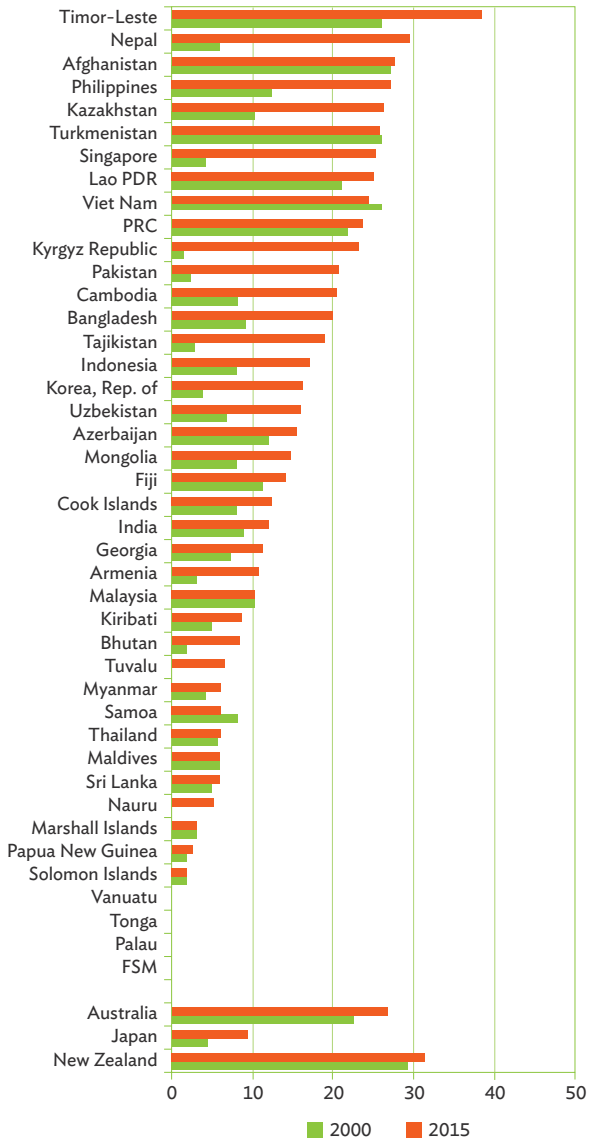
Women's political participation has improved in developing Asia with the increase in the share of parliamentary seats held by women. The share of seats held by women increased from 14.6% in 1990 to 19.3% in 2015, however the conditions are still far from gender parity. Figure 3.3 illustrates the proportion of women members of national parliaments across developing economies in 1990 and 2015 or the latest year. Nearly two out of every five parliamentarians (38.5%) are women in Timor-Leste. In 13 other economies of the Asia and Pacific region, the percentage of parliamentary seats held by women was in the range of 20%–31% and was below 10% in 16 other developing Asian economies.

Figure 3.2: Share of Women in Nonagricultural Wage Employment, Earliest and Latest Years



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 3.1.

Figure 3.3: Proportion of Seats Held by Women in National Parliaments, 2000 and 2015 or Nearest Year
(%)



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 3.1.

Data issues and comparability

Enrollment rates generally follow the United Nations Educational, Scientific and Cultural Organization guidelines on definitions of education levels and methods of calculation. Many small Pacific island economies do not have tertiary education facilities, and their students go overseas for such education.

The most reliable information on female employment in nonagricultural activities comes from household labor force surveys, but these are not conducted in all economies. Alternative sources include enterprise employment surveys, population censuses, and household demographic surveys.

The percentage of women in parliament refers only to national parliaments.

The post-2015 agenda

While there have been considerable progress in reducing gender gaps in education at all levels, gender disparities in education persist in many economies of the Asia and Pacific region. Gender disparities in secondary and tertiary education in some economies are unfavorable for boys, and this also needs to be tackled in the post-2015 agenda as gender disparity is about both men and women. While more and more women are getting educated, large disparities in labor force participation rates between men and women exist in many economies.

Women continue to face challenges in obtaining employment in more decent paid work and continue to have a larger share of informal and vulnerable jobs compared with men. Bottlenecks to women's gainful employment include household responsibilities and cultural constraints. This situation requires policy attention as such labor market distortions reduce prospects of women for better welfare conditions.

There remains a lot of gender disparities not only in outcomes but also in opportunities. Social and political positions, division of domestic work, ownership and control of assets and properties, and opportunities in the labor market are a few areas where there are stark differences between men and women. Fundamental causes of these gaps need to be addressed in the post-2015 world.

Table 3.1: Target 3.A—Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education not later than 2015

Regional Member	3.1 Ratio of Girls to Boys in Education Levels[a]					
	Primary		Secondary		Tertiary[b]	
	1991	2013	1991	2013	1991	2013
Developing Member Economies						
Central and West Asia	**0.69**	**0.85**	**0.79**	**0.81**	**0.83**	**1.01**
Afghanistan	0.55	0.70	0.51	0.55	0.49 (1990)	0.33 (2011)
Armenia	1.05	1.14 (2009)	1.09 (2000)	1.15 (2009)	1.26 (2000)	1.51
Azerbaijan	0.99	0.98 (2012)	1.00	0.99 (2012)	0.67	1.05 (2012)
Georgia	1.00	1.01	0.97	1.01	0.91	1.26
Kazakhstan	1.04	1.01	1.02 (1993)	1.01	1.25 (1994)	1.30
Kyrgyz Republic	1.01 (1992)	0.98	1.02	1.00	1.33 (1993)	1.61
Pakistan	0.53 (1990)	0.87	0.48	0.73	0.27 (1992)	0.98
Tajikistan	0.98	0.99 (2014)	0.86 (1999)	0.90 (2012)	0.43 (1999)	0.61 (2014)
Turkmenistan	...	0.98 (2014)	...	0.96 (2014)	...	0.64 (2014)
Uzbekistan	0.98	0.97 (2011)	0.98 (1999)	0.98 (2011)	0.82 (1999)	0.65 (2011)
East Asia	**0.92**	**1.01**	**0.77**	**1.03**	**0.50**	**1.11**
China, People's Rep. of	0.91	1.01	0.75	1.03	0.53 (1994)	1.15
Hong Kong, China	1.00 (1995)	0.98	1.03 (1996)	0.97	0.70 (1992)	1.13
Korea, Rep. of	1.01	0.99 (2014)	0.97	0.99 (2014)	0.49	0.75 (2014)
Mongolia	0.99	0.97	1.10	1.07 (2010)	2.27 (1996)	1.42
Taipei,China	1.01	1.01 (2014)	1.04	1.01 (2014)	0.96	1.10 (2014)
South Asia	**0.77**	**1.03**	**0.60**	**0.97**	**0.50**	**0.91**
Bangladesh	0.84 (1990)	1.06 (2011)	0.51 (1990)	1.14 (2012)	0.20 (1990)	0.72 (2012)
Bhutan	0.60	1.01	0.76 (1998)	1.07	0.58 (1999)	0.74
India	0.76	1.03 (2012)	0.63 (1993)	0.95 (2012)	0.54	0.92
Maldives	1.00 (1992)	0.97 (2007)	1.04 (1994)	1.13 (2004)	2.29 (2003)	1.13 (2008)
Nepal	0.62	1.09 (2014)	0.45	1.06 (2014)	0.32	0.81
Sri Lanka	0.97	0.99	1.09	1.06	0.50 (1994)	1.60
Southeast Asia	**0.97**	**0.98**	**0.90**	**0.99**	**0.96**	**1.11**
Brunei Darussalam	0.94	0.99	1.09	1.02	1.36 (1992)	1.82
Cambodia	0.84 (1994)	0.93	0.54 (1998)	0.85 (2008)	0.21 (1993)	0.61 (2011)
Indonesia	0.98	1.00 (2012)	0.82	0.98	0.66 (1993)	1.03 (2012)
Lao PDR	0.79	0.95	0.66 (1992)	0.89	0.43 (1993)	0.88
Malaysia	1.00	0.94 (2005)	1.05	0.94 (2012)	1.07 (1998)	1.21 (2012)
Myanmar	0.94	0.99 (2010)	0.96	1.05 (2010)	1.22 (1992)	1.23 (2012)
Philippines	0.99	0.96	1.04 (1990)	1.07	1.49 (1992)	1.26
Singapore	...	...	...	...	...	...
Thailand	0.98	0.97	0.96	1.08	1.14 (1993)	1.34
Viet Nam	0.99	0.98	0.90 (1998)	...	0.66 (1998)	0.90
The Pacific	**0.91**	**0.93**	**0.90**	**0.88**	**...**	**...**
Cook Islands	1.00 (1998)	0.98	1.10 (1998)	1.16	na	1.23 (2012)
Fiji	1.00	1.01 (2012)	0.97	1.11 (2012)	1.20 (2003)	1.19 (2005)
Kiribati	1.01	1.04 (2009)	1.08	1.11 (2008)	na	na
Marshall Islands	0.99 (1999)	0.99 (2011)	1.06 (1999)	1.03 (2009)	1.28 (2002)	0.92 (2012)
Micronesia, Fed. States of	0.98 (2004)	0.99 (2014)	1.06 (2004)	1.08 (2005)	...	...
Nauru	0.96 (1998)	1.03 (2012)	1.17 (2000)	0.96 (2012)	na	na
Palau	0.93 (1999)	0.96 (2014)	1.07 (1999)	1.06 (2014)	2.35 (2000)	1.55
Papua New Guinea	0.85	0.91 (2012)	0.67	0.76 (2012)	0.47 (1995)	0.57 (1999)
Samoa	1.02 (1994)	1.00 (2012)	1.23 (1994)	1.11 (2012)	0.96 (1998)	0.92 (2000)
Solomon Islands	0.85	0.99	0.59	0.94 (2012)	na	na
Timor-Leste	0.92 (2004)	0.95 (2011)	0.96 (2004)	1.02 (2011)	1.23 (2002)	0.73 (2010)
Tonga	1.00	1.00	1.02	1.04	1.35 (1999)	1.66 (2003)
Tuvalu	1.04 (2000)	1.00	1.10 (2001)	1.25	na	na
Vanuatu	0.96	0.96	0.81	1.00 (2010)	0.57 (2002)	0.59 (2004)
Developed Member Economies	**1.00**	**1.00**	**1.01**	**0.99**	**0.73**	**1.02**
Australia	1.00	0.99	1.01 (1993)	0.93	1.18	1.37
Japan	1.00	1.00 (2012)	1.02	1.00 (2012)	0.65	0.90 (2012)
New Zealand	0.99	1.00	1.01	1.05	1.13	1.45
DEVELOPING MEMBER ECONOMIES	**0.86**	**1.00**	**0.72**	**0.97**	**0.64**	**1.03**
REGIONAL MEMBERS	**0.87**	**1.00**	**0.74**	**0.97**	**0.66**	**1.03**
WORLD	**0.89**	**0.98**	**0.85**	**0.97**	**0.91**	**1.10**

continued

Table 3.1: Target 3.A—Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education not later than 2015 *(continued)*

Regional Member	3.2 Share of Women in Wage Employment in the Nonagricultural Sector (%)			3.3 Proportion of Seats held by Women in National Parliament (%)		
	1990	2000	2013	1990	2000	2015
Developing Member Economies						
Central and West Asia				**20.2**	**7.1**	**20.1**
Afghanistan	...	19.2 (2002)	18.4 (2008)	3.7	27.3 (2006)	27.7
Armenia	...	45.0 (2002)	43.5	35.6	3.1	10.7
Azerbaijan	47.5 (1997)	47.6	42.6	12.0 (1997)	12.0	15.6
Georgia	49.4 (1998)	49.6 (2002)	47.3	6.8 (1997)	7.2	11.3
Kazakhstan	...	48.5 (2001)	50.6	13.4 (1997)	10.4	26.2
Kyrgyz Republic	...	44.5 (2002)	41.5	1.4 (1997)	1.4	23.3
Pakistan	7.7	13.0	12.6 (2008)	10.1	2.3 (1999)	20.7
Tajikistan	21.2 (1991)	23.2	28.9 (2009)	2.8 (1997)	2.8	19.0
Turkmenistan	39.9 (1995)	42.1 (2002)	...	26.0	26.0	25.8
Uzbekistan	37.0 (1991)	37.1	39.4 (2007)	6.0 (1997)	6.8	16.0
East Asia				**20.1**	**19.9**	**22.8**
China, People's Rep. of	37.8	39.1 (1999)	...	21.3	21.8	23.6
Hong Kong, China	41.2	44.8	49.6 (2012)	...	...	...
Korea, Rep. of	38.1	40.1	43.1	2.0	3.7	16.3
Mongolia	48.5 (1993)	48.6	49.9 (2012)	24.9	7.9	14.9
Taipei,China	42.9	44.0	45.2 (2014)	...	...	...
South Asia				**6.0**	**7.2**	**18.0**
Bangladesh	20.2 (1991)	24.7	18.3 (2010)	10.3	9.1	20.0
Bhutan	...	23.9	26.3 (2012)	2.0	2.0	8.5
India	12.7	16.6	19.3 (2010)	5.0	9.0	12.0
Maldives	15.8	40.6	40.5 (2010)	6.3	6.0 (2001)	5.9
Nepal	15.1 (1999)	14.0 (2001)	...	6.1	5.9	29.5
Sri Lanka	32.4 (1997)	32.4	32.4	4.9	4.9	5.8
Southeast Asia				**10.4**	**14.6**	**17.3**
Brunei Darussalam	22.5 (1991)	30.3	30.3 (2003)	...	...	...
Cambodia	...	41.1	40.9 (2012)	5.8 (1997)	8.2	20.3
Indonesia	29.2	31.7	35.1	12.4	8.0 (2001)	17.1
Lao PDR	20.3	32.1 (2005)	34.6 (2010)	6.3	21.2	25.0
Malaysia	35.3 (1991)	37.9	39.2	5.1	10.4 (2001)	10.4
Myanmar	30.7	35.7 (1998)	...	...	4.3 (2011)	6.2
Philippines	40.4 (1991)	40.9	41.5	9.1	12.4	27.2
Singapore	42.5 (1991)	43.6 (2001)	46.8	4.9	4.3	25.3
Thailand	41.9	44.1	45.2	2.8	5.6	6.1
Viet Nam	41.0 (1996)	40.7	41.1	17.7	26.0	24.3
The Pacific				**1.2**	**3.9**	**8.4**
Cook Islands	38.4	42.4 (2001)	47.5 (2011)	6.0 (1991)	8.0 (2001)	12.5 (2014)
Fiji	29.9	33.2	34.0 (2007)	4.3 (1997)	11.3	14.0
Kiribati	...	36.8	43.9 (2010)	–	4.9	8.7
Marshall Islands	33.2 (1988)	29.3 (1999)	36.7 (2011)	3.0	3.0 (2001)	3.0
Micronesia, Fed. States of	14.8 (1994)	14.4	37.9 (2011)	– (1997)	–	–
Nauru	...	42.0 (2002)	37.6 (2011)	5.6	–	5.3
Palau	39.5	39.6	39.6 (2005)	– (1997)	–	–
Papua New Guinea	27.9	32.1	...	–	1.8	2.7
Samoa	31.0	36.7 (2001)	40.0 (2011)	–	8.2	6.1
Solomon Islands	...	30.8 (1999)	33.2 (2011)	–	2.0	2.0
Timor-Leste	...	35.0 (2001)	22.5 (2010)	...	26.1 (2003)	38.5
Tonga	...	35.6 (1996)	47.9 (2011)	–	– (2001)	–
Tuvalu	36.4 (1991)	36.0 (2002)	43.5 (2012)	7.7	–	6.7
Vanuatu	23.0 (1989)	37.5 (2004)	41.3 (2009)	4.3	–	–
Developed Member Economies				**4.0**	**11.9**	**16.5**
Australia	43.7	46.3	47.3	6.1	22.4	26.7
Japan	38.0	40.0	43.3	1.4	4.6	9.5
New Zealand	45.1	47.1	47.2	14.4	29.2	31.4
DEVELOPING MEMBER ECONOMIES				**14.6**	**13.8**	**19.3**
REGIONAL MEMBERS				**13.7**	**13.7**	**19.1**
WORLD				**12.9**	**13.5**	**22.4**

... = data not available at cutoff date, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic, na = not applicable.

a The ratio is a gender parity index, measured as the ratio of female-to-male gross enrollment ratios at primary, secondary, and tertiary levels of education. Regional aggregates are from the electronic files provided by the UNESCO Institute for Statistics (UIS) on 29 July 2015. If national data are missing or not available,the UIS imputes or generates a value to estimate a robust regional average.

b There is no tertiary education in Kiribati, Nauru, Solomon Islands, and Tuvalu. In the Cook Islands and the Maldives, tertiary education became available only recently.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 6 July 2015); for Taipei,China: Ministry of Education. http://english.moe.gov.tw/ct.asp?xItem=14504&CtNode=11430&mp=1 (accessed 10 July 2015); Directorate-General of Budget, Accounting and Statistics. Official website: http://statdb.dgbas.gov.tw/pxweb/dialog/statfile1L.asp (accessed 13 July 2015); Inter-Parliamentary Union. http://www.ipu.org/wmn-e/world.htm (accessed 24 July 2015); National Minimum Development Indicator Database. http://www.spc.int/nmdi/ (accessed 13 July 2015).

MDG 4: Reduce Child Mortality

The target for Millennium Development Goal (MDG) 4 is to reduce the mortality rate of children under 5 years old (under-5 mortality) by two-thirds between 1990 and 2015.

Related indicators are the infant mortality rate and the proportion of children under 1 year of age immunized against measles. The target for infant mortality (dying before reaching the age of 1 year) is also to reduce the rate by two-thirds between 1990 and 2015—that is, attain a 2015 rate that is one-third of the 1990 infant mortality rate.

To reduce measles-related deaths, another target is to increase the percentage of children under 1 year of age who have been immunized or have received at least one dose of vaccine against measles. Immunization against measles is administered through two doses of a vaccine. The recommended coverage of the first dose of measles-containing vaccine (MCV1) is at least 90% at the national level.

Snapshots

- Developing Asia has made substantial progress in reducing under-5 mortality by more than half from 90 deaths per 1,000 live births in 1990 to 36 in 2015, but the region is still behind the MDG target to reduce under-5 mortality by two-thirds of the 1990 rate.
- Deaths of children under the age of 1 year have also reduced substantially with the infant mortality rates reduced by more than half from 66 to 29 deaths per 1,000 live births between 1990 and 2015.
- Measles vaccination increased significantly with 84% of the children in developing Asia receiving at least one dosage of measles vaccination in 2013 as against 73% in 1990.

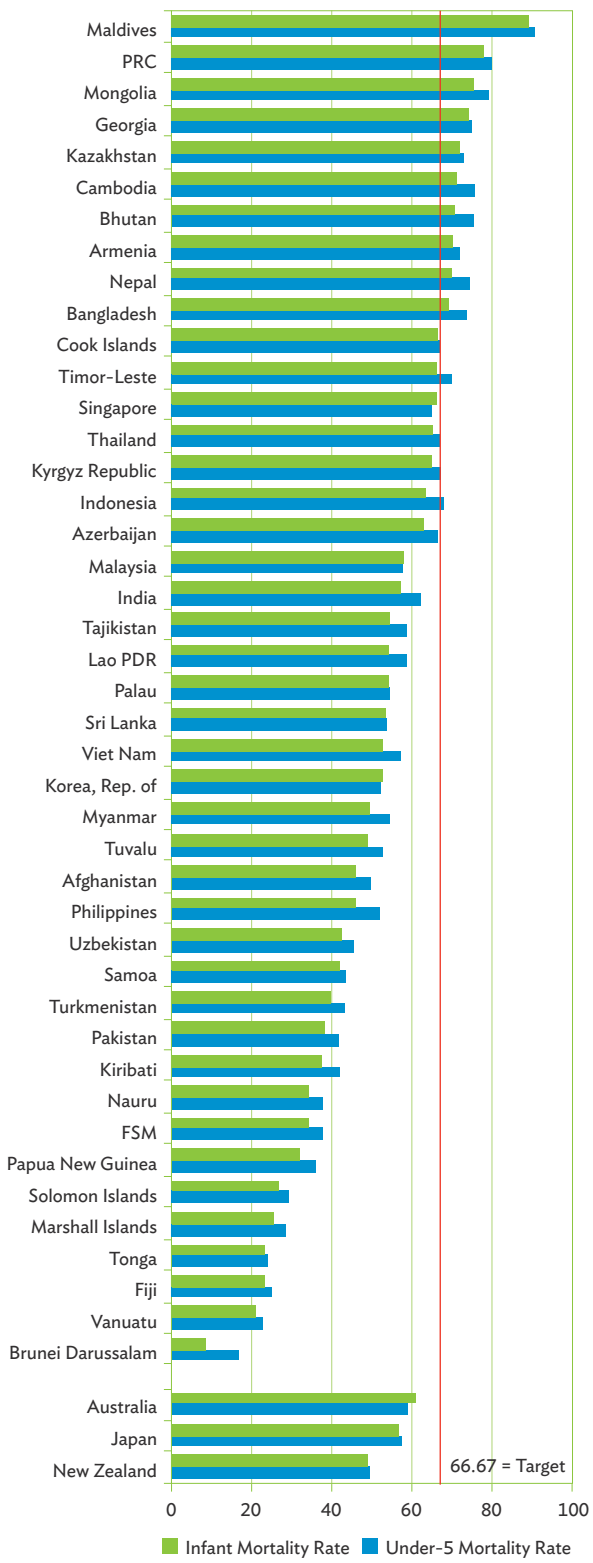
Progress

Developing Asia has reduced under-5 mortality from 90 deaths per 1,000 live births in 1990 to 36 in 2015. Despite this impressive performance, it is still short of the MDG target to reduce under-5 mortality by two-thirds of the 1990 rate. This translates into reduction from an estimated 7.4 million child deaths in 1990 to almost 2.5 million deaths in 2015 or reduction of more than 13,000 deaths every day.

The Maldives has achieved the highest rate of reduction at 91% (Figure 4.1). Other economies that have met the MDG target reduction on under-5 mortality include Armenia, Bangladesh, Bhutan, Cambodia, the Cook Islands, Georgia, Indonesia, Kazakhstan, the Kyrgyz Republic, Mongolia, Nepal, the People's Republic of China (PRC), Thailand, and Timor-Leste.

As of 2015 (or latest year), all economies in the Asia and Pacific region have under-5 mortality rates of less than 100 deaths per 1,000 live births (Figure 4.2), with the highest rates in Afghanistan (91), Pakistan (81), and the Lao People's Democratic Republic (67). The under-5 mortality rates are lowest, at 10 deaths or below per thousand, in Brunei Darussalam (10), the Cook Islands (8), the Republic of Korea (3),

Figure 4.1: Infant Mortality Rate and Under-5 Mortality Rate, Percent Reduction between 1990 and 2015



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 4.1.

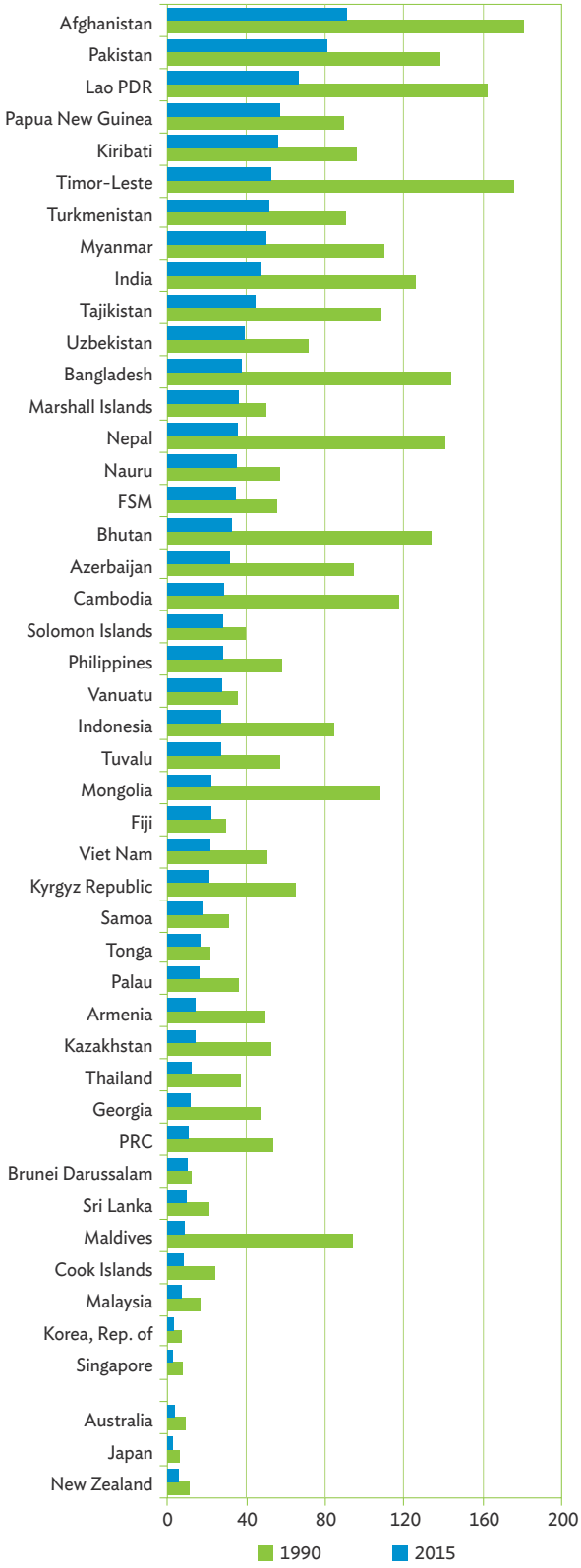
Malaysia (7), the Maldives (9), Singapore (3), and Sri Lanka (10) and in developed economies of Australia (4), Japan (3), and New Zealand (6).

Box 4.1 shows the progress toward achieving the MDG target of reducing under-5 mortality to a rate of two-thirds of the 1990 baseline rates by 2015. In 2015, 15 economies are expected to achieve the target. If past trends since 1990 continue, then 13 economies are expected to meet the target between 2016 and 2030 and 15 economies will achieve the target only after 2030. However, among these economies, Brunei Darussalam, the Republic of Korea, Malaysia, Palau, Samoa, Singapore, Sri Lanka, and Tonga have relatively low baselines or current child mortality rates below 20. Major causes of under-5 deaths are preventable causes such as pneumonia, diarrhea, and malaria (United Nations 2015, The Millennium Development Goals Report).

Developing Asia has reduced by more than half its infant mortality (dying before reaching the age of 1 year) from 66 per 1,000 live births in 1990 to 29 in 2015. Figure 4.1 shows the percentage reductions in infant mortality and under-5 mortality between 1990 and 2015 for economies with available data for both indicators. All economies show significant progress in reducing infant mortality rates and in general, economies with high percentage reductions in under-5 mortality rates have also high percentage reductions in infant mortality rates.

The percentage reductions in infant mortality rates are, however, lower than those for under-5 mortality (Figure 4.1), which implies that many of the under-5 deaths occur before the children reach their first birthday. A significant number of deaths take place in the neonatal period, i.e., the first 28 days of life (0–27 days), caused by preterm birth complications, complications during labor and delivery and sepsis. (United Nations 2015, The Millennium Development Goals Report). Much more attention should thus be given to the neonatal period, the most critical period for the survival of children.

Figure 4.2: Under-5 Mortality Rate (per 1,000 live births), 1990 and 2015



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 4.1.

Box 4.1: Progress Toward the Target for Under-5 Mortality Rate

Achievers/on track

Armenia	Kazakhstan
Bangladesh	Kyrgyz Republic
Bhutan	Maldives
Cambodia	Mongolia
China, People's Rep. of	Nepal
Cook Islands	Thailand
Georgia	Timor-Leste
Indonesia	

Off track - slow

Expected to meet target between 2016 and 2020

Azerbaijan	Singapore
India	Tajikistan
Malaysia	

Expected to meet target between 2021 and 2030

Afghanistan	Philippines
Lao PDR	Sri Lanka
Myanmar	Tuvalu
Palau	Viet Nam

Expected to meet target after 2030

Brunei Darussalam	Papua New Guinea
Fiji	Samoa
Kiribati	Solomon Islands
Korea, Rep. of	Tonga
Marshall Islands	Turkmenistan
Micronesia, Fed. States of	Uzbekistan
Nauru	Vanuatu
Pakistan	

Lao PDR = Lao People's Democratic Republic.
Source: Tabla 4.1.

Box 4.2 shows the progress of developing economies in attaining the MDG target of reducing infant mortality rate by two-thirds between 1990 and 2015. Eleven economies are expected to achieve the MDG target for infant mortality by 2015. Another fourteen developing economies in the Asia and Pacific region are expected to meet the target on infant mortality between 2016 and 2030, and 20 economies are expected to meet the MDG target after 2030. Among these economies, however, Brunei Darussalam; the Cook Islands; the Republic of Korea; Malaysia; Palau; Samoa; Singapore; Taipei,China; Thailand; and Tonga already have either low baseline or current infant mortality rates of 15 or lower (Figure 4.3).

Measles vaccination of 1-year-old children has increased significantly in the region from 74% in 1990 to 84% in 2013. This vaccination rate is at par with the global average (84%) in 2013, which likely has prevented more children from deaths (Table 4.1). Measles is a highly contagious viral respiratory infection that can lead to serious complications, and

Box 4.2: Progress Toward Achieving the Infant Mortality Rate Target

Achievers/on track

Armenia	Hong Kong, China
Bangladesh	Kazakhstan
Bhutan	Maldives
Cambodia	Mongolia
China, People's Rep. of	Nepal
Georgia	

Off track - slow

Expected to meet target between 2016 and 2020

Azerbaijan	Malaysia
Cook Islands	Singapore
Indonesia	Thailand
Kyrgyz Republic	Timor-Leste

Expected to meet target between 2021 and 2030

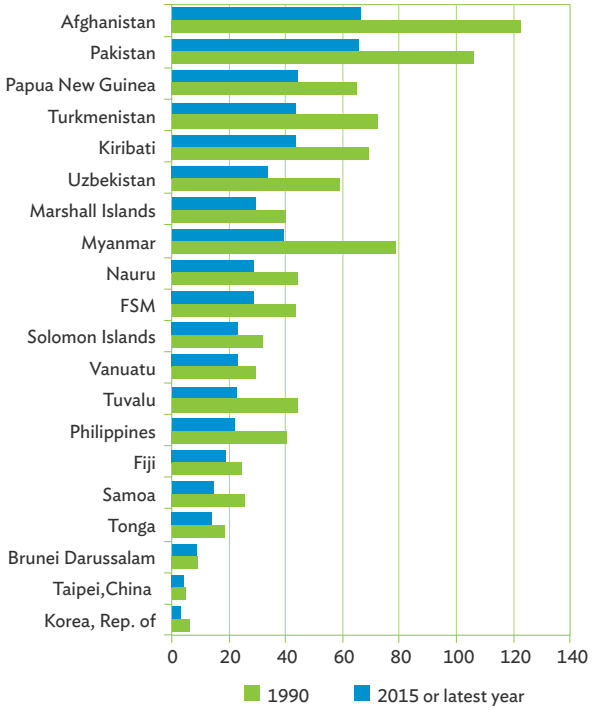
India	Sri Lanka
Lao PDR	Tajikistan
Palau	Viet Nam

Expected to meet target after 2030

Afghanistan	Papua New Guinea
Brunei Darussalam	Philippines
Fiji	Samoa
Kiribati	Solomon Islands
Korea, Rep. of	Taipei,China
Marshall Islands	Tonga
Micronesia, Fed. States of	Turkmenistan
Myanmar	Tuvalu
Nauru	Uzbekistan
Pakistan	Vanuatu

Lao PDR = Lao People's Democratic Republic.
Source: Tabla 4.1.

Figure 4.3: Infant Mortality Rate of Selected Economies, 1990 and 2015 or Latest Year



FSM = Federated States of Micronesia.
Source: Table 4.1.

even death. Though the disease can occur at any age, measles mainly affects children under 5 years, especially those undernourished or with poor immune systems. Figure 4.4 presents the proportion of 1-year-old children immunized against measles in 1990 or earliest year and 2013 across developing economies.

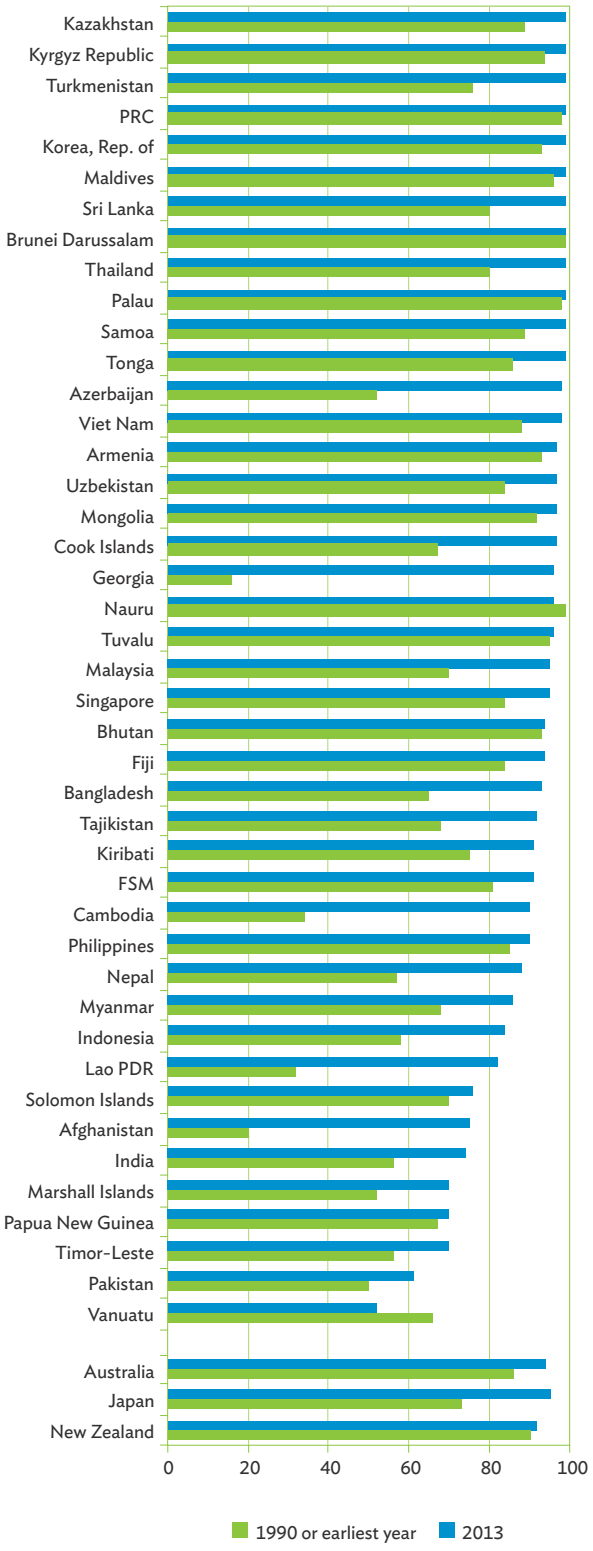
By 2013, more than half (23 out of 43) of developing economies in the Asia and Pacific region with data have at least 95% of their 1-year-old children immunized against measles, with another eight developing economies having measles vaccination rates between 90% and 94%. Vanuatu (52%) has the least proportion of 1-year-old children immunized against measles. Other developing economies with at most 75% of their 1-year-old children immunized against measles are Afghanistan (75%), India (74%), the Marshall Islands (70%), Pakistan (61%), Papua New Guinea (70%), and Timor-Leste (70%).

The largest percentage point increases in immunization coverage of over 50 percentage points in the MDG period are seen in the economies that started from a low baselines (of less than 35% coverage) in 1990: Afghanistan, Cambodia, Georgia, and the Lao People's Democratic Republic. Of concern is the decline in the immunization rates in the Pacific economy of Vanuatu by 14 percentage points from 66% in 1990 to 52% in 2013.

Data issues and comparability

In more developed economies, data on mortality are usually taken from vital statistics produced from complete and fully functional civil registration systems. However, most developing economies in Asia and the Pacific lack fully functioning civil registration systems; thus, alternative and less-efficient data sources such as census and household surveys have become primary sources of data in many developing economies, posing severe challenges to accurate measurement of these critical indicators of primary health care systems. These household surveys may not be conducted each year, so that

Figure 4.4: Proportion of 1-Year Old Children Immunized Against Measles, 1990 or Earliest Year and 2013
(%)



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 4.1.

econometric estimation techniques may be used to produce a consistent time series. Mortality statistics, thus, vary widely in quality.

Data on immunization may be provided directly from administrative records of health workers and health stations or clinics providing inoculations or, more commonly in Asia and the Pacific, the information is collected from households in demographic and health surveys. As with mortality data, estimation techniques are used to convert partial data into comprehensive estimates.

The post-2015 agenda

While there has been a substantial reduction in the deaths of children due to preventable causes, there will be a need for more concerted action by governments, the development community, and other stakeholders, including the provision of requisite resources to further reduce child deaths, especially neonatal deaths to the levels of the developed economies of the world. Higher investments for prenatal and antenatal child and maternal care; labor and delivery care interventions; promoting breastfeeding; and providing women and their children with adequate nutrition, safe drinking water, and good sanitation are required in the post-2015 world to significantly reduce infant and under-5 mortality. There is also a requisite need to improve the lack of basic data regarding births, deaths, and causes of deaths from civil registration systems in many developing economies that hampers effective progress monitoring and policymaking. These systems need to be strengthened as reliable sources for vital statistics.

Goal 4 Targets and Indicators

Table 4.1: Target 4.A—Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate

Regional Member	4.1 Under-5 Mortality Rate (per 1,000 live births)			4.2 Infant Mortality Rate (per 1,000 live births)			4.3 Proportion of 1-Year-Old Children Immunized against Measles (%)		
	1990	2000	2015	1990	2000	2015	1990	2000	2013
Developing Member Economies									
Central and West Asia[a]	**123**	**106**	**71**	**94**	**82**	**57**	**55**	**62**	**71**
Afghanistan	181	137	91	123	95	66	20	27	75
Armenia	50	30	14	43	27	13	93 (1992)	92	97
Azerbaijan	95	74	32	76	61	28	52 (1992)	67	98
Georgia	48	36	12	41	31	11	16 (1992)	73	96
Kazakhstan	53	44	14	45	38	13	89 (1992)	99	99
Kyrgyz Republic	65	49	21	54	42	19	94 (1992)	98	99
Pakistan	139	112	81	106	88	66	50	59	61
Tajikistan	108	93	45	85	74	39	68 (1992)	88	92
Turkmenistan	91	82	51	73	66	44	76 (1992)	96	99
Uzbekistan	72	63	39	59	53	34	84 (1992)	99	97
East Asia[a]	**53**	**36**	**11**	**42**	**29**	**9**	**98**	**84**	**99**
China, People's Rep. of	54	37	11	42	30	9	98	84	99
Hong Kong, China	...	...	...	6	3	2(2014)	...	...	...
Korea, Rep. of	7	6	3	6	5	3	93	95	99
Mongolia	108	63	22	77	48	19	92	92	97
Taipei,China	...	...	...	5	6	4(2013)	...	...	...
South Asia[a]	**127**	**90**	**46**	**89**	**65**	**37**	**57**	**61**	**77**
Bangladesh	144	88	38	100	64	31	65	74	93
Bhutan	134	80	33	93	59	27	93	78	94
India	126	91	48	88	66	38	56	59	74
Maldives	94	44	9	68	36	7	96	99	99
Nepal	141	81	36	98	60	29	57	71	88
Sri Lanka	21	16	10	18	14	8	80	99	99
Southeast Asia[a]	**72**	**49**	**27**	**52**	**37**	**22**	**70**	**82**	**89**
Brunei Darussalam	12	9	10	9	8	9	99	99	99
Cambodia	117	108	29	85	80	25	34	65	90
Indonesia	85	52	27	62	41	23	58	76	84
Lao PDR	162	118	67	111	83	51	32	42	82
Malaysia	17	10	7	14	9	6	70	96	95
Myanmar	110	82	50	78	61	40	68	84	86
Philippines	58	40	28	41	30	22	85	78	90
Singapore	8	4	3	6	3	2	84	96	95
Thailand	37	23	12	30	19	11	80	94	99
Viet Nam	51	34	22	37	26	17	88	97	98
The Pacific[a]	**88**	**73**	**51**	**65**	**56**	**41**	**70**	**65**	**72**
Cook Islands	24	17	8	21	14	7	67	76	97
Fiji	30	25	22	25	21	19	84	81	94
Kiribati	96	71	56	69	53	44	75	80	91
Marshall Islands	50	41	36	40	34	30	52	94	70
Micronesia, Fed. States of	56	54	35	43	42	29	81	85	91
Nauru	57	41	35	44	33	29	99 (1997)	8	96
Palau	36	27	16	31	23	14	98	83	99
Papua New Guinea	89	79	57	65	58	45	67	62	70
Samoa	31	22	18	26	19	15	89	93	99
Solomon Islands	40	33	28	32	27	24	70	85	76
Timor-Leste	176	110	53	132	86	45	...	56 (2002)	70
Tonga	22	18	17	19	15	14	86	95	99
Tuvalu	57	43	27	44	34	23	95	81	96
Vanuatu	36	29	28	29	24	23	66	61	52
Developed Member Economies[a]	**7**	**5**	**3**	**5**	**4**	**2**	**76**	**95**	**95**
Australia	9	6	4	8	5	3	86	91	94
Japan	6	5	3	5	3	2	73	96	95
New Zealand	11	7	6	9	6	5	90	85	92
DEVELOPING MEMBER ECONOMIES[a]	**90**	**71**	**36**	**66**	**54**	**29**	**73**	**71**	**84**
REGIONAL MEMBERS[a]	**89**	**70**	**36**	**64**	**53**	**29**	**74**	**71**	**84**
WORLD	**91**	**76**	**43**	**63**	**53**	**32**	**73**	**73**	**84**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Aggregates are derived for reporting economies only.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 6 July 2015); Asian Development Bank estimates.

MDG 5: Improve Maternal Health

Millennium Development Goal (MDG) 5 has two targets:

5.A: *Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio (MMR)*. The MMR is the number of maternal deaths per 100,000 live births. A related indicator is the proportion of births attended by skilled health personnel who are trained to conduct deliveries and care for newborns.

5.B: *Achieve, by 2015, universal access to reproductive health*. These services cover advice on contraceptive methods and family planning, antenatal care, and transmission of HIV/AIDS and other sexually transmitted diseases. This target, which was introduced in the revised MDG framework of 2008, has no direct indicator and is measured by a set of four related indicators—contraceptive prevalence, adolescent birth rates or the age-specific fertility rate for women aged 15–19, antenatal care coverage, and unmet need for family planning.

Snapshots

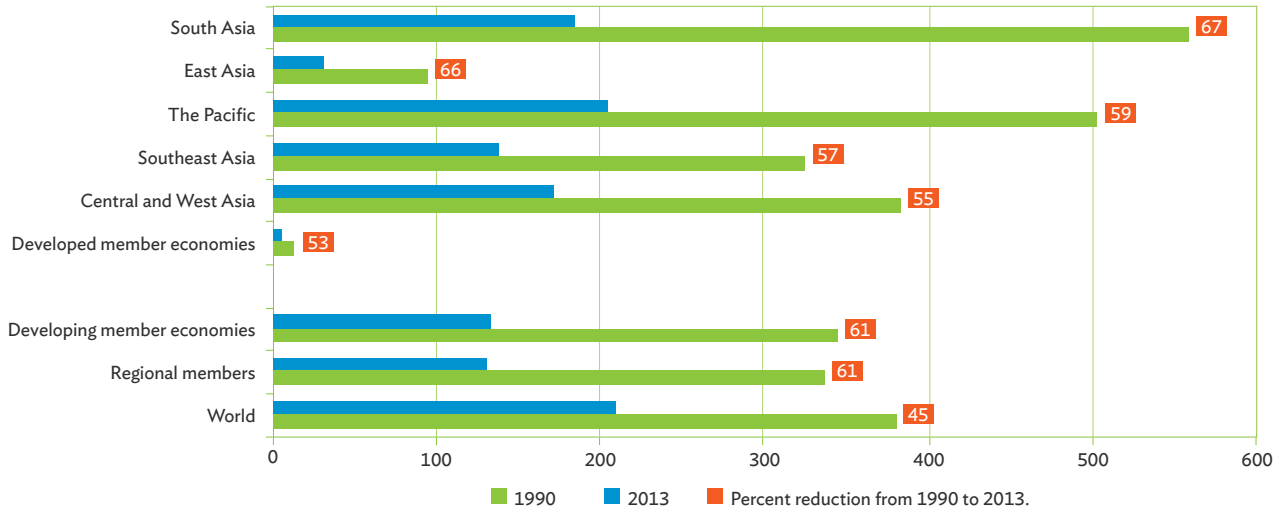
- Developing Asia's maternal mortality ratio declined by more than half, from 344 in 1990 to 133 per 100,000 live births in 2013, but fell short of the MDG target of three-quarters reduction.
- In more than half of the developing economies of Asia (23 out of 42), more than 95% of the births were attended by skilled health personnel, while in a quarter of economies (11 out of 42) at least a quarter of the births were unattended in recent years.
- In three-fourths of developing economies (35 out of 45), the adolescent birth rate has fallen during the MDG period. In 14 economies there are at least 50 births per 1,000 women in the age group 15 to 19 years.

Progress

Maternal mortality ratio (MMR) in developing Asia reduced by 61% from 344 in 1990 to 133 per 100,000 live births in 2013. Maternal mortality ratios declined by more than 50% in all the regions of developing Asia, with South Asia and East Asia achieving reductions by almost two-thirds between 1990 and 2013. These reductions translate into around 2.69 million maternal deaths in 1990 to around 1.49 million in 2013. This achievement is still short of the three-quarters target reduction for the MDGs, but better than the global average of 210 (Figure 5.1).

Few developing economies in the Asia and Pacific region (6 out of 39) have achieved the maternal mortality target of 75% reduction by 2013. About one-third economies (14 out of 39) have achieved at least 65% reduction in their MMR. None of the five most populated economies— Bangladesh, the People's Republic of China (PRC), India, Indonesia, and Pakistan—have attained the target, though these economies have significantly reduced their maternal mortality since 1990 by over 50%. The PRC has a relatively low level for its MMR of just 32 and a low

Figure 5.1: Maternal Mortality Ratio, 1990 and 2013
(deaths per 100,000 live births)



Source: Table 5.1.

baseline of 97 in 1990, compared with Bangladesh (170 with a baseline of 550), Pakistan (170 with a baseline of 400), India (190 with a baseline of 560), and Indonesia (190 with a baseline of 430). The highest MMR across Asia and Pacific economies is found in Afghanistan at 400, which has made significant reductions in maternal mortality from its baseline of 1,200 in 1990 despite prevailing conflict in the country. Relative to 1990 levels of the MMR, the four economies that have registered an increase in maternal mortality ratio are Brunei Darussalam, the Republic of Korea, the Philippines, and Tonga. In the case of Brunei Darussalam and the Republic of Korea, their baselines in 1990 were relatively low at 26 and 18, respectively.

Box 5.1 summarizes the progress of developing Asian economies in attaining the MDG target of reducing maternal mortality by three-quarters. Six economies have attained the target and if past trends continue, another 12 economies will meet the target in varying years between 2016 and 2030. Among the 16 economies that are not likely to meet the target by 2030, five already have relatively low MMRs of below 30—Armenia (29), Malaysia (29), Singapore (6), Sri Lanka (29), and Thailand (26).

Since 1990, 34 out of 41 developing economies of the region have improved access to maternal health care with 23 out of 42 economies having more than 95% of the births attended by skilled health personnel. In a quarter of developing economies (11 out of 42) however, at least a quarter of the births were unattended by skilled health

Box 5.1: Progress Toward Achieving the Maternal Mortality Reduction Target

Achievers/on track	
Bhutan	Maldives
Cambodia	Nepal
Lao PDR	Timor-Leste
Off track - slow	
Expected to meet target between 2016 and 2020	
Bangladesh	Kazakhstan
China, People's Rep. of	Myanmar
India	Viet Nam
Expected to meet target between 2021 and 2030	
Afghanistan	Pakistan
Azerbaijan	Samoa
Indonesia	Solomon Islands
Expected to meet target after 2030	
Armenia	Papua New Guinea
Fiji	Singapore
Georgia	Sri Lanka
Kiribati	Tajikistan
Kyrgyz Republic	Thailand
Malaysia	Turkmenistan
Micronesia, Fed. States of	Uzbekistan
Mongolia	Vanuatu
No progress/regressing	
Brunei Darussalam	Philippines
Korea, Rep. of	Tonga

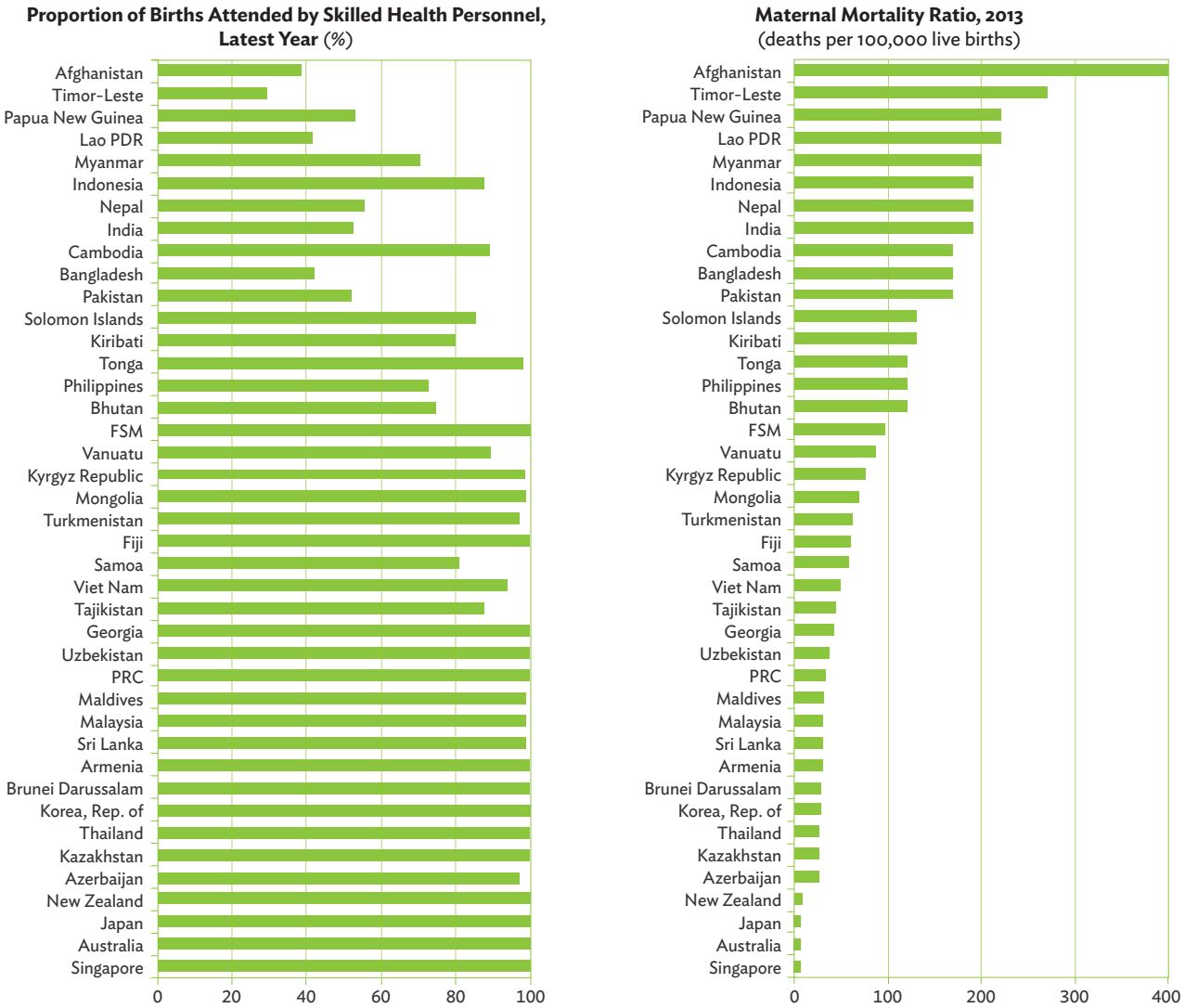
Lao PDR = Lao People's Democratic Republic.
Source: Table 5.1.

personnel in the latest reporting year. These include three populous economies of Pakistan (52.1%), Bangladesh (42.1%), and India (52.3%) (Figure 5.2). In 12 developing economies, the proportion of births attended by skilled health personnel has increased by 10 percentage points or more since 1990. In 7 economies, access was reduced but by no more than 3 percentage points.

The attendance of a skilled health attendant (medical doctor, nurse, or midwife) during pregnancy, delivery, and the postpartum period reduces the risk of maternal deaths. Hence, maternal mortality tends to be low in economies where access to maternal health care is high, and high in economies where the proportion of births attended by skilled health personnel is low (Figure 5.2).

Box 5.2 shows the progress of economies in meeting the target for births attended by skilled health personnel. Among 40 economies, 19 have either achieved the target or are on track to reach the target by 2015. Fifteen economies are expected to reach the target but after 2015: two between 2021 and 2030,

Figure 5.2: Births Attended by Skilled Health Personnel and Maternal Mortality Ratio, Latest Year



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 5.1.

and 13 after 2030. Six economies have either made no progress or are regressing in reaching the target. It may, however, be noted that among the economies that are not likely to meet the target of reducing by three-quarters the percentage of unattended births by 2015, include economies with already more than 97% of the births attended: Armenia (99.5%), Azerbaijan (97.2%), Fiji (99.6%), the Kyrgyz Republic (98.4%), Thailand (99.6%), and Tuvalu (97.9%). These economies have already very high coverage rates in the baselines.

Box 5.2: Progress Toward Target for Births Attended by Skilled Health Personnel

Achievers/on track

Bhutan	Marshall Islands
Brunei Darussalam	Micronesia, Fed. States of
Cambodia	Mongolia
China, People's Rep. of	Palau
Cook Islands	Sri Lanka
Georgia	Tonga
Indonesia	Turkmenistan
Kazakhstan	Uzbekistan
Malaysia	Viet Nam
Maldives	

Off track - slow

Expected to meet target between 2021 and 2030

Afghanistan	Nepal

Expected to meet target after 2030

Armenia	Philippines
Azerbaijan	Samoa
Bangladesh	Solomon Islands
India	Tajikistan
Lao PDR	Thailand
Myanmar	Timor-Leste
Pakistan	

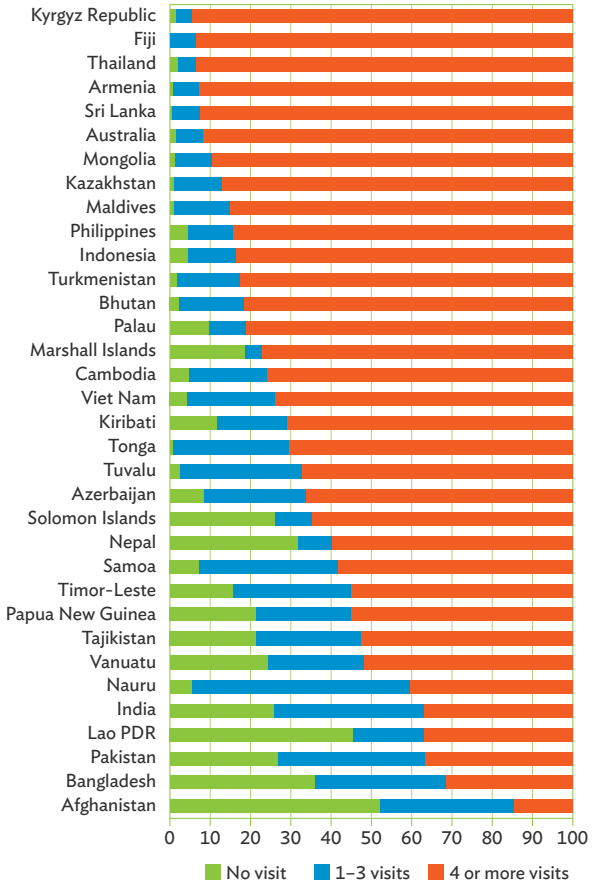
No progress/regressing

Fiji	Papua New Guinea
Kiribati	Tuvalu
Kyrgyz Republic	Vanuatu

Lao PDR = Lao People's Democratic Republic.
Source: Table 5.1.

In most Asia and Pacific economies (28 out of 34), at least half of the women with live births availed four or more antenatal care visits. Five of these economies, Armenia (92.8%), Fiji (93.6%), the Kyrgyz Republic (94.6%), Sri Lanka (92.5%), and Thailand (93.4%), have at least 90% of women aged 15–49 having attended four or more antenatal visits to any health service provider during pregnancy (Figure 5.3). The high level of antenatal care is reflected in their low MMRs. Economies with less than half of the pregnant women in the age group 15–49 that received

Figure 5.3: Antenatal Care Coverage as a Percentage of Live Births, Latest Year



Lao PDR = Lao People's Democratic Republic.
Note: Data for ≥ 1 visit and ≥ 4 visits for Fiji refer to different years.
Source: Table 5.2.

four or more antenatal care visits include Afghanistan (14.6%), Bangladesh (31.2%), India (37.0%), the Lao PDR (36.9%), Nauru (40.2%), and Pakistan (36.6%). The World Health Organization recommends a minimum of four antenatal care visits to ensure the well-being of mothers and their babies. During these antenatal care visits, women should receive a basic care package, including nutritional advice.

A cutoff of 95% is used to consider the attainment of MDG target for antenatal care coverage, which is considered attained when the births are preceded by at least one antenatal care visit with a skilled health worker (doctor, nurse, or midwife). Box 5.3 shows progress toward the target of at least one antenatal care visit. Of the 31 economies with available data, 18

economies have attained the target or are expected to do so by 2015. Improving antenatal care coverage remains a challenge for economies with slow or no progress, especially for populous economies such as Bangladesh, India, and Pakistan, where about 25%–40% of deliveries had no antenatal care visits.

Box 5.3: Progress Toward Achieving Antenatal Care Coverage (>= 1 visit) Target

Achievers/on track	
Armenia	Kyrgyz Republic
Bhutan	Malaysia
Brunei Darussalam	Maldives
Cambodia	Mongolia
China, People's Rep. of	Philippines
Georgia	Sri Lanka
Indonesia	Thailand
Kazakhstan	Uzbekistan
Kiribati	Viet Nam
Off track - slow	
Expected to meet target between 2016 and 2020	
Azerbaijan	
Expected to meet target between 2021 and 2030	
Afghanistan	
Expected to meet target after 2030	
Bangladesh	Pakistan
India	Papua New Guinea
Lao PDR	Tajikistan
Myanmar	Timor-Leste
Nepal	
No progress/regressing	
Palau	Vanuatu

Lao PDR = Lao People's Democratic Republic.
Source: Table 5.2.

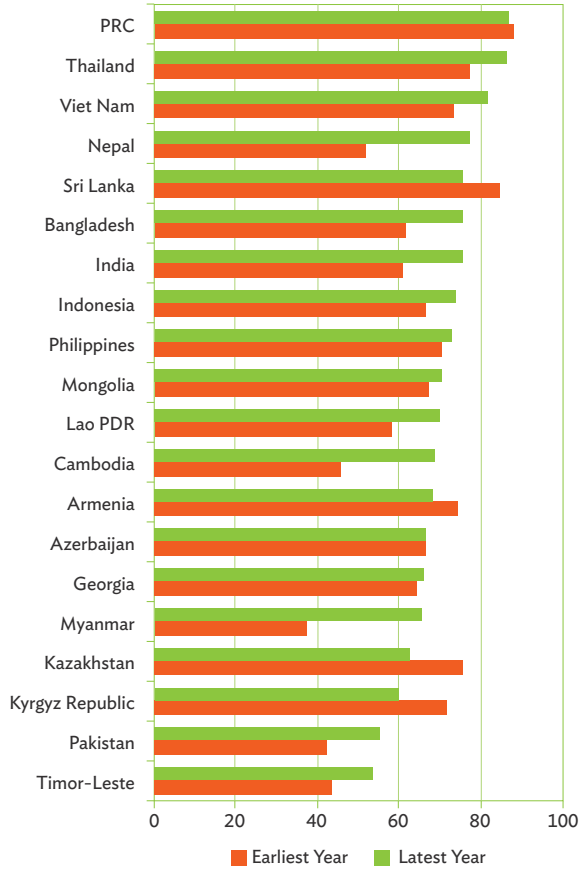
Since the 1990s, contraceptive prevalence has risen in three-fifths of developing economies in the region. In less than half of developing economies in Asia and the Pacific (20 out of 41), including four of the five most populous economies of Bangladesh, the PRC, India, and Indonesia, at least half the women between the ages of 15 and 49, married or in union, used contraception (Table 5.2). While in the fifth economy—Pakistan, contractive prevalence rate at 35.4% has more than tripled from its baseline of 11.8% in 1991.

About three-fourths of women of reproductive age, married or in union, have practiced any form of contraception in the PRC (85%); Hong Kong, China (80%); the Republic of Korea (80%); Thailand (79%); and Viet Nam (76%). In contrast, only about a third or less of the women used contraception in Afghanistan (21%), Tajikistan (28%), and six Pacific economies: Kiribati (22%), Palau (33%), Papua New Guinea (32%), Samoa (29%), Timor-Leste (22%), and Tuvalu (31%).

In most (28 out of 33) developing economies, at least 10% of women of reproductive age, married or in union, have an unmet need for family planning. Women with unmet need are those who are fecund and sexually active who report not wanting any more children or desire to postpone childbearing, but who are not currently using a contraceptive method. The concept of unmet need points to a gap between women's reproductive intentions and their contraceptive behaviour. Women with unmet need consist of two groups: those with an unmet need for limiting, and those with an unmet need for spacing. This unmet need adds further to the total demand for family planning (Figure 5.4).

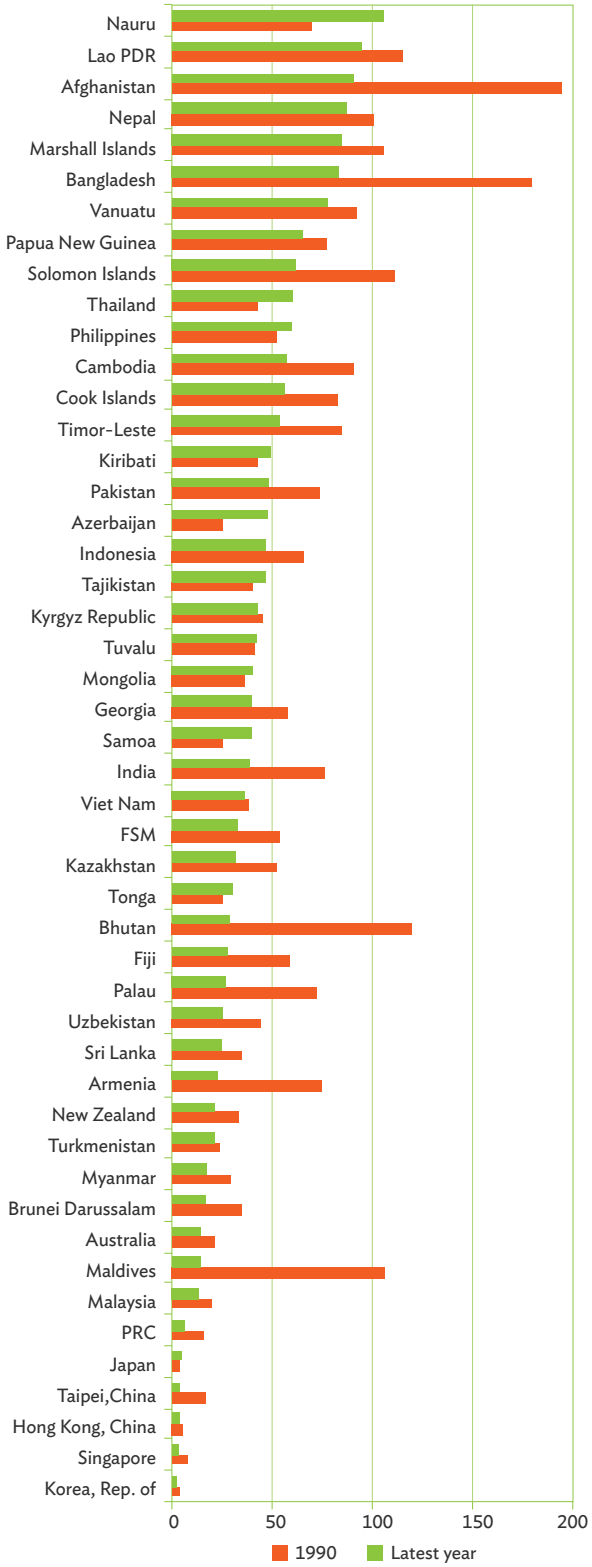
In three-fourths of the developing economies (35 out of 45), the adolescent birth rate has fallen during the MDG period. The birth rate among adolescents fell in all but 10 economies since the 1990s (Figure 5.5). However, there were 14 economies where there were at least 50 births per 1,000 women in the age group 15 and 19 as evidenced from the most recent available data. Afghanistan, Bangladesh, Bhutan, and the Maldives reduced the number of births to girls aged 15–19 by at least 90 per 1,000 adolescent women during the MDG period. The adolescent birth rates have increased in Azerbaijan, Kiribati, Mongolia, Nauru, the Philippines, Samoa, Tajikistan, Thailand, Tonga, and Tuvalu. Nauru has the highest adolescent birth rates in the latest year at 106 births per 1,000 women, followed by the Lao PDR (94) and Afghanistan (90).

Figure 5.4: Proportion of Women Aged 15–49 Years with Demand for Family Planning, Earliest and Latest Year



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Note: This indicator is the sum of contraceptive prevalence and unmet need for family planning, and may refer to different earliest and latest years.
Source: Table 5.2.

Figure 5.5: Adolescent Birth Rate per 1,000 Women 15–19 Years, 1990 or Earliest and Latest Year



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Sources: Table 5.2.

Data issues and comparability

The most reliable information on maternal mortality comes from civil registration records. In many developing economies, however, registration records are not well-maintained or updated, since many births take place at home rather than in health facilities, and many are not attended by skilled health personnel. Mortality ratios for these economies are based on household surveys of varying reliability. The estimates presented are point estimates, and the lower and upper bounds reflect the range of uncertainty in the estimates.

Data on the proportion of births attended by skilled health personnel and on the proportion preceded by an antenatal care visit are usually collected through household surveys. It is difficult to achieve a standardized definition of skilled health personnel due to differences in training.

Data on adolescent birth rates are derived from vital registration systems which are capable of providing good quality and coverage, otherwise, these are estimated from the household surveys. The data from the latter may suffer from limitations such as misreporting of the mother's age and exclusion of previous births.

Data on contraceptive prevalence rates are obtained mostly from demographic, health, or socioeconomic surveys.

Post-2015 agenda

As regards births, deaths, and health service coverage, there are vast inequalities not only across economies, but also in the sources of data. While developed economies can rely on vital registration systems or other administrative sources to provide data on adolescent birth, maternal deaths, and coverage of health services, developing economies have to rely on other data sources. The lack of data or the lack of quality data on maternal health and related issues hinder the formulation and implementation of proper actions. In some economies, the maternal mortality ratio is rising despite increasing public expenditures on health. While this may be arising due to variety of reasons, including changes in data quality in an economy or worsening health conditions of pregnant women due to improper nutrition especially among the poor, the post-2015 world should bridge the gap in the production of statistics on maternal health and mortality, and in the assurance of quality in these statistics. The civil registration systems and vital statistics generated from them need to be strengthened significantly for reliable measure of many of these indicators and to get much-needed disaggregates which cannot be produced from the household surveys without considerably enlarging the sample sizes.

Goal 5 Targets and Indicators

Table 5.1: Target 5.A—Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio

Regional Member	5.1 Maternal Mortality Ratio (per 100,000 live births)				5.2 Proportion of Births Attended by Skilled Health Personnel (%)	
	1990	2000	2010	2013	Earliest Year	Latest Year
Developing Member Economies						
Central and West Asia[a]	**383**	**358**	**201**	**171**		
Afghanistan	1,200	1,100	500	400	14.3 (2003)	38.6 (2011)
Armenia	47	43	31	29	99.7 (1990)	99.5 (2010)
Azerbaijan	60	57	27	26	97.3 (1990)	97.2 (2011)
Georgia	50	60	42	41	96.6 (1990)	99.9 (2013)
Kazakhstan	91	71	40	26	99.0 (1990)	99.9 (2011)
Kyrgyz Republic	85	100	79	75	98.9 (1990)	98.4 (2014)
Pakistan	400	280	190	170	18.8 (1991)	52.1 (2013)
Tajikistan	68	89	48	44	90.3 (1991)	87.4 (2012)
Turkmenistan	66	81	65	61	95.8 (1996)	97.2 (2000)
Uzbekistan	66	48	40	36	97.5 (1996)	99.9 (2006)
East Asia[a]	**95**	**61**	**36**	**32**		
China, People's Rep. of	97	63	36	32	94.0 (1990)	99.9 (2013)
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	18	19	21	27	98.0 (1990)	100.0 (1997)
Mongolia	100	120	74	68	97.1 (1998)	98.9 (2013)
Taipei,China	12	8	4	9	...	...
South Asia[a]	**558**	**364**	**215**	**186**		
Bangladesh	550	340	200	170	9.5 (1994)	42.1 (2014)
Bhutan	900	390	140	120	14.9 (1994)	74.6 (2012)
India	560	370	220	190	34.2 (1993)	52.3 (2008)
Maldives	430	110	38	31	90.0 (1994)	98.8 (2011)
Nepal	790	430	220	190	7.4 (1991)	55.6 (2014)
Sri Lanka	49	55	32	29	94.1 (1993)	98.6 (2007)
Southeast Asia[a]	**324**	**222**	**152**	**139**		
Brunei Darussalam	26	24	27	27	98.0 (1994)	99.9 (2009)
Cambodia	1,200	540	200	170	34.0 (1998)	89.0 (2014)
Indonesia	430	310	210	190	31.7 (1991)	87.4 (2013)
Lao PDR	1,100	600	270	220	19.4 (2001)	41.5 (2012)
Malaysia	56	40	31	29	92.8 (1990)	98.8 (2013)
Myanmar	580	360	220	200	46.3 (1991)	70.6 (2010)
Philippines	110	120	120	120	52.8 (1993)	72.8 (2013)
Singapore	8	19	4	6	100.0 (1998)	...
Thailand	42	40	28	26	99.3 (2000)	99.6 (2012)
Viet Nam	140	82	51	49	77.1 (1997)	93.8 (2014)
The Pacific[a]	**503**	**344**	**226**	**204**		
Cook Islands	...	...	...	...	99.0 (1991)	100.0 (2008)
Fiji	89	72	62	59	100.0 (1998)	99.6 (2013)
Kiribati	250	200	140	130	72.0 (1994)	79.8 (2009)
Marshall Islands	...	...	...	...	94.9 (1998)	99.0 (2010)
Micronesia, Fed. States of	170	130	100	96	92.8 (1999)	100.0 (2009)
Nauru	...	...	...	...	...	97.4 (2007)
Palau	...	...	...	...	99.0 (1990)	100.0 (2010)
Papua New Guinea	470	340	240	220	53.2 (1996)	53.0 (2006)
Samoa	150	89	62	58	76.0 (1990)	80.8 (2009)
Solomon Islands	320	210	140	130	83.5 (1994)	85.5 (2007)
Timor-Leste	1,200	680	330	270	25.8 (1997)	29.3 (2010)
Tonga	71	91	120	120	92.0 (1991)	97.9 (2012)
Tuvalu	...	...	...	...	100.0 (1990)	97.9 (2007)
Vanuatu	170	120	90	86	87.0 (1994)	89.4 (2013)
Developed Member Economies[a]	**13**	**10**	**6**	**6**		
Australia	7	9	5	6	100.0 (1991)	100.0 (1999)
Japan	14	10	6	6	100.0 (1990)	100.0 (1996)
New Zealand	18	12	12	8	95.0 (1994)	100.0 (1995)
DEVELOPING MEMBER ECONOMIES[a]	**344**	**264**	**153**	**133**		
REGIONAL MEMBERS[a]	**338**	**258**	**150**	**131**		
WORLD	**380**	**330**	**230**	**210**		

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Aggregates are derived for reporting economies only.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 29 July 2015); for Taipei,China: Directorate-General of Budget, Accounting and Statistics. http://eng.dgbas.gov.tw/public/data/dgbas03/bs2/yearbook_eng/y066.pdf

Table 5.2: Target 5.B—Achieve, by 2015, universal access to reproductive health

Regional Member	5.3 Contraceptive Prevalence Rate (% of married women 15–49 years)		5.4 Adolescent Birth Rate (per 1,000 women 15–19 years)	
	Earliest Year	Latest Year	1990	Latest Year
Developing Member Economies				
Central and West Asia				
Afghanistan	4.9 (2000)	21.2 (2011)	194.0 (1993)	90.0 (2008)
Armenia	56.0 (1991)	54.9 (2010)	74.6	22.7 (2013)
Azerbaijan	55.1 (2000)	51.1 (2006)	25.6	47.2 (2013)
Georgia	40.5 (2000)	53.4 (2010)	58.1	39.5 (2012)
Kazakhstan	59.1 (1995)	51.0 (2011)	51.9	31.2 (2008)
Kyrgyz Republic	59.5 (1997)	42.0 (2014)	45.3	42.4 (2012)
Pakistan	11.8 (1991)	35.4 (2013)	73.3 (1992)	48.0 (2010)
Tajikistan	33.9 (2000)	27.9 (2012)	40.5	47.0 (2010)
Turkmenistan	61.8 (2000)	48.0 (2006)	24.0	21.0 (2006)
Uzbekistan	55.6 (1996)	64.9 (2006)	44.0	25.5 (2006)
East Asia				
China, People's Rep. of	84.6 (1992)	84.6 (2006)	16.0	6.2 (2009)
Hong Kong, China	86.2 (1992)	79.5 (2007)	5.7	3.7 (2011)
Korea, Rep. of	79.4 (1991)	80.0 (2009)	4.0	1.8 (2012)
Mongolia	57.3 (1994)	54.6 (2013)	36.4	40.4 (2012)
Taipei,China	...	...	16.7	4.0 (2013)
South Asia				
Bangladesh	39.9 (1991)	61.8 (2013)	179.0	83.0 (2011)
Bhutan	18.8 (1994)	65.6 (2010)	120.0 (1993)	28.4 (2012)
India	40.7 (1993)	54.8 (2008)	76.0 (1991)	38.5 (2009)
Maldives	29.0 (1991)	34.7 (2009)	106.0	13.9 (2012)
Nepal	24.1 (1992)	49.6 (2014)	101.0	87.0 (2008)
Sri Lanka	66.1 (1993)	68.4 (2007)	35.0 (1991)	24.1 (2006)
Southeast Asia				
Brunei Darussalam	...	...	34.7	16.8 (2008)
Cambodia	12.6 (1995)	56.3 (2014)	90.0 (1993)	57.0 (2013)
Indonesia	49.7 (1991)	62.5 (2013)	66.0 (1992)	47.0 (2009)
Lao PDR	18.6 (1993)	49.8 (2012)	115.0 (1992)	94.0 (2010)
Malaysia	55.1 (1994)	49.0 (2004)	20.0 (1991)	13.3 (2011)
Myanmar	16.8 (1991)	46.0 (2010)	29.0	16.9 (2006)
Philippines	40.0 (1993)	55.1 (2013)	52.0	59.0 (2011)
Singapore	65.0 (1992)	62.0 (1997)	7.5	2.6 (2013)
Thailand	73.9 (1993)	79.3 (2012)	42.5	60.0 (2012)
Viet Nam	65.0 (1994)	75.7 (2014)	38.0 (1991)	36.0 (2013)
The Pacific				
Cook Islands	63.2 (1996)	43.2 (1999)	82.0 (1996)	56.0 (2011)
Fiji	...	...	58.6	27.5 (2008)
Kiribati	36.1 (2000)	22.3 (2009)	43.0	49.0 (2010)
Marshall Islands	...	44.6 (2007)	105.2 (1995)	85.0 (2011)
Micronesia, Fed. States of	...	...	54.0 (1994)	32.6 (2010)
Nauru	...	35.6 (2007)	69.6 (1992)	105.5 (2011)
Palau	...	32.8 (2003)	72.2	27.0 (2010)
Papua New Guinea	25.9 (1997)	32.4 (2007)	77.0 (1994)	65.0 (2004)
Samoa	24.5 (1998)	28.7 (2009)	25.0 (1991)	39.2 (2011)
Solomon Islands	...	34.6 (2007)	111.0	62.0 (2008)
Timor-Leste	25.1 (1991)	22.3 (2010)	85.0 (1992)	54.0 (2007)
Tonga	...	34.1 (2012)	25.2	30.0 (2011)
Tuvalu	...	30.5 (2007)	41.3 (1991)	42.0 (2007)
Vanuatu	39.0 (1995)	49.0 (2013)	92.0 (1999)	78.0 (2011)
Developed Member Economies				
Australia	66.7 (1995)	72.3 (2005)	21.4	14.1 (2013)
Japan	57.9 (1990)	54.3 (2005)	3.6	4.3 (2012)
New Zealand	75.0 (1995)	...	33.5	21.6 (2013)

continued

Table 5.2: Target 5.B—Achieve, by 2015, universal access to reproductive health *(continued)*

Regional Member	5.5 Antenatal Care Coverage (% of live births)		5.6 Unmet Need for Family Planning (% of women aged 15-49 years who are married or in consensual union)	
	≥ One Visit	≥ Four Visits	Earliest Year	Latest Year
Developing Member Economies				
Central and West Asia				
Afghanistan	47.9 (2011)	14.6 (2011)	...	...
Armenia	99.1 (2010)	92.8 (2010)	18.1 (2000)	13.5 (2010)
Azerbaijan	91.7 (2011)	66.1 (2011)	11.5 (2001)	15.4 (2006)
Georgia	97.6 (2010)	84.6 (2013)	23.8 (2000)	12.3 (2010)
Kazakhstan	99.2 (2011)	87.0 (2011)	16.3 (1995)	11.6 (2011)
Kyrgyz Republic	98.4 (2014)	94.6 (2014)	11.8 (1997)	18.0 (2012)
Pakistan	73.1 (2013)	36.6 (2013)	30.5 (1991)	20.1 (2013)
Tajikistan	78.8 (2012)	52.5 (2012)	...	22.9 (2012)
Turkmenistan	98.1 (2000)	82.8 (2000)	...	13.1 (2000)
Uzbekistan	99.0 (2006)	78.5 (1996)	13.7 (1996)	...
East Asia				
China, People's Rep. of	95.6 (2013)	...	3.3 (1992)	2.3 (2001)
Hong Kong, China	...	...	...	...
Korea, Rep. of	...	...	...	...
Mongolia	98.7 (2013)	89.6 (2013)	9.9 (1998)	16.0 (2013)
Taipei,China	...	...	...	...
South Asia				
Bangladesh	63.9 (2014)	31.2 (2014)	21.6 (1994)	13.9 (2013)
Bhutan	97.9 (2012)	81.5 (2012)	...	11.7 (2010)
India	74.2 (2006)	37.0 (2006)	20.3 (1993)	20.5 (2008)
Maldives	99.1 (2009)	85.1 (2009)	...	28.6 (2009)
Nepal	68.3 (2014)	59.5 (2014)	27.7 (1992)	27.5 (2011)
Sri Lanka	99.4 (2007)	92.5 (2007)	18.2 (2000)	7.3 (2007)
Southeast Asia				
Brunei Darussalam	99.0 (2009)	...	...	...
Cambodia	95.3 (2014)	75.6 (2014)	33.0 (2000)	12.5 (2014)
Indonesia	95.4 (2013)	83.5 (2013)	17.0 (1991)	11.4 (2012)
Lao PDR	54.2 (2012)	36.9 (2012)	39.5 (2000)	19.9 (2012)
Malaysia	98.0 (2013)	...	...	...
Myanmar	83.1 (2010)	73.4 (2007)	20.6 (1991)	19.1 (2001)
Philippines	95.4 (2013)	84.3 (2013)	30.2 (1993)	17.5 (2013)
Singapore	...	...	...	...
Thailand	98.1 (2012)	93.4 (2012)	3.1 (2006)	6.9 (2012)
Viet Nam	95.8 (2014)	73.7 (2014)	8.4 (1997)	6.1 (2014)
The Pacific				
Cook Islands	100.0 (2008)	...	...	...
Fiji	100.0 (2008)	93.6 (2013)	...	...
Kiribati	88.4 (2009)	70.8 (2009)	...	28.0 (2009)
Marshall Islands	81.2 (2007)	77.1 (2007)	...	8.1 (2007)
Micronesia, Fed. States of	80.0 (2008)	...	...	...
Nauru	94.5 (2007)	40.2 (2007)	...	23.5 (2007)
Palau	90.3 (2010)	81.0 (2010)	...	...
Papua New Guinea	78.8 (2006)	54.9 (2006)	...	27.4 (2007)
Samoa	93.0 (2009)	58.4 (2009)	...	47.7 (2009)
Solomon Islands	73.9 (2007)	64.6 (2007)	...	11.1 (2007)
Timor-Leste	84.4 (2010)	55.1 (2010)	18.3 (1991)	31.5 (2010)
Tonga	99.0 (2012)	70.4 (2012)	...	25.2 (2012)
Tuvalu	97.4 (2007)	67.3 (2007)	...	24.2 (2007)
Vanuatu	75.6 (2013)	51.8 (2013)	...	24.2 (2013)
Developed Member Economies				
Australia	98.3 (2008)	92.0 (2008)	...	...
Japan	...	...	...	...
New Zealand	95.0 (1994)	...	...	...

... = data not available at cutoff date, ≥ = greater than or equal to, Lao PDR = Lao People's Democratic Republic.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 29 July 2015); for Taipei,China: Directorate-General of Budget, Accounting and Statistics. http://eng.dgbas.gov.tw/public/data/dgbas03/bs2/yearbook_eng/ y017.pdf

MDG 6: Combat HIV/AIDS, Malaria, and Other Diseases

Millennium Development Goal (MDG) 6 has three targets:

6.A: *Halted by 2015 and begun to reverse the spread of HIV/AIDS.* This is targeted at the 15–24 age group, but most economies have comparable data on human immunodeficiency virus (HIV) prevalence only for people in the 15–49 age group.

6.B: *Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it.*

6.C: *Halted by 2015 and begun to reverse the incidence of malaria and other major diseases, including tuberculosis.*

Snapshots

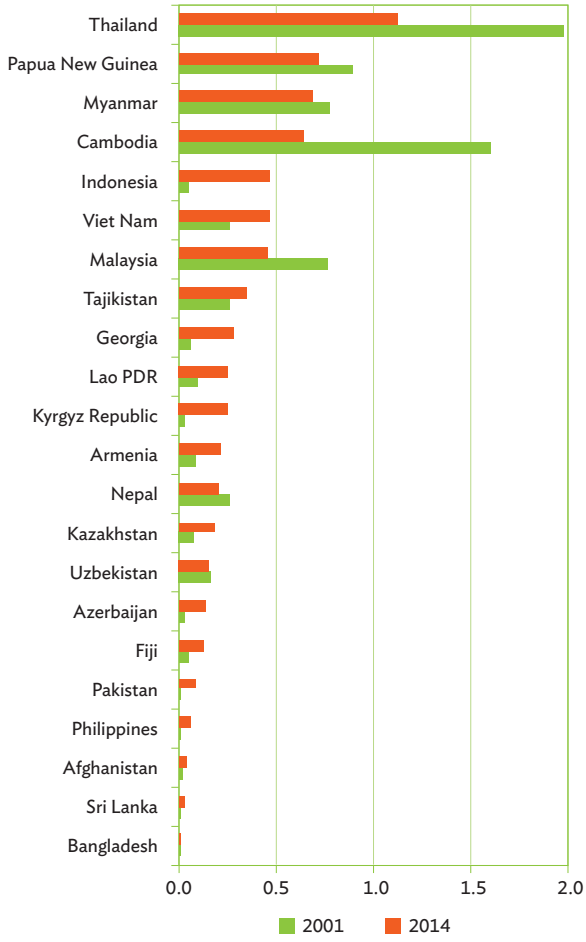
- In the Asia and Pacific region, the prevalence of HIV among the population aged 15-49 years has declined in economies with the highest rates of infection, but has risen in other economies.
- Access to antiretroviral drugs for those with advanced HIV infection has increased in the region, especially in economies with high prevalence rates; however, access to this therapy is still well below the needs.
- About half of the 26 reporting economies have made significant progress in halting the incidence of malaria and associated death rates. In the other economies, malaria remains a severe problem where either the incidence is over 5,000 or the associated death rate is at least 10 per 100,000 population.
- The incidence and prevalence of death rates associated with tuberculosis have declined in the region, with almost all economies having achieved or are on track to meet the target.

Progress

HIV prevalence has declined in the Asia and Pacific economies with the highest rates of infection. The human immunodeficiency virus (HIV) is a virus that weakens the immune system, ultimately leading to the acquired immunodeficiency syndrome (AIDS). Figure 6.1 shows HIV prevalence, which represents the percentage of people aged 15–49 who are living with HIV. Data for 2014 shows that the prevalence of HIV is highest in three Southeast Asian economies—Cambodia, Myanmar, and Thailand—as well as in the Pacific economy of Papua New Guinea. The HIV prevalence has, however, declined in all of these four economies since 1990. Particularly, prevalence rates have significantly been reduced in Cambodia by more than half (from 1.6% to 0.6%), and in Thailand where HIV prevalence decreased (from 2.0% to 1.1%). Indonesia, the Lao PDR, the Philippines, and Viet Nam in Southeast Asia and Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Pakistan, and Tajikistan in Central and West Asia have seen rise in HIV prevalence rates since 2001.

Prevention efforts have been made to target young people aged 15–24, but knowledge about HIV has remained low among the youth. In most Asia

Figure 6.1: HIV Prevalence, 2001 and 2014
(percent of population 15–49 years)



Lao PDR = Lao People's Democratic Republic.
Source: Table 6.1.

and Pacific economies for which data are available, less than 40% of the population aged 15–24, whether males or females, have comprehensive correct knowledge of HIV (Table 6.1).

Box 6.1 summarizes the progress made on the MDG target to halt by 2015 and start to reverse the spread of HIV/AIDS. Twenty-two economies for which data are available to make an assessment are shown in the box. Thirteen economies have met the target or are expected to meet the target by 2015. The other nine economies are off-track on the MDG target on HIV/AIDS, including six economies from Central and West Asia and three from Southeast Asia.

Box 6.1: Progress Toward Achieving the HIV Prevalence Target

Achievers/on track

Afghanistan	Pakistan
Bangladesh	Papua New Guinea
Cambodia	Philippines
Fiji	Sri Lanka
Malaysia	Thailand
Myanmar	Uzbekistan
Nepal	

No progress/regressing

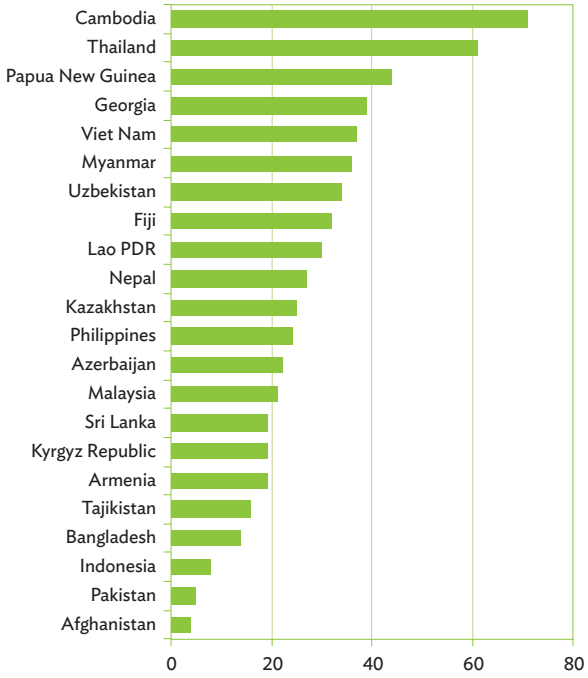
Armenia	Kyrgyz Republic
Azerbaijan	Lao PDR
Georgia	Tajikistan
Indonesia	Viet Nam
Kazakhstan	

Lao PDR = Lao People's Democratic Republic.
Source: Table 6.1.

Access to antiretroviral (ART) drugs by those with advanced HIV infection has increased in many economies between 2010 and 2014. The proportions of those with advanced HIV infection who were provided access to ART drugs has increased in all 22 economies for which data are available. In three out of the four Asia and Pacific economies with highest HIV prevalence, the exception being Myanmar, also had the highest proportion of the population with a need for ART drugs and have been given access to such drugs: Cambodia at 71%, Papua New Guinea at 44%, and Thailand at 61% (Figure 6.2). In Myanmar, only 36% of the population in need of ART drugs had access to it in 2014. Access is about one-third in Fiji, Georgia, Uzbekistan, and Viet Nam, but in the rest of the economies, it is 30% or below, with the lowest coverage of 4% of the needy adults population in Afghanistan and 5% in Pakistan.

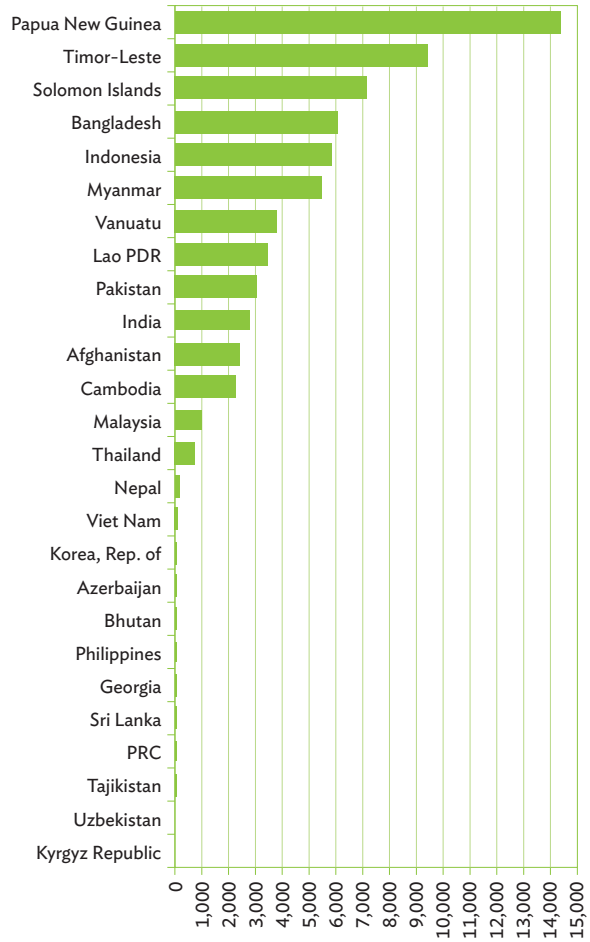
The incidence of malaria has significantly declined, but malaria is still prevalent across all regions of the Asia and Pacific region. The Pacific islands suffer the most from the severity of incidence (the number of reported new cases) of malaria at 13,054 per 100,000 population, to which Papua New Guinea contributes to nearly 14,384 per 100,000. Eleven other economies report malaria incidence higher than

Figure 6.2: Proportion of Population with Advanced HIV Infection with Access to Antiretroviral Drugs, 2014



Lao PDR = Lao People's Democratic Republic.
Source: Table 6.1.

Figure 6.3: Incidence of Malaria, 2012
(per 100,000 population)



Lao PDR = Lao People's Democratic Republic.
Source: Table 6.2.

2,000 per 100,000 population: Afghanistan (2,447), Bangladesh (6,057), Cambodia (2,219), India (2,768), Indonesia (5,817), the Lao PDR (3,485), Myanmar (5,467), Pakistan (3,071), Solomon Islands (7,168), Timor-Leste (9,432), and Vanuatu (3,799) (Figure 6.3). The incidence of malaria was lowest (below 100 per 100,000 population) in Azerbaijan, Bhutan, the Republic of Korea, the Philippines, the PRC, Sri Lanka, and Tajikistan. Armenia and Turkmenistan are two certified malaria-free countries.

A high incidence of malaria is associated with high incidence of malaria deaths. Therefore, malaria persists to be a major public health challenge. The death rates associated with malaria are at least 10 per 100,000 population in Bangladesh (14), Indonesia (10), the Lao PDR (10), Myanmar (11), Papua New Guinea with the highest death rate of 40, and Timor-Leste (16) (Box 6.2). Mosquito control interventions such as insecticide-treated bed nets and indoor residual spraying have been shown to be effective for mosquito control. Malaria deaths can be considerably reduced by prevention, testing, and early diagnosis, as well as effective and timely treatment of the disease.

The incidence and prevalence of tuberculosis, as well as death rates associated with tuberculosis have fallen in all the regions of Asia and the Pacific. Figure 6.4 shows the incidence rates (new tuberculosis cases per 100,000 population) for 1990 and 2013. The incidence rate has fallen

Box 6.2: Death Rates Associated with Malaria, 2012
(per 100,000 population)

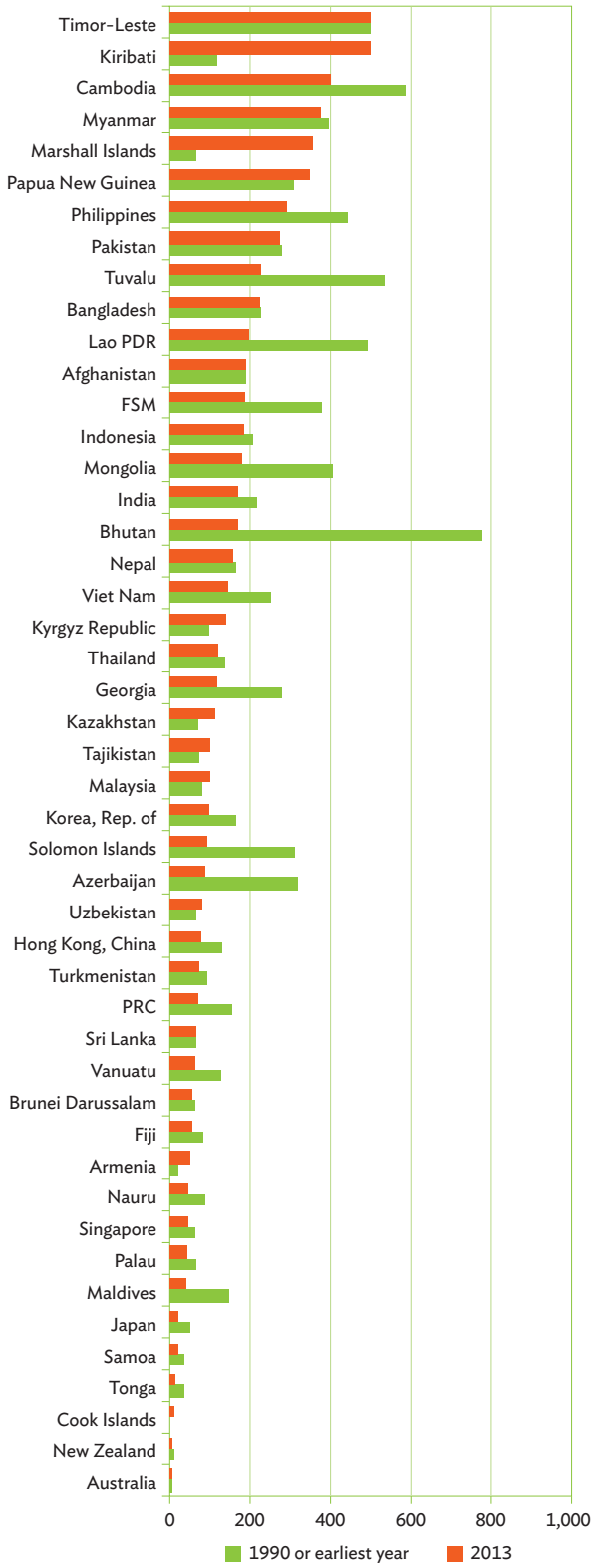
0–9	
Afghanistan	Nepal
Azerbaijan	Pakistan
Bhutan	Philippines
Cambodia	Solomon Islands
China, People's Rep. of	Sri Lanka
Georgia	Tajikistan
India	Thailand
Korea, Rep. of	Uzbekistan
Kyrgyz Republic	Vanuatu
Malaysia	Viet Nam
10–19	
Bangladesh	Myanmar
Indonesia	Timor-Leste
Lao PDR	
20 and above	
Papua New Guinea	

Lao PDR = Lao People's Democratic Republic.
Source: Table 6.2.

in all but 10 economies. Incidence has fallen by at least 200 cases per 100,000 population between 1990 and 2013 in Azerbaijan (234 cases), Bhutan (with the highest decrease of 608 cases), the Lao PDR (295 cases), Mongolia (222), Solomon Islands (220 cases), and Tuvalu (308 cases). The largest increases in tuberculosis incidence in the Pacific economies of Kiribati and the Marshall Islands where the incidence has risen by 381 and 287 cases per 100,000 population in 2013 from 116 and 67 cases, respectively, in 1990. The highest incidences exceeding 300 cases per 100,000 population are in Cambodia (400 cases), Kiribati (497 cases), the Marshall Islands (354 cases), Myanmar (373 cases), Papua New Guinea (347 cases), and Timor-Leste (498 cases).

The prevalence of tuberculosis (number of cases per 100,000 population) has fallen in all but 10 Asia and Pacific economies from 1990 to 2013. As in incidence, the prevalence has risen considerably in Pacific economies—Kiribati and the Marshall Islands—where the prevalence

Figure 6.4: Incidence of Tuberculosis, 1990 or Earliest Year and 2013



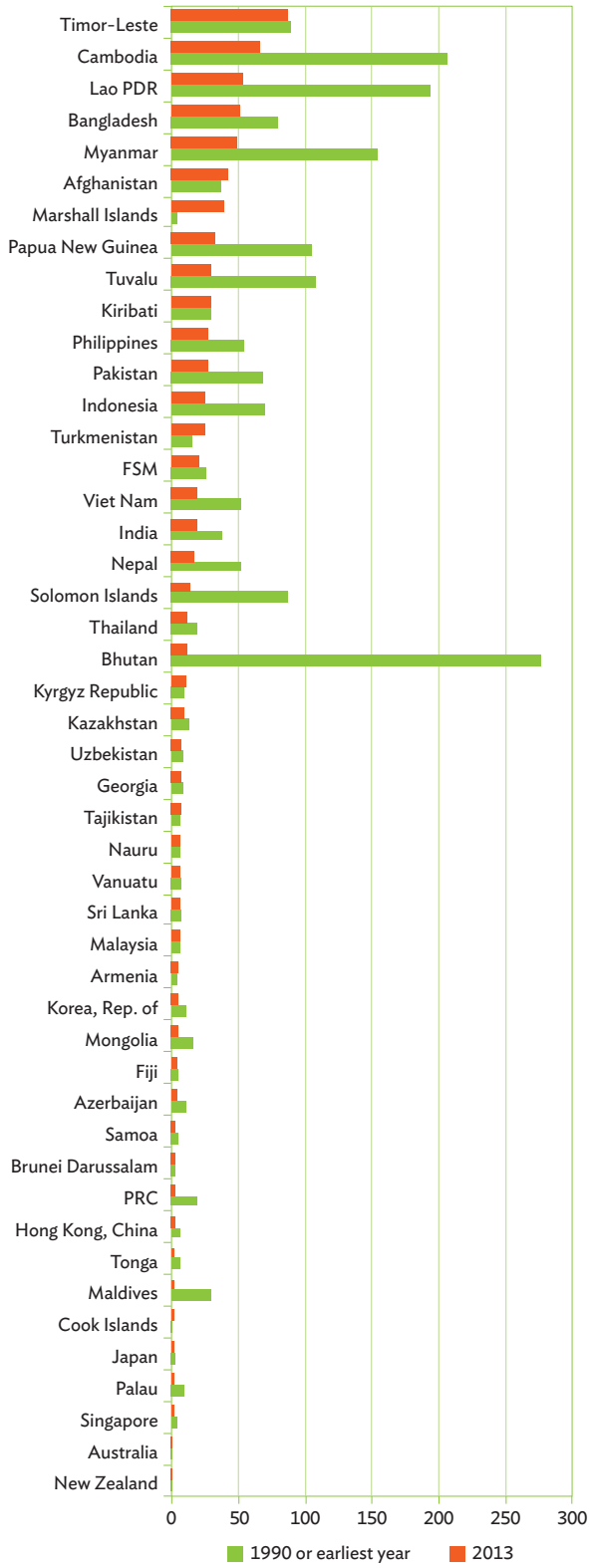
FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 6.2.

has increased by 512 and 412 cases per 100,000 population, from 236 and 78 cases, respectively, in 1990. The prevalence rates have also risen in eight other economies, the Cook Islands, Malaysia, and in the Central and West Asia economies of Afghanistan, Armenia, Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan. As of 2013, the prevalence of tuberculosis exceeded 700 cases per 100,000 population in Cambodia (715 cases), Kiribati (748 cases), and Timor-Leste (802 cases).

Figure 6.5 shows the death rates associated with tuberculosis in 1990 and 2013. For 2013, the death rates are highest in Bangladesh (51), Cambodia (66), the Lao PDR (53), and Timor-Leste (87); these economies also have either high tuberculosis incidence or prevalence, or both. Consistent with its performance in making the best improvements in reducing the incidence and prevalence of tuberculosis, Bhutan has made the best gains in reducing the death rate associated with tuberculosis.

Progress in detecting and curing tuberculosis is attributed to the intensive implementation since 1995 of the Directly Observed Treatment Short Course strategy and its 2006 successor, the Stop TB Strategy, with support from the World Health Organization. Boxes 6.3 and 6.4 summarize the progress on the MDG targets on reducing tuberculosis incidence and prevalence. Across developing Asia, of the 43 economies, 39 have either achieved the target on incidence or are expected to meet the target by 2015. The remaining four developing economies are off-track: the Republic of Korea, Malaysia, the Marshall Islands, and Nauru. On tuberculosis prevalence, 40 economies achieved the target or are expected to meet the target to reverse their prevalence rates by 2015, while the three remaining economies—the Marshall Islands, Nauru, and Samoa—have been classified as off-track.

Figure 6.5: Death Rates Associated with Tuberculosis, 1990 or Earliest Year and 2013 (per 100,000 population)



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 6.2.

Box 6.3: Progress Toward Achieving Tuberculosis Incidence Target

Achievers/on track

Afghanistan	Myanmar
Armenia	Nepal
Azerbaijan	Pakistan
Bangladesh	Palau
Bhutan	Papua New Guinea
Cambodia	Philippines
China, People's Rep. of	Samoa
Hong Kong, China	Singapore
Cook Islands	Solomon Islands
Fiji	Sri Lanka
Georgia	Tajikistan
India	Thailand
Indonesia	Timor-Leste
Kazakhstan	Tonga
Kiribati	Turkmenistan
Kyrgyz Republic	Tuvalu
Lao PDR	Uzbekistan
Maldives	Vanuatu
Micronesia, Fed. States of	Viet Nam
Mongolia	

No progress/regressing

Korea, Rep. of	Marshall Islands
Malaysia	Nauru

Lao PDR = Lao People's Democratic Republic.
Source: Table 6.2.

Box 6.4: Progress Toward Achieving Tuberculosis Prevalence Target

Achievers/on track

Afghanistan	Micronesia, Fed. States of
Armenia	Mongolia
Azerbaijan	Myanmar
Bangladesh	Nepal
Bhutan	Pakistan
Cambodia	Palau
China, People's Rep. of	Papua New Guinea
Cook Islands	Philippines
Fiji	Singapore
Georgia	Solomon Islands
Hong Kong, China	Sri Lanka
India	Tajikistan
Indonesia	Thailand
Kazakhstan	Timor-Leste
Kiribati	Tonga
Korea, Rep. of	Turkmenistan
Kyrgyz Republic	Tuvalu
Lao PDR	Uzbekistan
Malaysia	Vanuatu
Maldives	Viet Nam

No progress/regressing

Marshall Islands	Samoa
Nauru	

Lao PDR = Lao People's Democratic Republic.
Source: Table 6.2.

Data issues and comparability

Data for estimating trends in HIV/AIDS, malaria, and tuberculosis are difficult to compare because of varied practices and methods, lack of regular reporting systems, changing processes, and varying years and assumptions used to arrive at the desired data. This results in widening data gaps and more volatile data, as well as difficulty reconciling data. As a result, data may not be comparable.

For HIV/AIDS, the quality of data varies among countries, with the range of uncertainty depending on the actual HIV prevalence, concentration of HIV epidemic levels, and the number of steps or assumptions used to arrive at the estimate. Estimating the number of people receiving or having access to antiretroviral therapy is difficult because there are no established regular reporting systems on patients who underwent treatment for the first time, received or discontinued treatment, were not followed up, or died. Hence, data may be underreported.

Malaria estimates are often based on reporting systems that are not firmly established, tested, or accepted. Health facilities are, therefore, unable to report a complete, accurate, and scientific estimate of the actual counts of malaria cases.

Data on tuberculosis cases treated through the Directly Observed Treatment Short Course and other strategies are not comparable because the data are mostly sourced from administrative records of health agencies or services, which may not have established reporting systems. These agencies may not have established patterns of measuring accurate information, which may result in the delay of reporting data.

Post-2015 agenda

While much has been achieved for the MDGs on health, there is much more that needs to be attained to sustain the achievements in the health sector. Health services, research, and various actions need to be intensified to bring down disparities across economies, and within economies. Even as infectious diseases such as tuberculosis and pneumonia persist as leading causes of mortality and new diseases have sprung, there is also an increase in noncommunicable diseases such as stroke, heart attack, and cancer that kill many. In every economy, some segments of society, such as the poor, those in rural areas, and other marginalized groups will need access to health coverage, not only in terms of insurance, but also in terms of improved healthcare delivery. More concerted efforts must also be made to improve the timeliness and quality of data in the post-2015 world to bring the right actions to people who need health services the most.

Goal 6 Targets and Indicators

Table 6.1: Target 6.A—Have halted by 2015 and begun to reverse the spread of HIV/AIDS and Target 6.B—Achieve by 2010, universal access to treatment for HIV/AIDS for all those who need it

Regional Member	6.1 HIV Prevalence (% of population 15–49 years)		6.3 Proportion of Population Aged 15–24 Years with Comprehensive Correct Knowledge of HIV/AIDS (%)		6.5 Proportion of Population with Advanced HIV infection with Access to Antiretroviral Drugs (%)	
	2001	2014	Female	Male	2010	2014
Developing Member Economies						
Central and West Asia						
Afghanistan	0.0	0.0	1.8 (2011)	...	1	4
Armenia	0.1	0.2	15.8 (2010)	8.9 (2010)	7	19
Azerbaijan	0.0	0.1	4.8 (2006)	5.3 (2006)	5	22
Georgia	0.1	0.3	15.0 (2005)	...	18	39
Kazakhstan	0.1	0.2	36.2 (2011)	34.1 (2011)	9	25
Kyrgyz Republic	0.0	0.3	19.8 (2014)	24.0 (2012)	5	19
Pakistan	0.0	0.1	4.2 (2013)	5.2 (2013)	4	5
Tajikistan	0.3	0.4	8.7 (2012)	12.8 (2010)	3	16
Turkmenistan	...	...	4.8 (2006)	...	...	...
Uzbekistan	0.2	0.2	31.0 (2006)	7.0 (2002)	6	34
East Asia						
China, People's Rep. of	...	...	...	...	...	...
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	...	...	...	...	...	...
Mongolia	...	...	22.8 (2013)	20.7 (2013)	...	...
Taipei,China	...	...	...	...	...	...
South Asia						
Bangladesh	0.0	0.0	9.1 (2013)	14.4 (2011)	6	14
Bhutan	...	...	21.0 (2010)	...	...	...
India	...	...	19.9 (2006)	36.1 (2006)	...	...
Maldives	...	...	35.0 (2009)	...	...	...
Nepal	0.3	0.2	36.4 (2014)	33.9 (2011)	11	27
Sri Lanka	0.0	0.0	...	...	11	19
Southeast Asia						
Brunei Darussalam	...	...	...	...	...	...
Cambodia	1.6	0.6	37.6 (2014)	45.9 (2014)	46	71
Indonesia	0.1	0.5	11.4 (2012)	10.3 (2012)	4	8
Lao PDR	0.1	0.3	24.0 (2012)	27.6 (2012)	19	30
Malaysia	0.8	0.5	41.9 (2014)	39.6 (2014)	12	21
Myanmar	0.8	0.7	31.8 (2010)	...	13	36
Philippines	0.0	0.1	20.7 (2008)	17.6 (2003)	8	24
Singapore	...	...	...	...	...	...
Thailand	2.0	1.1	55.7 (2012)	...	42	61
Viet Nam	0.3	0.5	49.3 (2014)	44.1 (2009)	22	37
The Pacific						
Cook Islands	...	...	...	...	...	...
Fiji	0.0	0.1	...	...	11	32
Kiribati	...	...	44.4 (2009)	48.6 (2009)	...	...
Marshall Islands	...	...	26.6 (2007)	39.4 (2007)	...	...
Micronesia, Fed. States of	...	...	...	...	...	...
Nauru	...	...	13.3 (2007)	9.6 (2007)	...	...
Palau	...	...	...	...	...	...
Papua New Guinea	0.9	0.7	...	...	21	44
Samoa	...	...	3.0 (2009)	5.8 (2009)	...	...
Solomon Islands	...	...	29.3 (2007)	35.1 (2007)	...	...
Timor-Leste	...	...	12.2 (2010)	19.7 (2010)	...	...
Tonga	...	...	12.1 (2012)	14.0 (2012)	...	...
Tuvalu	...	...	39.4 (2007)	60.7 (2007)	...	...
Vanuatu	...	...	15.4 (2007)	...	...	...
Developed Member Economies						
Australia	...	...	...	...	...	...
Japan	...	...	...	...	...	...
New Zealand	...	...	...	...	...	...

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, HIV = human immunodeficiency virus, AIDS = acquired immunodeficiency syndrome, Lao PDR = Lao People's Democratic Republic.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 29 July 2015); UNAIDS. http://www.aidsinfoonline.org/devinfo/libraries/aspx/Home.aspx (accessed 05 October 2015).

Table 6.2: Target 6.C—Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Regional Member	6.6 Incidence of Malaria (per 100,000 population)[a]	6.6 Death Rates Associated with Malaria (per 100,000 population)[a]	6.9 Incidence of Tuberculosis (per 100,000 population)		6.9 Prevalence of Tuberculosis (per 100,000 population)	
	2012	2012	1990	2013	1990	2013
Developing Member Economies						
Central and West Asia	**2,282**	**1**	**213**	**216**	**393**	**282**
Afghanistan	2,447	0	189	189	306	340
Armenia	–	–	18	49	27	66
Azerbaijan	68	0	319	85	746	105
Georgia	40	0	278	116	674	163
Kazakhstan[a]	...	...	71	115	92	133
Kyrgyz Republic	0	0	95	141	171	190
Pakistan	3,071	2	277	275	509	342
Tajikistan	2	0	72	100	121	142
Turkmenistan	–	–	94	72	154	103
Uzbekistan	0	0	65	80	100	120
East Asia	**4**	**0**	**180**	**71**	**216**	**96**
China, People's Rep. of	2	0	152	70	215	94
Hong Kong, China[a]	...	...	129	76	169	99
Korea, Rep. of	70	0	164	97	223	143
Mongolia[a]	...	...	403	181	928	254
Taipei,China	...	...	...	...	...	...
South Asia	**3,027**	**5**	**315**	**175**	**462**	**230**
Bangladesh	6,057	14	226	224	504	402
Bhutan	58	0	777	169	1,762	196
India	2,768	4	217	171	465	211
Maldives[a]	...	...	146	40	285	57
Nepal	142	0	164	156	348	211
Sri Lanka	32	0	66	66	111	103
Southeast Asia	**3,106**	**5**	**366**	**204**	**570**	**297**
Brunei Darussalam[a]	...	...	64	58	80	65
Cambodia	2,219	4	584	400	1,667	715
Indonesia	5,817	10	206	183	443	272
Lao PDR	3,485	10	492	197	1,491	488
Malaysia	961	1	79	99	110	131
Myanmar	5,467	11	395	373	894	473
Philippines	55	0	441	292	1,003	438
Singapore[a]	...	...	63	47	82	59
Thailand	723	1	138	119	211	149
Viet Nam	108	0	251	144	560	209
The Pacific	**13,054**	**34**	**480**	**308**	**592**	**412**
Cook Islands[a]	...	...	0	11	12	18
Fiji	...	...	84	57	165	100
Kiribati[a]	...	...	116	497	236	748
Marshall Islands[a]	...	...	67	354	78	490
Micronesia, Fed. States of[a]	...	...	379	188	469	262
Nauru[a]	...	...	88	47	111	71
Palau[a]	...	...	66	44	102	53
Papua New Guinea	14,384	40	309	347	694	437
Samoa[a]	...	...	36	18	53	29
Solomon Islands	7,168	6	312	92	618	142
Timor-Leste	9,432	16	498(2002)	498	809(2002)	802
Tonga[a]	...	...	38	13	59	22
Tuvalu[a]	...	...	536	228	911	327
Vanuatu	3,799	4	127	62	151	84
Developed Member Economies	**...**	**...**	**45**	**16**	**55**	**20**
Australia	...	...	7	6	8	8
Japan	...	...	49	18	63	23
New Zealand	...	...	11	7	15	10
DEVELOPING MEMBER ECONOMIES	**1,880**	**3**	**260**	**145**	**371**	**195**
REGIONAL MEMBERS			**250**	**140**	**356**	**189**
WORLD			**151**	**126**	**267**	**159**

continued

Table 6.2: Target 6.C—Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases *(continued)*

Regional Member	6.9 Death Rates Associated with Tuberculosis (per 100,000 population)		6.10 Proportion of Tuberculosis Cases under DOTS (%)			
			Detected		Cured	
	1990	2013	1990	2013	1990	2012
Developing Member Economies						
Central and West Asia	**46**	**23**				
Afghanistan	37	42	4 (1997)	53	45 (1997)	88
Armenia	4	6	80	95	55	81
Azerbaijan	11	4	3	73	65	83
Georgia	9	7	12	68	58	85
Kazakhstan	13	10	90	100	74 (1997)	86
Kyrgyz Republic	9	11	44	91	50 (1996)	84 (2011)
Pakistan	69	27	4	58	70	91
Tajikistan	6	7	23	68	88	83
Turkmenistan	15	25	29	80	73	84
Uzbekistan	8	8	60	89	78	84
East Asia	**19**	**3**				
China, People's Rep. of	19	3	32	87	93	95
Hong Kong, China	6	3	87	87	85 (1998)	67
Korea, Rep. of	11	5	93	87	76	81
Mongolia	16	5	39	84	74	88
Taipei,China	...	...	...	...	...	...
South Asia	**42**	**22**				
Bangladesh	80	51	21	53	71	92
Bhutan	277	12	45	85	97	92
India	38	19	59	58	25	88
Maldives	29	2	83	83	97	79
Nepal	52	17	59	78	73	91
Sri Lanka	8	6	49	66	79	86
Southeast Asia	**67**	**25**				
Brunei Darussalam	3	3	87 (1997)	87	85 (1998)	71
Cambodia	207	66	24	62	91	94
Indonesia	70	25	9	71	91	86
Lao PDR	194	53	4	31	70	90
Malaysia	7	6	77	79	69	78
Myanmar	154	49	10	68	67	89
Philippines	55	27	42	80	60	88
Singapore	4	2	86	85	86	75
Thailand	19	12	60	80	64	81
Viet Nam	52	19	33	76	89	91
The Pacific	**82**	**34**				
Cook Islands	0	2	87	87	100	0
Fiji	6	4	39	51	86	86
Kiribati	29	29	72 (1996)	80	87	89
Marshall Islands	4	39	80 (1996)	80	25	86
Micronesia, Fed. States of	26	21	49	72 (2012)	80	93 (2011)
Nauru	7	7	87 (1999)	87 (2011)	83 (1998)	40 (2010)
Palau	10	2	87	87	67	100
Papua New Guinea	105	33	53	89	56	68
Samoa	5	3	89	66	80	86
Solomon Islands	87	14	41	70	65	88
Timor-Leste	89(2002)	87	62 (2002)	67	81 (2002)	89
Tonga	6	2	63	72	75	100
Tuvalu	108	29	89	80	0 (1997)	70
Vanuatu	7	6	75	78	85	91
Developed Member Economies	**3**	**1**				
Australia	0	0	87	86	55 (1996)	82
Japan	3	2	85	88	80 (1998)	54
New Zealand	1	0	99	82	30 (2000)	81
DEVELOPING MEMBER ECONOMIES	**37**	**16**				
REGIONAL MEMBERS	**35**	**15**				
WORLD	**29**	**16**				

... = data not available at cutoff date, 0 = magnitude is less than half of the unit employed, – = magnitude equals zero, DOTS = directly observed treatment short course, Lao PDR = Lao People's Democratic Republic.

a Data are estimated by the international agency when corresponding country data on a specific year or set of years are not available or when multiple sources exist, or there are issues of data quality. Estimates are based on national data, such as surveys or administrative records, or other sources.

Source: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 14 July 2015).

MDG 7: Ensure Environmental Sustainability

Millennium Development Goal (MDG) 7 has four targets:

7.A: *Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources.*

7.B: *Reduce biodiversity loss, achieving by 2010 a significant reduction in the rate of loss.*

7.C: *Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.*

7.D: *To have achieved, by 2020, a significant improvement in the lives of at least 100 million slum dwellers.*

Snapshots

- Forest cover has slightly increased from 21.9% in 1990 to around 22.6% in 2015 in the Asia and Pacific region for the MDG period, with 17 economies recording increases in the proportion of land covered by forests since 1990.
- The region's carbon dioxide emissions have more than doubled since 1990, with increasing per capita emissions of carbon dioxide in 36 out of 47 of the region's economies. But per capita emissions remain well below those of developed economies.
- The proportion of people who do not have access to improved drinking water sources has declined to 7% from 29% during the MDG period, with two-thirds of the economies having achieved the MDG target on access to improved drinking water.
- The progress in access to improved sanitation facilities has been less impressive in the region, with more than a third of the population still deprived of clean sanitation facilities.
- From 1990 to 2014, the proportion of the urban population living in slums has declined in all reporting economies of the region with India, Indonesia, and Viet Nam achieving reductions by more than half from 1990 baselines.

Progress

Since 1990, forest cover has slightly increased in the Asia and Pacific region. The land area covered by forest increased slightly from 21.9% in 1990 to around 22.6% in 2015 in the Asia and Pacific region. The region's share in global forest coverage also slightly increased from 17.7% to 18.9% during the period. Table 7.1 shows that the percentage of land area covered by forests in 2015 significantly increased in East Asia mainly on account of increased forest cover in the People's Republic of China (PRC) (from 16.7% to 22.1%). In South Asia, the forest cover also improved, but in other regions there was a decline in the forest cover from baseline figures in 1990. Seventeen economies have substantial forest areas of over half of their land areas. There are 17 economies in the region

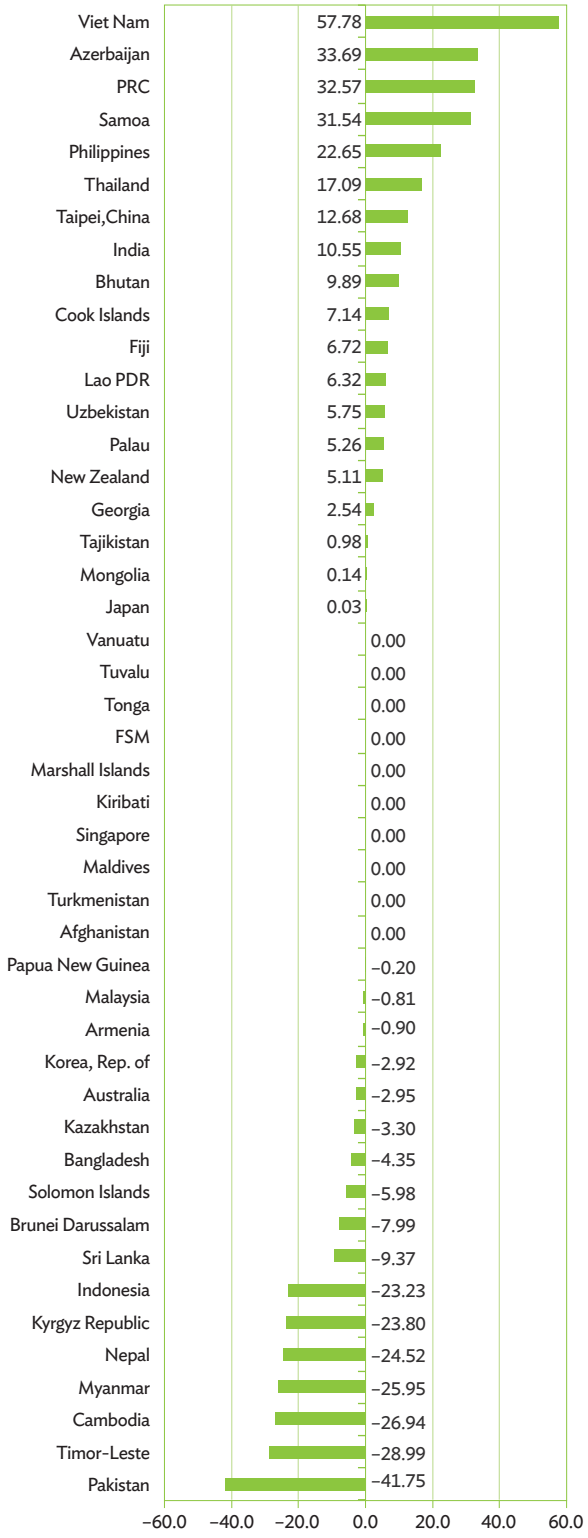
which recorded increases in the proportion of land covered by forests since 1990, with Azerbaijan (33.7%), the PRC (32.6%), the Philippines (22.7%), Samoa (31.5%), and Viet Nam (57.8%) increasing their forest covers by at least 20.0 percentage points. The net gain is due to a decrease in deforestation, an increase in afforestation programs, and/or the natural expansion of forests. Large losses of more than 20% of forested areas have been recorded in Cambodia, Indonesia, the Kyrgyz Republic, Myanmar, Nepal, Pakistan, and Timor-Leste during the 1990–2015 period (Figure 7.1).

Box 7.1 shows that, of the 44 developing member economies, 28 either have achieved or are on track to meet the goal; 16 economies are regressing, and of these economies, seven have substantial forest areas (of over 50% of their land areas).

Carbon dioxide emissions have more than doubled in the Asia and Pacific since 1990 and the region accounts close to half of total global carbon dioxide emissions. The high economic growth in the region in the last two decades also contributed to a high increase in the region's share to total carbon dioxide (CO_2) emissions in the world, which went up from a little above one-third in 1990 to nearly half of global emissions in 2011. In East Asia, Southeast Asia, and South Asia, total CO_2 emissions have more than tripled in 2011 from their 1990 baselines (Table 7.1). The PRC and India accounted for more than 70% of the total emissions in the region. There is overwhelming consensus in the scientific community that the continuing rise in greenhouse gas emissions contributes to climate change, particularly an increase in average temperatures globally, yielding more extreme weather events, with consequences for people, livelihoods, and ecosystems, including projected impacts on food security, along with many risks to well-being.

Per capita emissions of CO_2 have continued to increase in the Asia and Pacific region, but are still low compared with the developed economies.

Figure 7.1: Percentage Change of Land Area Covered by Forest, 1990 and 2015



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Note: Latest data for Taipei,China refer to 2013.
Source: Asian Development Bank calculations.

Box 7.1: Progress Toward the Target for Proportion of Land Area Covered by Forest

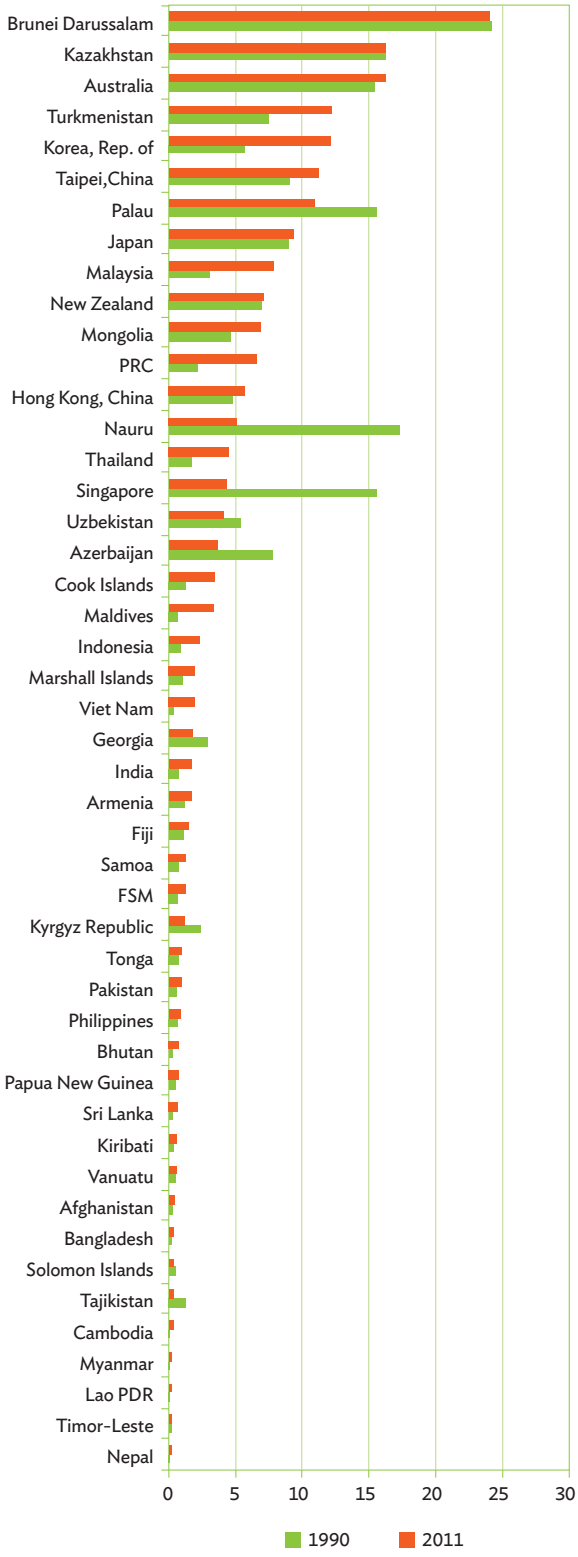
Achievers/on track	
Afghanistan	Nauru
Azerbaijan	Palau
Bhutan	Philippines
China, People's Rep. of	Samoa
Cook Islands	Singapore
Fiji	Taipei,China
Georgia	Tajikistan
India	Thailand
Kiribati	Tonga
Lao PDR	Turkmenistan
Maldives	Tuvalu
Marshall Islands	Uzbekistan
Micronesia, Fed. States of	Vanuatu
Mongolia	Viet Nam
No progress/regressing	
Armenia	Malaysia
Bangladesh	Myanmar
Brunei Darussalam	Nepal
Cambodia	Pakistan
Indonesia	Papua New Guinea
Kazakhstan	Solomon Islands
Korea, Rep. of	Sri Lanka
Kyrgyz Republic	Timor-Leste

Lao PDR = Lao People's Democratic.
Source: Table 7.1.

Between 1990 and 2011, more than three-quarters of the region's economies (36 out of 47) reported increases in per capita emissions of CO_2—doubling in about 16 of them. Most (13) of these 16 economies started with low per capita emissions and still have relatively low emissions of less than 5 metric tons per capita by 2011. Only the PRC, Malaysia, and the Republic of Korea have more than doubled their emissions per capita, and have at least 5 metric tons per capita of emissions in 2011. Eleven economies lowered their per capita CO_2 emissions between 1990 and 2011. Singapore, with a drop of above 70% in per capita emissions, is the only economy among the richer ones to reduce the per capita emissions.

While 70% (33 out of 47) of economies have less than 5 metric tons per capita of CO_2 emissions in 2011, of the remaining 14 economies—which include the three developed economies of Australia, Japan, and New Zealand—have per capita emissions greater than 5 metric tons (Figure 7.2). Australia, Brunei Darussalam, and Kazakhstan had the highest per capita emission of greater than 15 metric tons.

Figure 7.2: Carbon Dioxide Emissions, 1990 and 2011
(per capita, metric tons)



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Note: Latest data for Taipei,China refer to 2013.
Source: Table 7.1.

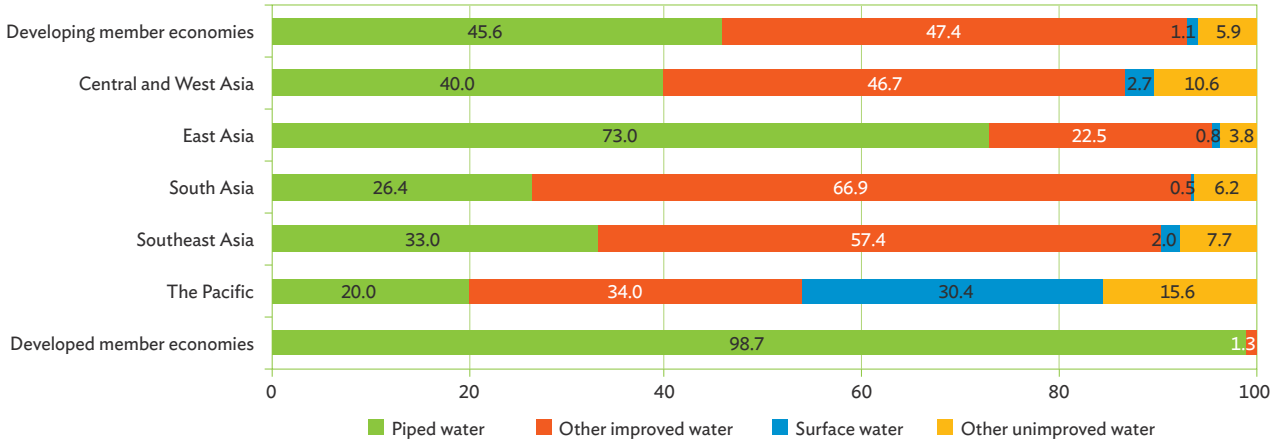
Per capita emissions of the PRC and India in 2011 are 6.6 metric tons and 1.7 metric tons respectively, which are much lower than the per capita emissions of the developed countries.

The region has made good progress in increasing the proportion of protected terrestrial and marine areas. Between 1990 and 2014, nearly all economies either increased or have unchanged proportions of protected areas, which are dedicated to safeguarding biological diversity and conserving natural resources (Table 7.2). Protected areas range from less than 1% of total areas in Afghanistan, the Maldives, and some Pacific islands economies to at least 20% in Armenia; Australia; Bhutan; Brunei Darussalam; Cambodia; Hong Kong, China; Nepal; New Zealand; and Tajikistan.

In 2015, the proportion of people who do not have access to safe or improved drinking water has reduced to 7% from 29% in 1990. Figure 7.3 shows the proportion of the population using different sources of drinking water across various regions. Five economies, including the Cook Islands, Singapore, and the three developed economies, have had their entire populations having access to safe or improved drinking water source even in 1990. Twenty seven developing economies, including the populous economies of Bangladesh, India, Indonesia, and the PRC, have reduced by at least half their populations that did not have access to safe or improved drinking water. Of the remaining 13 economies—in Kazakhstan, the Federated States of Micronesia, and Uzbekistan, access to improved drinking water source decreased (by at most 4 percentage points), but these economies had high access rates to safe drinking water in 1990. At least one in every four persons did not have access to improved water sources in Afghanistan, Mongolia, Kiribati, Papua New Guinea, Tajikistan, Timor-Leste, and Turkmenistan, largely on account of challenges in providing access to safe drinking water to rural households.

Box 7.2 shows progress toward the MDG target on increasing the proportion of the population with access to improved drinking water. There has been significant progress in attaining this target with 29 economies having achieved the target of halving the proportion of their populations without access to improved drinking water as per latest available data. The remaining 13 economies are not expected

Figure 7.3: Proportion of Population Using Different Sources of Drinking Water, 2015



Note: Improved sources of drinking water include piped water and other improved water.
Source: World Health Organization and United Nations. WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. http://www.wssinfo.org (accessed 10 August 2015).

Box 7.2: Progress Toward the Target for Proportion of Population with Access to Safe or Improved Drinking Water

Achievers/on track	
Armenia	Maldives
Azerbaijan	Myanmar
Bangladesh	Nauru
Bhutan	Nepal
Cambodia	Palau
China, People's Rep. of	Philippines
Cook Islands	Samoa
Fiji	Singapore
Georgia	Sri Lanka
India	Thailand
Indonesia	Tonga
Korea, Rep. of	Tuvalu
Kyrgyz Republic	Vanuatu
Lao PDR	Viet Nam
Malaysia	
Off track - slow	
Expected to meet target between 2016 and 2020	
Afghanistan	Timor-Leste
Expected to meet target between 2021 and 2030	
Kiribati	Tajikistan
Expected to meet target after 2030	
Marshall Islands	Papua New Guinea
Mongolia	Solomon Islands
Pakistan	Turkmenistan
No progress/regressing	
Kazakhstan	Uzbekistan
Micronesia, Fed. States of	

Lao PDR = Lao People's Democratic.
Source: Table 7.3.

to meet the target by 2015. The three economies namely, Kazakhstan, Federated States of Micronesia and Uzbekistan, which had high access rates of 94%, 91% and 90% respectively in 1990 have seen some decline in access to improved water sources in the recent years.

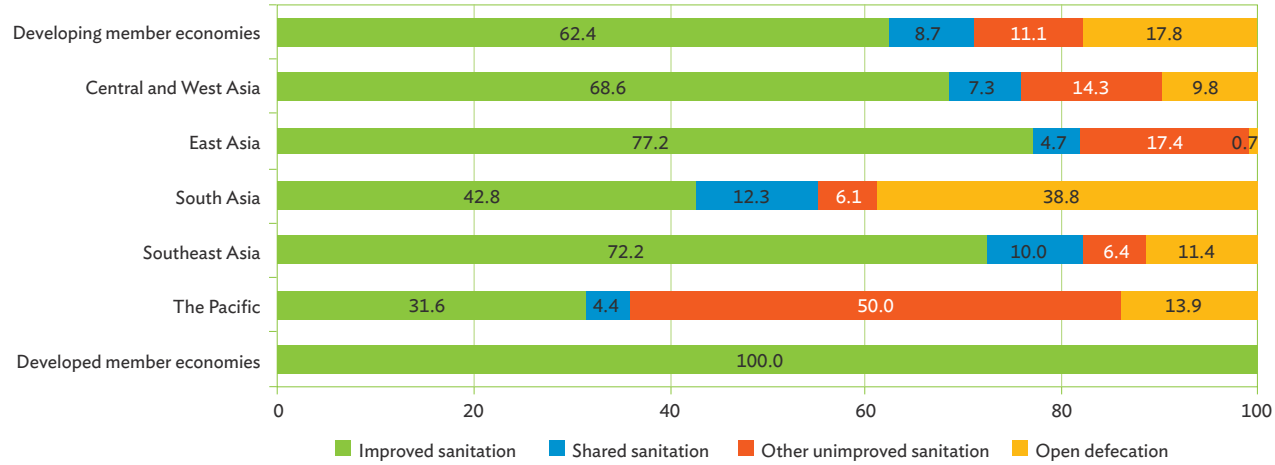
More than one in three persons still do not have access to improved sanitation in Asia and the Pacific. Between 1990 and 2015, access to improved sanitation in the Asia and Pacific region has risen from 40% to 64%, and the region has fallen short of the MDG target to reduce by half the proportion of the population who is not using improved sanitation facilities. By 2015, all the regions of Asia have increased their respective shares of the population using sanitation facilities, such as flush toilets connected to a sewer or pit and composting toilets. The access to improved sanitation, however, vary considerably, with less than half of populations in South Asia and the Pacific using improved sanitation facilities (Figure 7.4). In the five most populous economies—Bangladesh, India, Indonesia, Pakistan, and the PRC—the proportion of population with improved sanitation facilities ranges from 40% (in India) to 77% (for the PRC).

Disparities continue to be large between rural and urban in access to improved sanitation. In most economies, people residing in urban areas have higher rates of access to improved sanitation than those living in rural areas. In the region, the access to improved sanitation in rural areas has increased from 29% or less than one-third in 1990 to 50% in 2015. In contrast, only one out every five persons (20%) living in urban areas lack access to improved sanitation.

Box 7.3 shows progress toward the MDG target on using improved sanitation facilities. Only 19 economies have either achieved or are expected to achieve the target by 2015. Among the five most populous economies, only Pakistan and the PRC are expected to meet the target by 2015 while Bangladesh, India, and Indonesia, are progressing but slowly and will not achieve this target along with 16 other economies. Three of the four economies classified as regressing, namely, Georgia, Samoa and Tonga, which had high access rates of 98%, 93% and 94% respectively in 1990 have seen some decline in access to improved sanitation facilities in the recent years.

From 1990 to 2014, the proportion of urban residents living in slums has declined. The UN-Habitat defines a slum household as a group of individuals living under the same roof lacking at least one of the following conditions: (i) access to improved water, (ii) access to improved sanitation, (iii) sufficient living area, (iv) durability of housing, and (v) security of tenure. Figure 7.5 shows the nine economies with data for three years (1990, 2005,

Figure 7.4: Proportion of Population Using Different Types of Sanitation Facilities, 2015



Note: Unimproved sanitation facilities include shared sanitation, open defecation, and other unimproved sanitation.
Source: World Health Organization and United Nations. WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. http://www.wssinfo.org (accessed 10 August 2015).

Box 7.3: Progress Toward the Target for Proportion of Population Using Improved Sanitation Facilities

Achievers/on track	
Azerbaijan	Myanmar
China, People's Rep. of	Pakistan
Cook Islands	Palau
Fiji	Singapore
Kazakhstan	Sri Lanka
Korea, Rep. of	Tajikistan
Lao PDR	Thailand
Malaysia	Uzbekistan
Maldives	Viet Nam
Micronesia, Fed. States of	
Off track - slow	
Expected to meet target between 2016 and 2020	
Bhutan	Nepal
Cambodia	
Expected to meet target between 2021 and 2030	
Bangladesh	Philippines
India	Tuvalu
Indonesia	Vanuatu
Marshall Islands	
Expected to meet target after 2030	
Afghanistan	Nauru
Armenia	Solomon Islands
Kiribati	Timor-Leste
Kyrgyz Republic	Turkmenistan
Mongolia	
No progress/regressing	
Georgia	Samoa
Papua New Guinea	Tonga

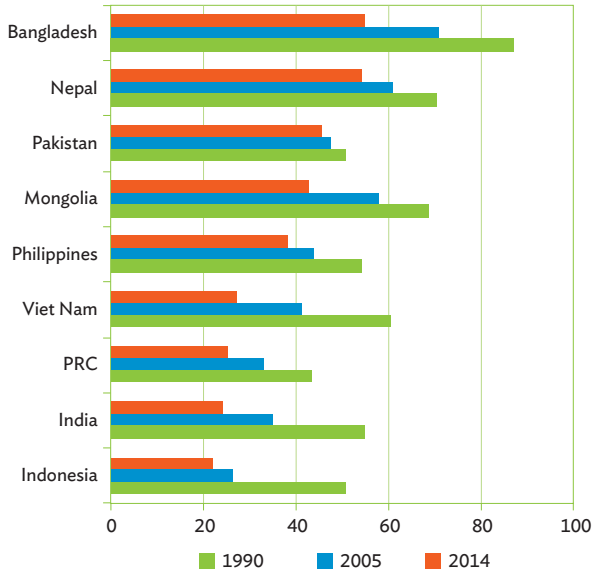
Lao PDR = Lao People's Democratic.
Source: Table 7.3.

and 2014) that have achieved substantial reductions in the proportion of slum dwellers in urban areas during the MDG period. Between 1990 and 2014, India, Indonesia, and Viet Nam have reduced their proportion of slum dwellers by more than half. In Afghanistan, Bangladesh, Cambodia, and Nepal, more than 50% of their urban populations are classified as living in slums in 2014 (Table 7.4).

Data issues and comparability

Different methods and infrequent intervals for data collection on national forest inventories cause problems with both temporal and spatial comparisons. New technologies such as remote sensing imagery, including Light Detection and Ranging (LiDAR), should facilitate assessments of forest cover.

Figure 7.5: Proportion of Slum Population 1990, 2005, and 2014
(% of urban population)



PRC = People's Republic of China.
Source: Table 7.4.

The data on CO_2 emissions come mainly from international agencies and are derived by applying emission coefficients to estimates of fuel consumption, cement production, and gas flaring. However, the climate may be impacted by other gases too because CO_2 is only one of the greenhouse gases.

The statistics for protected terrestrial and marine areas have gaps for some countries due to difficulties in determining whether a site conforms to the International Union for Conservation of Nature's definition of a protected area.

Data on housing conditions and data on proportion of population using improved drinking water or improved sanitation facilities come mainly from population and housing censuses or from demographic and health surveys and living standards surveys. The data are, therefore, strictly not comparable across countries because of varying definitions.

Post-2015 agenda

From the start of the new millennium, there have been mixed results in protecting the environment. While disparities between urban and rural areas have narrowed, these disparities, as do disparities between the poor and the non-poor, and between the sexes, continue to persist. Given continuing environmental challenges, such as climate change, increased instances of natural disasters in the region, and food and water insecurity, the post-2015 development in Asia will have to integrate environmental sustainability as the central pillar for eradication of poverty and achieving inclusive growth in the region.

Goal 7 Targets and Indicators

Table 7.1: Target 7.A—Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources

Regional Member	7.1 Proportion of Land Area Covered by Forest (%)		7.2 Carbon Dioxide Emissions (thousand metric tons)		7.2 Carbon Dioxide Emissions (per capita, metric tons)	
	1990	2015	1990	2011	1990	2011
Developing Member Economies						
Central and West Asia	**3.5**	**3.4**	**572,386**	**670,295**	**3.0**	**2.4**
Afghanistan	2.1	2.1	2,677	12,251	0.2	0.4
Armenia	11.9	11.8	4,052 (1992)	4,962	1.2 (1992)	1.7
Azerbaijan	10.3	13.8	57,678 (1992)	33,458	7.7 (1992)	3.6
Georgia	39.6	40.6	15,335 (1992)	7,932	2.9 (1992)	1.8
Kazakhstan	1.3	1.2	261,307 (1992)	261,762	16.3 (1992)	16.3
Kyrgyz Republic	4.4	3.3	10,862 (1992)	6,615	2.4 (1992)	1.2
Pakistan	3.3	1.9	68,566	163,453	0.6	0.9
Tajikistan	2.9	3.0	7,220 (1992)	2,783	1.3 (1992)	0.4
Turkmenistan	8.8	8.8	28,977 (1992)	62,218	7.5 (1992)	12.2
Uzbekistan	6.9	7.3	115,712 (1992)	114,861	5.4 (1992)	4.1
East Asia[f]	**17.0**	**21.7**	**2,934,316**	**9,929,156**	**2.4**	**7.0**
China, People's Rep. of	16.7	22.1	2,460,744	9,019,518	2.1	6.6
Hong Kong, China[a]	...	...	27,660	40,275	4.8	5.7
Korea, Rep. of	65.6	63.7	246,943	589,426	5.7	12.1
Mongolia	8.1	8.1	10,044	19,079	4.6	6.9
Taipei,China[b,c,d]	51.5	58.1 (2013)	188,925 (1997)	260,857 (2012)	9.0 (1998)	11.2 (2012)
South Asia	**22.4**	**24.1**	**710,896**	**2,152,646**	**0.7**	**1.5**
Bangladesh	11.5	11.0	15,533	57,070	0.1	0.4
Bhutan	65.8	72.3	128	561	0.2	0.8
India	21.5	23.8	690,577	2,074,345	0.8	1.7
Maldives	3.3	3.3	154	1,104	0.7	3.3
Nepal	33.6	25.4	634	4,334	0.0	0.2
Sri Lanka	36.4	33.0	3,869	15,233	0.2	0.7
Southeast Asia	**56.9**	**49.6**	**423,278**	**1,396,548**	**1.0**	**1.0**
Brunei Darussalam	78.4	72.1	6,212	9,743	24.2	24.0
Cambodia	73.3	53.6	451	4,496	0.0	0.3
Indonesia	69.0	53.0	149,566	563,985	0.8	2.3
Lao PDR	76.5	81.3	235	1,203	0.1	0.2
Malaysia	68.1	67.6	56,593	225,693	3.1	7.8
Myanmar	59.6	44.2	4,276	10,440	0.1	0.2
Philippines	22.0	27.0	41,764	82,013	0.7	0.9
Singapore	22.9	22.9	46,941	22,394	15.6	4.3
Thailand	27.4	32.1	95,833	303,371	1.7	4.6
Viet Nam	30.2	47.6	21,408	173,211	0.3	1.9
The Pacific[f]	**71.1**	**70.4**	**4,115**	**7,965**	**0.6**	**0.8**
Cook Islands[e]	58.3	62.5	22	70	1.2	3.4
Fiji	52.2	55.7	818	1,236	1.1	1.4
Kiribati	14.8	14.8	22	62	0.3	0.6
Marshall Islands[e]	72.2	72.2	48	103	1.0	2.0
Micronesia, Fed. States of	91.4	91.4	77 (1997)	128	0.7 (1997)	1.2
Nauru[e]	-	-	158	51	17.3	5.1
Palau[e]	82.6	87.0	235	224	15.6	10.9
Papua New Guinea	72.6	72.5	2,142	5,229	0.5	0.7
Samoa	45.9	60.4	125	235	0.8	1.3
Solomon Islands	83.0	78.1	161	198	0.5	0.4
Timor-Leste	65.0	46.1	161 (2002)	183	0.2 (2002)	0.2
Tonga	12.5	12.5	77	103	0.8	1.0
Tuvalu	33.3	33.3	...	...	...	...
Vanuatu	36.1	36.1	70	143	0.5	0.6
Developed Member Economies	**19.6**	**19.2**	**1,381,799**	**1,587,928**	**9.7**	**10.3**
Australia[e]	16.7	16.2	263,848	369,040	15.4	16.2
Japan[e]	68.4	68.5	1,094,288	1,187,657	9.0	9.3
New Zealand[e]	36.7	38.6	23,663	31,232	7.0	7.1
DEVELOPING MEMBER ECONOMIES[f]	**22.7**	**23.7**	**4,221,712**	**12,760,061**	**1.5**	**3.4**
REGIONAL MEMBERS[f]	**21.9**	**22.6**	**6,026,789**	**15,744,537**	**2.0**	**4.0**
WORLD[f]	**31.8**	**30.8**	**16,479,146**	**32,425,572**	**4.0**	**4.6**

continued

Table 7.1: Target 7.A—Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources *(continued)*

Regional Member	7.3 Consumption of All Ozone-Depleting Substances (ODP metric tons)		7.5 Proportion of Total Water Resources Used (%)	
	1990	2013	1990	2010
Developing Member Economies				
Central and West Asia				
Afghanistan	– (1991)	17.7	...	31.0 (2000)
Armenia	– (1991)	4.5	45.1	37.9
Azerbaijan	2.8 (1991)	1.8	44.9	34.5
Georgia	94.8 (1991)	1.4	5.5	2.9
Kazakhstan	2,355.9	104.6	33.4	18.4
Kyrgyz Republic	133.5 (1991)	4.0	47.6	32.6 (2005)
Pakistan	1,455.8	247.0	63.0	74.4
Tajikistan	93.3 (1991)	2.3	75.2	51.1 (2005)
Turkmenistan	145.2	4.2	100.1	112.5 (2005)
Uzbekistan	4.4 (1991)	4.6	124.0	100.6 (2005)
East Asia[f]				
China, People's Rep. of	59,674.0	15,690.6	17.6	19.5 (2005)
Hong Kong, China[a]	...	...	...	...
Korea, Rep. of	– (1991)	1,893.1	34.0 (1995)	36.5 (2000)
Mongolia	– (1991)	0.9	1.2 (1995)	1.6
Taipei,China[b,c,d]	...	...	15.8 (2001)	13.7 (2012)
South Asia				
Bangladesh	202.1	64.9	...	2.9
Bhutan	– (1991)	0.3	...	0.4
India	– (1991)	956.1	26.2	33.9
Maldives	4.5	3.2	...	15.7
Nepal	25.0 (1991)	0.7	4.5 (2000)	4.5 (2005)
Sri Lanka	218.2	13.4	18.5	24.5 (2005)
Southeast Asia				
Brunei Darussalam	– (1991)	4.3	0.9	...
Cambodia	– (1991)	9.5	...	0.5 (2005)
Indonesia	80.8 (1991)	310.5	3.7	5.6 (2000)
Lao PDR	–	1.6	...	1.0 (2005)
Malaysia	4,193.7	449.9	1.7	1.9 (2005)
Myanmar	– (1991)	3.0	...	2.8 (2000)
Philippines	3,477.2	136.7	5.8 (1995)	17.0
Singapore	4,855.2	116.7	...	...
Thailand	6,984.2	863.3	...	13.1 (2005)
Viet Nam	430.0 (1991)	252.9	6.1	9.3 (2005)
The Pacific[f]				
Cook Islands[e]	0.1 (1991)	–	...	...
Fiji	41.8	7.7	...	0.3 (2000)
Kiribati	– (1991)	–	...	...
Marshall Islands[e]	1.2	0.1	...	...
Micronesia, Fed. States of	– (1991)	–	...	...
Nauru[e]	– (1991)	–	...	...
Palau[e]	– (1991)	0.1	...	...
Papua New Guinea	28.5 (1991)	3.0	–	0.10 (2005)
Samoa	4.0 (1991)	0.1	...	...
Solomon Islands	2.1	0.2	...	...
Timor-Leste	0.3 (1991)	0.3	...	14.3 (2005)
Tonga	0.4 (1991)	0.0	...	...
Tuvalu	– (1991)	–	...	...
Vanuatu	– (1991)	0.1	...	...
Developed Member Economies				
Australia[e]	7,434.4	48.3	4.5 (1995)	3.2
Japan[e]	120,074.2	39.6	21.3	20.9 (2000)
New Zealand[e]	1,195.4	8.2	...	1.5 (2000)
DEVELOPING MEMBER ECONOMIES[f]				
REGIONAL MEMBERS[f]				
WORLD[f]				

... = data not available at cutoff date, – = magnitude equals zero, 0.0 = magnitude is less than half of unit employed, ODP = ozone-depleting potential, Lao PDR = Lao People's Democractic Republic.

a The proportion of land area covered by forest in Hong Kong, China is included in the data of the People's Republic of China.
b On proportion of land area covered by forest, Taipei,China data do not include Kinmen County and Lienchiang County.
c On proportion of total water resources used, Taipei,China data is equal to the percentage of available resources, that is the proportion of total amount of water above ground to the annual runoff.
d On carbon dioxide emissions, Taipei,China data includes emissions from fuel combustion only.
e Derived per capita emission using available data on carbon dioxide emission and population.
f Aggregates are derived for reporting economies only.

Sources: Food and Agriculture Organization of the United Nations; Carbon Dioxide Information Analysis Center; United Nations Environment Programme; United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 15 July 2015); and for Taipei,China: economy source.

Table 7.2: Target 7.B—Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss

Regional Member	7.6 Proportion of Terrestrial and Marine Areas Protected (%)		7.6a Terrestrial Areas Protected to Total Surface Area (%)		7.6b Marine Areas Protected to Territorial Waters (%)	
	1990	2014	1990	2014	1990	2014
Developing Member Economies						
Central and West Asia						
Afghanistan	0.4	0.5	0.4	0.5	–	–
Armenia	7.9	24.8	7.9	24.8	–	–
Azerbaijan	5.2	14.0	5.2	14.0	–	–
Georgia	1.4	6.5	1.9	8.3	–	2.4
Kazakhstan	2.4	3.3	2.4	3.3	–	–
Kyrgyz Republic	6.3	6.9	6.3	6.9	–	–
Pakistan	8.0	8.6	10.1	10.8	1.8	5.6
Tajikistan	2.6	21.9	2.6	21.9	–	–
Turkmenistan	3.0	3.2	3.0	3.2	–	–
Uzbekistan	2.1	3.4	2.1	3.4	–	–
East Asia						
China, People's Rep. of	12.4	15.6	13.6	17.0	0.4	2.3
Hong Kong, China	41.1	41.8	41.1	41.8	–	–
Korea, Rep. of	1.9	2.6	5.1	7.6	3.3	4.3
Mongolia	4.1	17.2	4.1	17.2	–	–
Taipei,China	...	...	...	...	...	...
South Asia						
Bangladesh	0.6	3.4	0.8	4.6	0.1	2.5
Bhutan	14.2	47.3	14.2	47.3	–	–
India	2.7	3.1	4.7	5.4	1.5	2.1
Maldives	9.2	0.1	0.1	0.7	–	0.4
Nepal	7.7	22.9	7.7	22.9	–	–
Sri Lanka	2.3	2.6	20.3	23.2	0.1	1.3
Southeast Asia						
Brunei Darussalam	24.9	29.7	36.9	44.1	1.5	1.5
Cambodia	0.0	20.6	0.0	26.0	–	0.5
Indonesia	2.6	6.0	10.1	14.7	0.4	5.8
Lao PDR	1.5	16.7	1.5	16.7	–	–
Malaysia	7.4	8.0	17.2	18.4	1.5	2.3
Myanmar	1.7	4.1	3.0	7.2	0.2	0.2
Philippines	1.3	2.4	8.7	11.0	0.3	2.5
Singapore	2.5	3.4	5.4	5.8	–	1.5
Thailand	8.0	12.5	11.9	18.8	3.9	5.2
Viet Nam	1.6	2.5	4.6	6.5	0.3	1.8
The Pacific						
Cook Islands	–	–	0.5	1.2	–	–
Fiji	0.1	1.0	1.2	4.4	0.2	6.2
Kiribati	0.0	11.8	5.7	22.2	0.3	20.2
Marshall Islands	–	0.2	0.2	7.9	–	3.4
Micronesia, Fed. States of	–	–	3.0	4.3	–	0.1
Nauru	–	–	–	–	–	–
Palau	–	0.2	0.3	16.0	0.5	31.4
Papua New Guinea	0.5	0.7	1.9	3.1	0.3	0.4
Samoa	0.1	0.2	2.4	6.8	0.5	1.1
Solomon Islands	–	0.2	0.1	2.2	–	0.9
Timor-Leste	–	2.1	–	8.7	–	3.8
Tonga	0.0	1.5	1.5	15.9	–	9.6
Tuvalu	–	0.0	0.4	2.4	0.1	0.3
Vanuatu	0.1	2.3	3.7	4.2	–	–
Developed Member Economies						
Australia	6.6	29.0	7.6	14.6	26.6	48.5
Japan	2.0	2.1	18.1	19.4	5.0	5.1
New Zealand	7.8	29.8	24.7	32.5	4.7	12.5

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, – = magnitude equals zero, Lao PDR = Lao People's Democractic Republic.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 7 July 2015).

Table 7.3: Target 7.C—Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

Regional Member	7.8 Population Using Improved Water Sources (%)					
	1990			2015		
	Total	Urban	Rural	Total	Urban	Rural
Developing Member Economies[a]						
Central and West Asia[a]	**86**	**96**	**80**	**87**	**94**	**82**
Afghanistan	21 (1991)	43 (1991)	16 (1991)	55	78	47
Armenia	91 (1992)	98 (1992)	76 (1992)	100	100	100
Azerbaijan	69	85	50	87	95	78
Georgia	85	96	73	100	100	100
Kazakhstan	94	97	90	93	99	86
Kyrgyz Republic	75	96	62	90	97	86
Pakistan	86	97	82	91	94	90
Tajikistan	58 (1993)	92 (1993)	44 (1993)	74	93	67
Turkmenistan	59 (1994)	89 (1994)	35 (1994)	60 (2006)	89 (2006)	35 (2006)
Uzbekistan	90	97	85	87 (2014)	99 (2014)	81 (2014)
East Asia[a]	**67**	**97**	**56**	**95**	**98**	**93**
China, People's Rep. of	67	97	56	96	98	93
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	90 (1991)	97 (1991)	67 (1991)	98 (2014)	100 (2014)	88 (2014)
Mongolia	53	77	22	64	66	59
Taipei,China	...	...	...	...	...	...
South Asia[a]	**70**	**88**	**64**	**93**	**96**	**92**
Bangladesh	68	81	65	87	87	87
Bhutan	72	97	67	100	100	100
India	71	89	64	94	97	93
Maldives	93	100	91	99	100	98
Nepal	66	97	63	92	91	92
Sri Lanka	68	92	63	96	99	95
Southeast Asia[a]	**72**	**90**	**63**	**90**	**95**	**86**
Brunei Darussalam	...	...	...	...	...	...
Cambodia	23	34	22	76	100	69
Indonesia	70	89	61	87	94	80
Lao PDR	40 (1994)	70 (1994)	34 (1994)	76	86	69
Malaysia	90	95	86	98	100	93
Myanmar	59	80	52	81	93	74
Philippines	84	91	77	92	94	90
Singapore	100	100	na	100	100	na
Thailand	87	96	84	98	98	98
Viet Nam	63	90	56	98	99	97
The Pacific[a]	**46**	**90**	**35**	**54**	**94**	**44**
Cook Islands	100	...	...	100	...	...
Fiji	86	94	80	96	100	91
Kiribati	50	75	36	67	87	51
Marshall Islands	92	91	94	95	94	98
Micronesia, Fed. States of	91	94	90	89	95	87
Nauru	93 (1996)	93 (1996)	na	97	97	na
Palau	90	98	72	96 (2014)	97 (2014)	86 (2014)
Papua New Guinea	34	87	24	40	88	33
Samoa	89	97	87	99	98	99
Solomon Islands	80 (2000)	93 (2000)	77 (2000)	81	93	77
Timor-Leste	53 (1995)	67 (1995)	49 (1995)	72	95	61
Tonga	99	97	99	100	100	100
Tuvalu	90	92	89	98	98	97
Vanuatu	62	94	55	95	99	93
Developed Member Economies[a]	**100**	**100**	**100**	**100**	**100**	**100**
Australia	100	100	100	100	100	100
Japan	100	100	100	100	100	100
New Zealand	100	100	100	100	100	100
DEVELOPING MEMBER ECONOMIES[a]	**70**	**93**	**61**	**93**	**96**	**90**
REGIONAL MEMBERS[a]	**71**	**94**	**62**	**93**	**97**	**90**
WORLD[a]	**76**	**95**	**62**	**91**	**96**	**85**

continued

Table 7.3: Target 7.C—Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation *(continued)*

Regional Member	7.9 Population Using Improved Sanitation Facilities (%)					
	1990			2015		
	Total	Urban	Rural	Total	Urban	Rural
Developing Member Economies[a]						
Central and West Asia[a]	**43**	**79**	**24**	**69**	**84**	**59**
Afghanistan	21 (1991)	26 (1991)	19 (1991)	32	45	27
Armenia	90 (1992)	95 (1992)	78 (1992)	90	96	78
Azerbaijan	63 (1994)	75 (1994)	49 (1994)	89	92	87
Georgia	98	97	99	86	95	76
Kazakhstan	96	96	97	98	97	98
Kyrgyz Republic	91	93	90	93	89	96
Pakistan	24	66	5	64	83	51
Tajikistan	90 (1993)	92 (1993)	88 (1993)	95	94	96
Turkmenistan	62 (1994)	77 (1994)	50 (1994)	63 (2006)	77 (2006)	50 (2006)
Uzbekistan	84	95	76	100	100	100
East Asia[a]	**49**	**71**	**41**	**77**	**87**	**64**
China, People's Rep. of	48	68	40	77	87	64
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	100	100	100	100	100	100
Mongolia	46 (1992)	65 (1992)	21 (1992)	60	66	43
Taipei,China	...	...	...	...	...	...
South Asia[a]	**19**	**49**	**10**	**43**	**62**	**34**
Bangladesh	34	47	31	61	58	62
Bhutan	19	45	14	50	78	33
India	17	49	6	40	63	29
Maldives	68	98	58	98	98	98
Nepal	5	35	2	46	56	44
Sri Lanka	71	83	68	95	88	97
Southeast Asia[a]	**44**	**69**	**38**	**72**	**81**	**64**
Brunei Darussalam	...	...	...	...	...	...
Cambodia	3	19	–	42	88	31
Indonesia	35	61	24	61	72	48
Lao PDR	20 (1994)	62 (1994)	12 (1994)	71	95	56
Malaysia	86	90	83	96	96	96
Myanmar	54 (1991)	76 (1991)	47 (1991)	80	84	77
Philippines	57	69	46	74	78	71
Singapore	99	99	na	100	100	na
Thailand	87	89	86	93	90	96
Viet Nam	36	65	29	78	94	70
The Pacific[a]	**29**	**70**	**19**	**32**	**71**	**22**
Cook Islands	92 (1995)	...	...	98	...	...
Fiji	57	85	37	91	93	88
Kiribati	28	43	20	40	51	31
Marshall Islands	65	77	41	77	85	56
Micronesia, Fed. States of	19	49	9	57	85	49
Nauru	66	66	na	66	66	na
Palau	47	63	8	100	100	100
Papua New Guinea	20	62	13	19	56	13
Samoa	93	94	92	92	93	91
Solomon Islands	26 (2000)	81 (2000)	15 (2000)	30	81	15
Timor-Leste	37 (1995)	51 (1995)	33 (1995)	41	69	27
Tonga	94	97	94	91	98	89
Tuvalu	73	75	71	83 (2014)	86 (2014)	80 (2014)
Vanuatu	35 (1992)	51 (1992)	32 (1992)	58	65	55
Developed Member Economies[a]	**100**	**100**	**100**	**100**	**100**	**100**
Australia	100	100	100	100	100	100
Japan	100	100	100	100	100	100
New Zealand	...	...	88	...	...	88 (1996)
DEVELOPING MEMBER ECONOMIES[a]	**37**	**64**	**28**	**62**	**79**	**49**
REGIONAL MEMBERS[a]	**40**	**69**	**29**	**64**	**80**	**50**
WORLD[a]	**54**	**79**	**35**	**68**	**82**	**51**

... = data not available at cutoff date, – = magnitude equals zero, na = not applicable, Lao PDR = Lao People's Democratic Republic.

a Regional aggregates for the respective year headings are population-weighted averages and presented only if available data cover at least 50% of the total population of the region. Data values not corresponding to the reference year are excluded from the regional aggregates. Data for population are from the World Health Organization and the United Nations Children's Fund (UNICEF) Joint Monitoring Programme for Water Supply and Sanitation.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 14 July 2015); World Health Organization-UNICEF Joint Monitoring Programme for Water Supply and Sanitation. http://www.wssinfo.org/ (accessed 16 June 2015).

Table 7.4: Target 7.D—By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers

Regional Member	7.10 Slum Population as Percentage of Urban Population		
	1990	2005	2014
Developing Member Economies			
Central and West Asia			
Afghanistan[a]	...	...	62.7
Armenia	...	...	14.4
Azerbaijan	...	...	...
Georgia	...	...	...
Kazakhstan	...	...	...
Kyrgyz Republic	...	...	...
Pakistan[b]	51.0	47.5	45.5
Tajikistan	...	...	...
Turkmenistan	...	...	...
Uzbekistan	...	...	...
East Asia			
China, People's Rep. of[a]	43.6	32.9	25.2
Hong Kong, China	...	...	...
Korea, Rep. of	...	...	...
Mongolia[c]	68.5	57.9	42.7
Taipei,China	...	...	...
South Asia			
Bangladesh[b]	87.3	70.8	55.1
Bhutan[a]	...	...	...
India[b]	54.9	34.8	24.0
Maldives	...	...	...
Nepal[b]	70.6	60.7	54.3
Sri Lanka[a]	...	...	...
Southeast Asia			
Brunei Darussalam	...	...	...
Cambodia[a]	...	78.9	55.1
Indonesia[d]	50.8	26.3	21.8
Lao PDR[c]	...	79.3	31.4
Malaysia	...	...	...
Myanmar[c]	...	45.6	41.0
Philippines[d]	54.3	43.7	38.3
Singapore	...	...	...
Thailand[e]	...	26.0	25.0
Viet Nam	60.5	41.3	27.2
The Pacific			
Cook Islands	...	...	...
Fiji	...	...	...
Kiribati	...	...	...
Marshall Islands	...	...	...
Micronesia, Fed. States of	...	...	...
Nauru	...	...	...
Palau	...	...	...
Papua New Guinea	...	...	...
Samoa	...	...	...
Solomon Islands	...	...	...
Timor-Leste	...	...	...
Tonga	...	...	...
Tuvalu	...	...	...
Vanuatu	...	...	...
Developed Member Economies			
Australia	...	...	...
Japan	...	...	...
New Zealand	...	...	...

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Estimation based on two components: water and sanitation.
b Trend analysis was used to estimate the percentage of slum population.
c In 1990, estimation was based on two components: water and sanitation from United Nations Children's Fund (UNICEF)/World Health Organization (WHO). In 2005, estimation was based on four components: water, sanitation, sufficient living, and durable housing from Multiple Indicator Cluster Survey (MICS) 2000.
d Trend analysis was used to estimate 2005 slum.
e In 1990, estimation was based on two components: water and sanitation from UNICEF/WHO. In 2005, estimation was based on four components: water, sanitation, sufficient living, and durable housing from MICS 2000.

Sources: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 14 July 2015); United Nations Human Settlements Programme (UN-Habitat). http://urbandata.unhabitat.org/download-data/ (accessed 14 July 2015).

MDG 8: Develop a Global Partnership for Development

Millennium Development Goal (MDG) 8 has six targets. The first three and last are the focus of this section. The first three targets deal with the provision of official development assistance (ODA), while the last is about the availability of new technologies.

8.A: *Develop further an open, rule-based, predictable, nondiscriminatory trading and financial system.*

8.B: *Address the special needs of the least-developed countries.*

8.C: *Address the special needs of landlocked developing countries and small island developing states.*

8.F: *In cooperation with the private sector, make available the benefits of new technologies, especially information and communications. The related tables for the indicators of ICT are presented in Part III of the publication under the theme "Transport and Communications"*

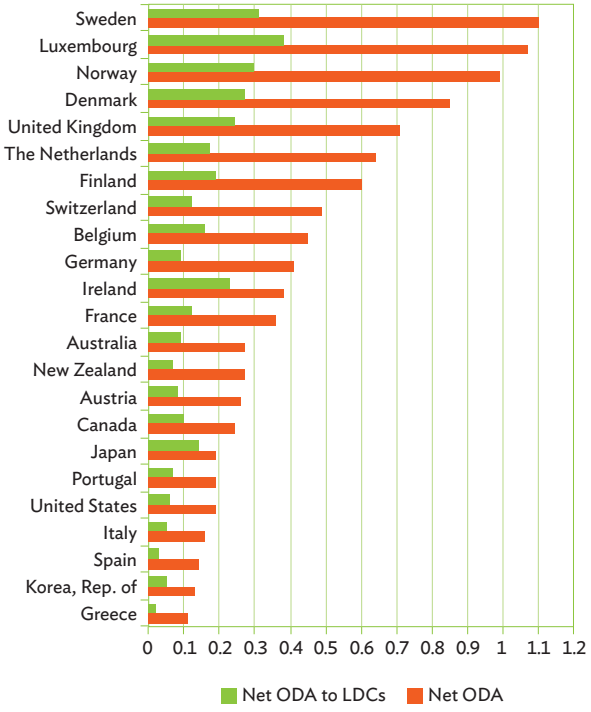
Snapshots

- Net ODA as percentage of gross national income (GNI) exceeded 0.7% for only five OECD Development Assistance Committee countries in 2014 and net ODA to least-developed countries (LDCs) as a proportion of their GNI has declined in most landlocked and small island economies.
- Access to mobile-cellular phones has risen phenomenally in the Asia and Pacific region, with 3.7 billion mobile subscriptions in 2014 compared with 1.6 million in 1990 and 222 million in 2000.
- Internet access has also increased significantly in the region, but there are wide gaps across economies with more than one third of the economies in the Asia and Pacific region still having internet access below 20%.

Progress

Only five Organisation for Economic Co-operation and Development–Development Assistance Committee donor countries exceeded the 0.7% mark of net ODA as percentage of GNI. Figure 8.1 illustrates net ODA as percentage of GNI for 2014 and net ODA to least-developed countries as percentage of GNI for 2013. The UN has suggested that donor countries devote 0.7% of GNI for ODA to the developing world. Only five countries exceeded this mark in 2014: Denmark, Luxembourg, Norway, Sweden, and the United Kingdom. While Denmark, Luxembourg, Norway, and Sweden have consistently exceeded 0.7% mark for more than two decades, the United Kingdom's net ODA to GNI reached 0.7% for the first time in 2013. Out of the total ODA, these countries also allocated 0.2% or more to the least-developed countries. All other countries' allocation of total ODA was less than 0.7% of their GNI and less than 0.2% of their GNI to the least-developed countries.

Figure 8.1: Net ODA, 2014 and Net ODA to LDCs, 2013
(as % of OECD/DAC donors' GNI)



DAC = Development Assistance Committee, GNI = gross national income, LDCs = least developed countries, ODA = official development assistance, OECD = Organisation for Economic Co-operation and Development.
Sources: Table 8.1.

Figure 8.2: Donor Allocation to Basic Social Services, 2013
(percentage of ODA)

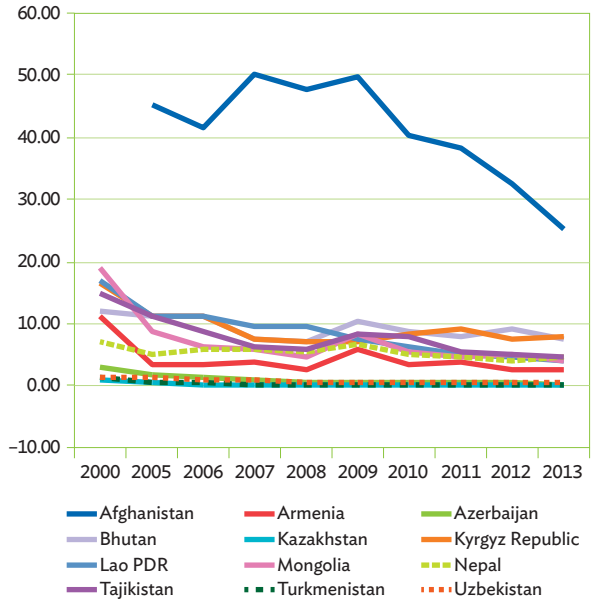
ODA = official development assistance.
Source: Table 8.2.

Allocation of bilateral ODA to basic social services by most donors was below 20%. Figure 8.2 shows the proportion of ODA from donor economies that has been allocated to basic social services—education, primary health care, nutrition, safe water, and sanitation. In 2013, most donor economies (16 out of 23) have allocated less than 20% of bilateral ODA to basic social services. The United States (42%) has led the other donors, viz., Canada (27.3%), Ireland (21.4%), Luxembourg (23.3%), New Zealand (28.0%), Spain (20.7%), and the United Kingdom (29.8%) whose allocation of ODA for basic social services exceeded 20% of total ODA.

ODA as a proportion of GNI has been declining since 2000 in most landlocked and small island economies. The Asia and Pacific region includes 12 landlocked developing economies and 13 small island economies. Landlocked economies are often disadvantaged by high transport costs due to lack of direct access to port facilities. Small island economies usually face development challenges due to narrow resource bases, fragile natural environments, lack of economies of scale in production and domestic markets, and high transport costs in international trade. The ODA-to-GNI ratio indicates the importance of ODA relative to the size of the economy.

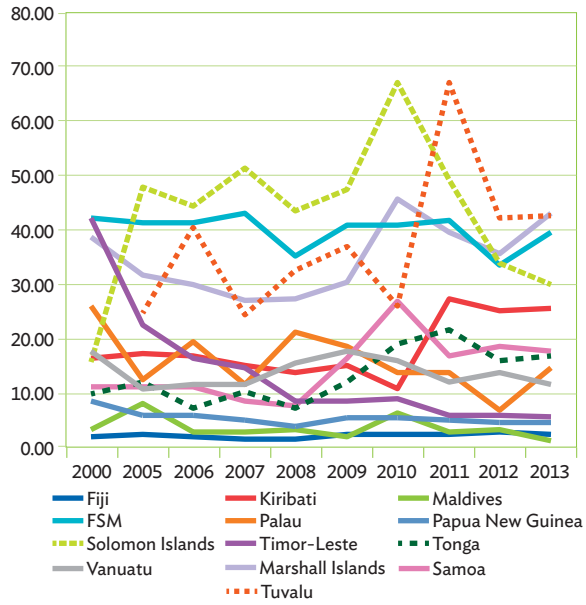
Among the landlocked economies, Afghanistan continued to be the top recipient in terms of ODA as share of GNI. As of 2013, ODA was about a quarter of Afghanistan's GNI, which is a considerable decline from 40% to 50% during 2005 to 2010 (Figure 8.3). For the other landlocked economies receiving ODA, the ODA-to-GNI ratios are all below 10% in 2013, and these ratios have also fallen from their levels in 2000. Compared with landlocked economies, except for Afghanistan, small island economies generally

Figure 8.3: ODA Received in Landlocked Developing Countries as Percentage of their GNIs
(%)



GNI = gross national income, Lao PDR = Lao People's Democratic Republic, ODA = official development assistance.
Source: Table 8.3.

Figure 8.4: ODA Received in Small Island Developing States as Percentage of their GNIs
(%)



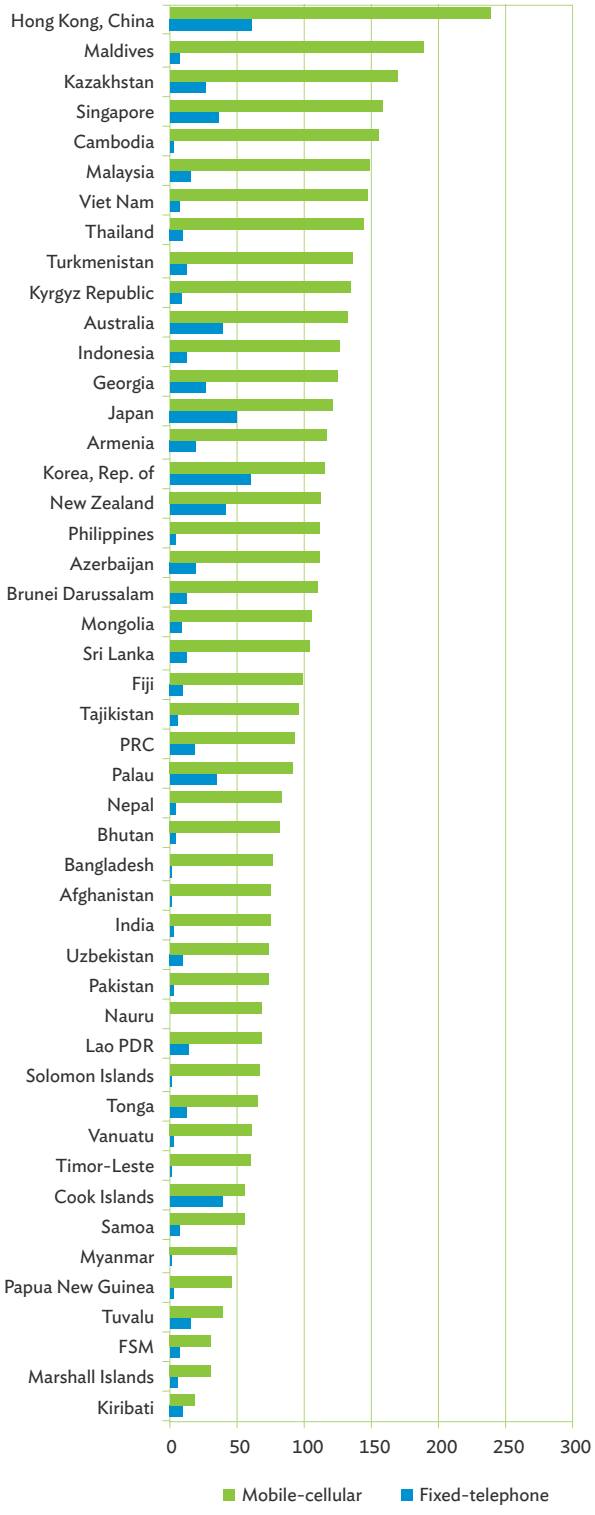
FSM = Federated States of Micronesia, GNI = gross national income, ODA = official development assistance.
Source: Table 8.3.

have much higher ODA-to-GNI ratios (Figure 8.4). In 2013, ODA-to-GNI ratios are about two-fifths for the Marshall Islands (43.0%), Tuvalu (42.5%), and the Federated States of Micronesia (39.5%), while about a third for Solomon Islands (30.0%) and a quarter for Kiribati (25.5%). Among the 13 island economies, the Maldives (1.2%) and Fiji (2.4%) have the lowest dependence on ODA (Figure 8.4).

Phenomenal growth in access to mobile-cellular phones and internet is transforming the lives of the people in developing Asia. Technological innovations and falling prices in growing networks have led to a tremendous expansion of mobile-cellular services and internet access. The mobile technology is transforming the lives of the people and changing the ways in which they interact, communicate, share information, and transact business. Figure 8.5 presents estimated number of mobile-cellular and fixed telephone subscriptions per 100 inhabitants for economies in the Asia and Pacific region. The number of mobile phone subscriptions at 3.7 billion in 2014 was almost 17 times of the subscription base in 2000 while fixed phone subscriptions have started to decline.

Twenty-two economies had mobile-cellular phone subscriptions exceeding their population, meaning more than 1 mobile-cellular subscription per person. Figure 8.5 also shows that in Asia and the Pacific, mobile-cellular phone subscriptions have completely out-paced the number of fixed-telephone subscriptions. The three economies with the largest total number of mobile-cellular phone subscriptions in 2014 are also the three most populous economies namely, the People's Republic of China (PRC), with a total subscriptions of 1.3 billion in 2014 (up from 85.3 million in 2000), India with 944 million in 2014 (up from just 3.6 million in 2000), and Indonesia with 319 million (up from 3.7 million in 2000). The per 100 subscription rates in 2014 in these three economies were 92 for the PRC, 74 for India, and

Figure 8.5: Fixed-Telephone and Mobile-Cellular Subscriptions per 100 Inhabitants, 2014



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Regional Table 5.9.

126 for Indonesia. Cambodia, with a subscription rate of 155 per 100 persons is among the top five along with Hong Kong, China; Kazakhstan; the Maldives; and Singapore. At the bottom of the graph mainly are the Pacific island economies, indicating the constraints in expanding mobile-cellular technology in these island economies.

Likewise, the number of internet users has grown rapidly, but the gaps in access rates between the rich and the poor economies are still wide. Figure 8.6 shows the internet access per 100 population with the richer economies at the top of the graph having internet users exceeding 80 per 100 population while poorer countries at the bottom of the graph having access rates below 10 per 100 population. More than one third (17) of the 47 economies in the Asia and Pacific region still have internet access below 20%.

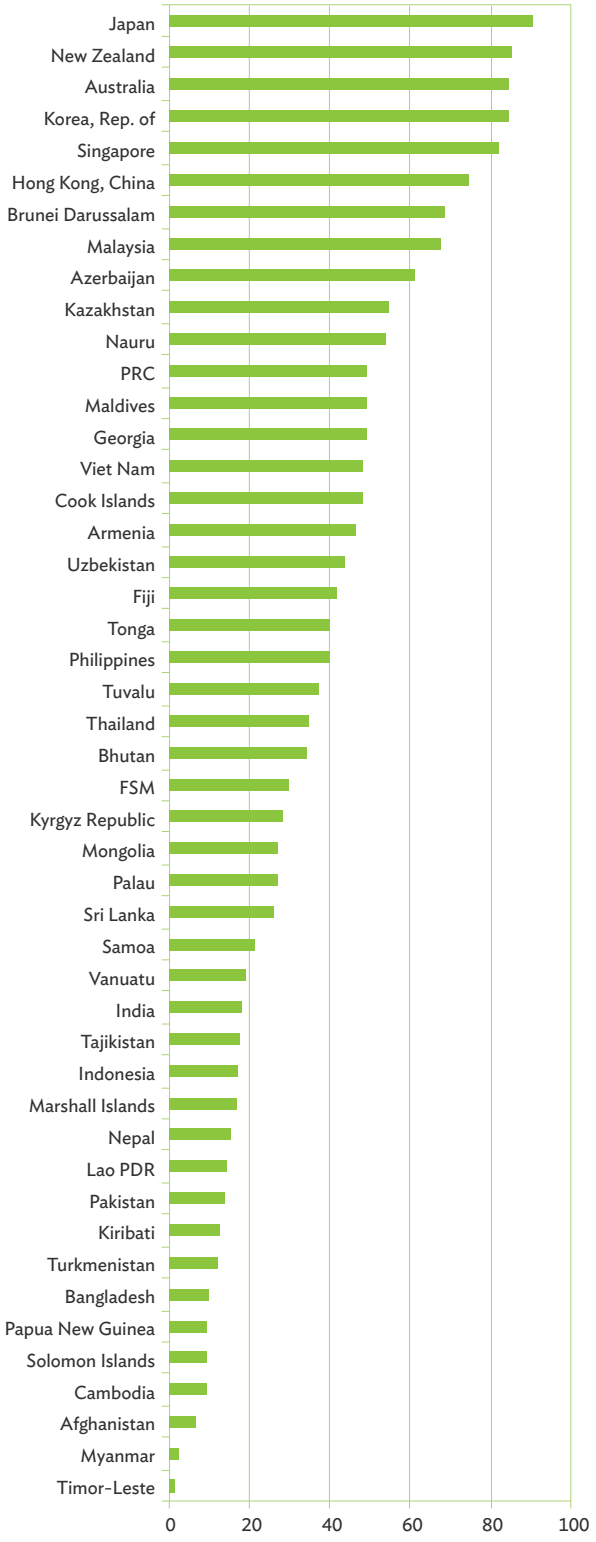
Data issues and comparability

Data on ODA are collected and verified by the Secretariat of the Development Assistance Committee of the Organisation for Economic Co-operation and Development from its members. Part of the difficulty in monitoring MDG 8 is the lack of quantitative targets in some areas.

For the proportion of ODA allocated to basic social services, data are compiled on a project basis according to the most relevant sectors hence basic social services expenditures in other sectors are not captured.

Most data on mobile, landline, and internet subscriptions come from questionnaires of the International Telecommunications Union (ITU) that are being sent to participating countries. Other information and reports are sourced from the ministries in-charge of telecommunications and ITU estimates.

Figure 8.6: Internet Users per 100 Inhabitants, 2014



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Regional Table 5.9.

Post–2015 agenda

While the MDGs have provided an agenda for partnerships, the post-2015 development agenda is quite ambitious and will require even more challenges to meeting funding needs. Although the significance of ODA for middle-income economies has diminished, the role of ODA will undoubtedly be important for low-income economies in the post-2015 era given their limited capacities to raise public resources domestically. ODA could be catalytic in crowding-in other sources and building capacities. South-South ODA flows are also likely to increase in the coming years. ODA can provide a key role to improve public policies for social inclusion, sustainable development, and lessening the digital divide. Partnerships will have to be harnessed and the sustainable development agenda will have to be financed from more innovative and a diverse range of sources combining public, private, and joint financing that raise funds both internally and externally.

Table 8.1: Target 8.A—Develop further an open, rule-based, predictable, non-discriminatory trading and financial system

Development Assistance Committee Members	8.1 Net ODA Total, as percentage of OECD/DAC donors' gross national income												
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Australia	0.34	0.34	0.27	0.25	0.30	0.32	0.32	0.29	0.32	0.34	0.36	0.33	0.27
Austria	0.11	0.27	0.23	0.52	0.47	0.50	0.43	0.30	0.32	0.27	0.28	0.27	0.26
Belgium	0.46	0.38	0.36	0.53	0.50	0.43	0.48	0.55	0.64	0.54	0.47	0.45	0.45
Canada	0.44	0.38	0.25	0.34	0.29	0.29	0.33	0.30	0.34	0.32	0.32	0.27	0.24
Denmark	0.94	0.96	1.06	0.81	0.80	0.81	0.82	0.88	0.91	0.85	0.83	0.85	0.85
Finland	0.65	0.31	0.31	0.46	0.40	0.39	0.44	0.54	0.55	0.53	0.53	0.54	0.60
France	0.60	0.55	0.30	0.47	0.47	0.38	0.39	0.47	0.50	0.46	0.45	0.41	0.36
Germany	0.42	0.31	0.27	0.36	0.36	0.37	0.38	0.35	0.39	0.39	0.37	0.38	0.41
Greece[a]	...	...	0.20	0.17	0.17	0.16	0.21	0.19	0.17	0.15	0.13	0.10	0.11
Ireland	0.16	0.29	0.29	0.42	0.54	0.55	0.59	0.54	0.52	0.51	0.47	0.46	0.38
Italy	0.31	0.15	0.13	0.29	0.20	0.19	0.22	0.16	0.15	0.20	0.14	0.17	0.16
Japan	0.31	0.27	0.28	0.28	0.25	0.17	0.19	0.18	0.20	0.18	0.17	0.23	0.19
Korea, Rep. of	0.02	0.02	0.04	0.10	0.05	0.07	0.09	0.10	0.12	0.12	0.14	0.13	0.13
Luxembourg	0.21	0.36	0.70	0.79	0.89	0.92	0.97	1.04	1.05	0.97	1.00	1.00	1.07
The Netherlands	0.92	0.81	0.84	0.82	0.81	0.81	0.80	0.82	0.81	0.75	0.71	0.67	0.64
New Zealand	0.23	0.23	0.25	0.27	0.27	0.27	0.30	0.28	0.26	0.28	0.28	0.26	0.27
Norway	1.17	0.86	0.76	0.94	0.89	0.95	0.89	1.06	1.05	0.96	0.93	1.07	0.99
Portugal	0.24	0.25	0.26	0.21	0.21	0.22	0.27	0.23	0.29	0.31	0.28	0.23	0.19
Spain	0.20	0.24	0.22	0.27	0.32	0.37	0.45	0.46	0.43	0.29	0.16	0.18	0.14
Sweden	0.91	0.77	0.80	0.94	1.02	0.93	0.98	1.12	0.97	1.02	0.97	1.01	1.10
Switzerland	0.30	0.33	0.32	0.42	0.38	0.37	0.42	0.44	0.39	0.46	0.47	0.45	0.49
United Kingdom	0.27	0.29	0.32	0.47	0.51	0.36	0.43	0.51	0.57	0.56	0.56	0.70	0.71
United States	0.21	0.10	0.10	0.23	0.18	0.16	0.18	0.21	0.21	0.20	0.19	0.18	0.19

Development Assistance Committee Members	8.1 Net ODA to the least developed countries, as percentage of OECD/DAC donors' gross national income												
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Australia	0.06	0.06	0.08	0.06	0.07	0.08	0.08	0.08	0.09	0.09	0.11	0.09	...
Austria	0.06	0.06	0.06	0.08	0.08	0.07	0.07	0.09	0.12	0.07	0.06	0.08	...
Belgium	0.19	0.10	0.11	0.16	0.18	0.17	0.19	0.20	0.31	0.20	0.14	0.16	...
Canada	0.13	0.08	0.05	0.10	0.10	0.11	0.13	0.11	0.15	0.11	0.11	0.10	...
Denmark	0.37	0.30	0.36	0.32	0.32	0.34	0.32	0.35	0.35	0.32	0.31	0.27	...
Finland	0.24	0.08	0.10	0.13	0.14	0.15	0.15	0.19	0.20	0.17	0.18	0.19	...
France	0.19	0.11	0.09	0.11	0.12	0.11	0.11	0.12	0.14	0.13	0.10	0.12	...
Germany	0.12	0.07	0.07	0.07	0.09	0.09	0.10	0.10	0.11	0.10	0.11	0.09	...
Greece[a]	–	...	0.03	0.04	0.04	0.04	0.05	0.04	0.04	0.02	0.02	0.02	...
Ireland	0.06	0.12	0.15	0.21	0.28	0.28	0.30	0.28	0.29	0.27	0.24	0.23	...
Italy	0.13	0.04	0.05	0.08	0.04	0.06	0.07	0.05	0.06	0.07	0.04	0.05	...
Japan	0.06	0.05	0.06	0.05	0.07	0.06	0.05	0.06	0.08	0.07	0.08	0.14	...
Korea, Rep. of	–	–	0.01	0.03	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.05	...
Luxembourg	0.08	0.12	0.22	0.28	0.34	0.36	0.38	0.38	0.40	0.36	0.37	0.38	...
The Netherlands	0.30	0.23	0.22	0.27	0.20	0.24	0.24	0.21	0.24	0.17	0.15	0.17	...
New Zealand	0.03	0.04	0.06	0.06	0.07	0.06	0.08	0.08	0.06	0.07	0.08	0.07	...
Norway	0.51	0.34	0.27	0.35	0.35	0.34	0.33	0.33	0.34	0.31	0.27	0.30	...
Portugal	0.14	0.15	0.15	0.09	0.10	0.10	0.10	0.10	0.13	0.15	0.09	0.07	...
Spain	0.04	0.04	0.03	0.07	0.06	0.08	0.10	0.12	0.12	0.07	0.04	0.03	...
Sweden	0.35	0.22	0.24	0.31	0.29	0.30	0.32	0.35	0.30	0.35	0.29	0.31	...
Switzerland	0.13	0.10	0.10	0.10	0.10	0.11	0.10	0.13	0.11	0.12	0.11	0.12	...
United Kingdom	0.09	0.07	0.11	0.12	0.16	0.15	0.16	0.18	0.20	0.21	0.19	0.24	...
United States	0.04	0.03	0.02	0.05	0.05	0.04	0.06	0.07	0.07	0.08	0.07	0.06	...

... = data not available at cutoff date, – = magnitude equals zero, DAC = Development Assistance Committee, ODA = official development assistance, OECD = Organisation for Economic Co-operation and Development.

a Greece is not an ADB member economy.

Source: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 7 July 2015).

Goal 8 Targets and Indicators

Table 8.2: Target 8.B—Address the special needs of least developed countries

Development Assistance Committee Members	8.2 Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water, and sanitation)										
	1996	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Australia	10.3	21.8	11.1	9.1	9.7	18.5	14.5	14.5	15.6	16.9	16.7
Austria	4.9	3.4	12.8	12.8	9.3	4.7	6.4	3.1	2.7	1.7	1.5
Belgium	16.1	17.9	19.3	21.2	21.2	16.7	13.2	12.5	10.7	16.8	10.1
Canada	6.3	18.3	32.3	30.9	32.0	19.2	30.4	15.3	42.9	27.8	27.3
Denmark	12.6	10.3	11.7	22.9	10.1	12.6	21.3	10.8	11.0	15.0	7.3
Finland	5.8	11.5	9.9	10.3	14.0	11.2	5.9	8.4	8.1	10.1	10.5
France	0.7	3.7	1.9	4.4	6.1	10.3	11.0	7.9	9.3	8.6	5.3
Germany	8.0	11.7	9.2	11.4	10.0	7.7	8.7	6.1	7.4	9.2	7.8
Greece[a]	...	...	19.0	20.4	15.1	3.7	11.2	6.6	0.1	–	–
Ireland	...	...	31.4	42.3	35.6	28.7	32.7	23.4	29.2	23.2	21.4
Italy	10.4	13.1	10.6	5.5	12.2	9.1	13.4	12.7	12.5	10.1	12.1
Japan	2.2	8.8	3.6	4.0	4.2	2.7	18.8	7.1	3.2	6.0	3.4
Korea, Rep. of	...	...	...	18.0	10.7	13.9	6.7	4.6	8.9	8.0	10.9
Luxembourg	...	...	26.2	32.0	33.9	34.4	36.1	34.9	24.1	21.8	23.3
The Netherlands	14.0	23.6	23.3	38.5	18.9	25.9	11.9	7.7	13.9	17.3	12.3
New Zealand	...	...	35.8	18.3	32.0	22.8	27.7	16.6	8.8	15.8	28.0
Norway	13.2	10.2	13.6	21.7	21.0	13.6	22.5	11.2	13.5	10.9	14.0
Portugal	11.4	2.5	2.6	5.2	3.4	3.0	3.6	6.7	7.5	7.1	5.0
Spain	6.9	16.1	21.0	13.7	15.5	20.7	24.4	15.1	10.3	15.5	20.7
Sweden	10.3	16.9	15.6	19.7	13.3	11.7	10.8	12.3	14.2	15.8	12.4
Switzerland	5.9	18.8	6.7	5.8	5.6	9.4	9.5	11.1	18.0	15.3	13.6
United Kingdom	28.8	32.4	24.7	35.6	32.8	19.0	21.2	14.3	11.9	23.4	29.8
United States	25.0	18.6	23.5	26.6	33.4	33.2	34.9	34.2	40.5	39.1	42.0

... = data not available at cutoff date, – = magnitude equals zero, DAC = Development Assistance Committee, ODA = official development assistance, OECD = Organisation for Economic Co-operation and Development.

a Greece is not an ADB member economy.

Source: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 7 July 2015).

Table 8.2: Target 8.B—Address the special needs of least developed countries

Development Assistance Committee Members	8.3 Proportion of bilateral official development assistance of OECD/DAC donors that is untied[a]											
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Australia	15.8	...	77.4	71.9	91.7	98.4	96.7	90.8	...	100.0	100.0	99.2
Austria	38.8	25.0	59.2	88.6	89.4	86.4	81.6	55.2	67.7	43.5	37.3	44.2
Belgium	...	...	85.7	95.7	90.7	92.0	91.9	95.5	93.2	97.3	96.5	97.7
Canada	38.8	40.8	24.9	66.5	63.0	74.6	90.8	98.3	99.2	90.0	91.6	92.9
Denmark	...	61.3	80.5	94.5	95.3	95.5	98.5	96.6	93.5	97.3	96.3	96.7
Finland	27.4	75.8	89.5	95.1	86.5	90.7	92.3	90.3	84.3	90.5	95.2	77.6
France	47.1	58.4	68.0	94.7	95.6	92.6	81.9	89.5	96.6	95.7	95.9	90.5
Germany	43.6	60.3	93.2	93.0	93.3	93.4	98.2	97.1	96.0	73.4	79.2	80.1
Greece[b]	...	...	23.5	73.6	39.1	42.3	37.9	49.8	62.2	33.0	6.4	2.7
Ireland	...	...	...	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Italy	16.6	59.8	38.2	92.1	77.0	59.8	78.0	56.2	58.5	66.4	82.0	84.5
Japan	77.0	96.3	86.4	89.7	95.6	95.1	96.5	94.8	93.7	76.2	71.0	80.2
Korea, Rep. of	100.0	1.1	0.8	2.6	1.9	24.7	35.8	48.4	35.7	45.7	49.4	55.1
Luxembourg	...	...	96.7	99.1	100.0	100.0	100.0	100.0	99.0	98.9	94.1	97.0
The Netherlands	51.2	78.9	95.3	96.2	100.0	81.1	93.2	80.8	93.2	94.9	98.4	96.7
New Zealand	100.0	...	...	92.3	90.2	87.8	92.7	90.1	89.4	82.6	84.0	88.0
Norway	61.3	77.0	97.7	99.6	99.8	99.9	100.0	100.0	100.0	100.0	100.0	100.0
Portugal	...	98.1	98.2	60.7	61.3	43.2	76.4	28.1	32.9	...	...	99.0
Spain	...	...	47.2	86.6	82.8	89.1	69.1	76.6	76.2	27.4	24.6	30.0
Sweden	78.5	93.9	85.4	98.3	100.0	100.0	99.9	99.9	100.0	87.7	83.4	85.1
Switzerland	63.0	91.3	93.6	98.0	96.3	97.8	97.3	99.2	74.0	67.3	93.0	94.0
United Kingdom	...	86.2	91.5	100.0	100.0	100.0	100.0	100.0	100.0	92.8	93.1	94.6
United States	69.5	27.3	...	...	63.5	68.5	74.7	69.8	69.5	100.0	100.0	100.0

... = data not available at cutoff date, DAC = Development Assistance Committee, OECD = Organisation for Economic Co-operation and Development.

a Data for 1990–2010 exclude technical cooperation and administrative costs. Data for 2011–2013 exclude administrative costs and in-donor refugee costs.
b Greece is not an ADB member economy.

Source: For 1990–2010: OECD (2015), Detailed aid statistics: Tying status of bilateral ODA, OECD International Development Statistics Database. http://dx.doi.org/10.1787/data-00080-en. For 2011–2013: OECD (2015), Creditor Reporting System: Aid activities, OECD International Development Statistics Database. http://dx.doi.org/10.1787/data-00061-en

Table 8.3: Target 8.C—Address the special needs of landlocked developing countries and small island developing states

ADB Regional Members	8.4 ODA received in landlocked developing countries and in small island developing states as a proportion of their gross national incomes											
	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Landlocked Developing Economies												
Afghanistan	...	...	...	45.14	41.71	50.28	47.64	49.72	40.17	38.35	32.64	25.22
Armenia	0.13 (1991)	14.84	10.99	3.38	3.27	3.69	2.49	5.97	3.57	3.74	2.58	2.54
Azerbaijan	0.60 (1993)	3.93	2.79	1.87	1.13	0.81	0.54	0.57	0.32	0.47	0.45	–0.10
Bhutan	16.36	26.79	12.10	11.15	11.36	7.61	7.06	10.27	8.65	8.09	9.11	7.58
Kazakhstan	0.07 (1993)	0.32	1.11	0.44	0.24	0.23	0.29	0.29	0.17	0.13	0.07	0.05
Kyrgyz Republic	0.91 (1992)	17.51	16.67	11.29	11.15	7.32	7.26	6.96	8.47	9.26	7.32	7.76
Lao PDR	17.22	17.46	16.90	11.31	11.15	9.72	9.55	7.39	6.16	5.15	4.66	3.98
Mongolia	0.52	14.66	19.17	8.88	6.08	5.77	4.53	8.46	5.37	4.46	4.84	3.97
Nepal	11.62	9.73	7.00	5.20	5.78	5.78	5.50	6.54	5.08	4.67	3.97	4.48
Tajikistan	0.62 (1992)	5.50	14.99	11.26	8.84	6.11	5.65	8.32	7.85	5.36	5.20	4.53
Turkmenistan	0.97 (1993)	1.23	1.29	0.40	0.41	0.23	0.10	0.21	0.22	0.16	0.12	0.10
Uzbekistan	0.01 (1992)	0.63	1.37	1.19	0.88	0.73	0.63	0.56	0.57	0.43	0.49	0.50
Small Island Developing Economies												
Fiji	3.84	2.30	1.70	2.17	1.87	1.53	1.28	2.44	2.44	2.17	2.86	2.36
Kiribati	41.87	16.78	16.35	17.37	16.87	14.88	13.56	15.05	10.77	27.12	25.03	25.48
Maldives	10.76	15.24	3.22	7.89	2.97	2.88	3.40	1.94	6.08	2.95	3.24	1.17
Marshall Islands	...	25.44	38.88	31.86	29.88	27.02	27.19	30.52	45.57	39.35	35.52	43.01
Micronesia, Fed. States of	29.28 (1993)	33.04	42.39	41.21	41.46	43.13	35.04	41.09	41.04	41.70	33.51	39.50
Palau	0.01 (1992)	145.12	26.15	12.51	19.37	11.38	21.36	18.56	13.83	13.70	6.79	14.82
Papua New Guinea	13.32	8.47	8.33	5.89	5.66	5.18	3.81	5.24	5.52	5.09	4.45	4.48
Samoa	28.94	22.31	11.32	11.22	11.24	8.27	7.58	16.44	26.70	16.91	18.63	17.76
Singapore	-0.01	0.02	...	...	...	...	...	...	...	...	...	...
Solomon Islands	22.02	14.87	15.67	47.77	44.37	51.29	43.64	47.55	66.99	49.14	33.98	30.02
Timor-Leste	...	...	42.03	22.50	16.46	14.48	8.52	8.44	8.85	5.81	5.69	5.58
Tonga	25.54	18.83	9.85	12.08	7.14	10.01	7.26	12.08	18.88	21.71	16.12	16.88
Tuvalu	...	...	...	24.60	40.55	24.37	32.74	36.86	26.18	67.20	42.25	42.53
Vanuatu	30.46	21.02	17.68	10.70	11.70	11.37	15.30	17.58	15.95	12.04	13.58	11.41

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic, ODA = official development assistance.

Source: United Nations. Millennium Development Goals Indicators Database. http://millenniumindicators.un.org/unsd/mdg/Data.aspx (accessed 7 July 2015).







PART III

Regional Trends and Tables

Introduction to the Regional Trends and Tables

The 2015 issue of *Key Indicators for Asia and the Pacific* contains 100 regional tables illustrating economic, social, and environmental developments in the Asia and Pacific region. The regional trends and tables are grouped into eight themes, each of which contains several subtopics. Each theme has a brief analysis of key trends of selected indicators highlighting important recent developments. The analyses are illustrated by charts and figures that compare indicators for the Asian Development Bank (ADB) member economies for the latest year available (e.g., 2014). Often, indicators for the latest year are also compared with the previous year (e.g., 2014 and 2013) or with an earlier year (e.g., 2014 and 2000) in order to identify regional, subregional, and economy-level trends.

The eight themes are: People; Economy and Output; Money, Finance, and Prices; Globalization; Transport and Communications; Energy and Electricity; Environment; and Government and Governance.

People presents demographic indicators—such as the size and growth of the population; birth, death, and fertility rates; and age dependency ratios—together with information on international migration, urbanization, employment and unemployment, and health and education resources. The section also contains statistics on poverty and inequality, including the Gini coefficient, which measures the distribution of income in an economy, and the Human Development Index, which combines a range of economic and social statistics into an index reflecting the overall level of well-being in each economy.

Economy and Output focuses on gross domestic product (GDP) levels and growth; related statistics taken from the national accounts such as gross national income, value added, consumption expenditure, capital formation, exports and imports, and gross domestic saving; and production indicators. This theme compares the relative size of economies both within the region and in the world as a whole using data on GDP in purchasing power parity terms. This section also discusses how economies' GDP shares of agriculture, industry, and services have changed since 2000, and which economies are consuming more and which are investing more in capital for future growth.

Money, Finance, and Prices contains tables on inflation and other monetary and financial statistics. These include data on money supply, interest rates, bank lending, official exchange rates, and stock markets. The discussion for this theme focuses on the impact of low global energy prices on food and nonfood inflation, the depreciation of most regional currencies against the US dollar in 2013–2014, and trends in nonperforming bank loans.

Globalization gives the latest statistics on external trade, balance of payments, international reserves, capital flows, external indebtedness, and tourism. The expansion of intraregional and interregional trade is an important aspect of globalization, as are international movements of labor and capital. This theme discusses trends in merchandise exports and imports; the increasing importance of services exports in some regional economies; remittances from migrant workers, which are significant sources of income for many economies in the region; net official loans and grants; and net private capital flows. A more detailed discussion on the increasing fragmentation of commodity production processes across borders is included in a special chapter on global value chains (Chapter 4).

Transport and Communications covers statistics on road and rail networks, air carrier departures, container port traffic, and motor vehicle injuries and fatalities. This theme also includes statistics on mobile and fixed telephone subscriptions, and broadband internet penetration rates. The discussion covers the upgrading of road networks and expansion of rail networks across the region, increases in both vehicle ownership and road fatalities, and the surge in mobile telephone and broadband internet subscriptions.

Energy and Electricity comprises statistics on energy productivity, supplies and uses of primary energy, and electricity consumption and generation. The discussion focuses on trends in demand for energy, including a growing reliance on coal for generating electricity among the region's top producers, increasing dependence on energy imports among the region's top consumers, gains in energy efficiency in most economies and the persistence of fossil fuel subsidies in some economies, and the rapidly rising rates of electricity generation across the region that are accompanying industrialization and household electrification.

Environment includes indicators related to land use, forest resources, and air and water pollution. The discussion covers greenhouse gas emissions, particularly the contribution of agriculture to such emissions; deforestation; and freshwater resources. Important aspects of this theme are also covered in the earlier analysis of key trends for Millennium Development Goal 7: Ensure environmental stability, which seeks to integrate the principles of sustainable development into economy-level policies and programs, and reverse the depletion of environmental resources. The section on Millennium Development Goal 7 includes data on forests, protected areas, carbon dioxide emissions, and consumption of ozone-depleting substances.

Government and Governance contains statistics on governments' tax revenue; fiscal balances; and expenditure on health and education services, and on social security and welfare. It also includes statistics on the time and cost required to register a new business in each economy, as well as the latest global rankings for Transparency International's Corruption Perceptions Index. The discussion focuses on regional trends in fiscal performance, government spending priorities, and tax revenue; reductions in the time and cost associated with starting a business; and the persistence of corruption.

People

Snapshots

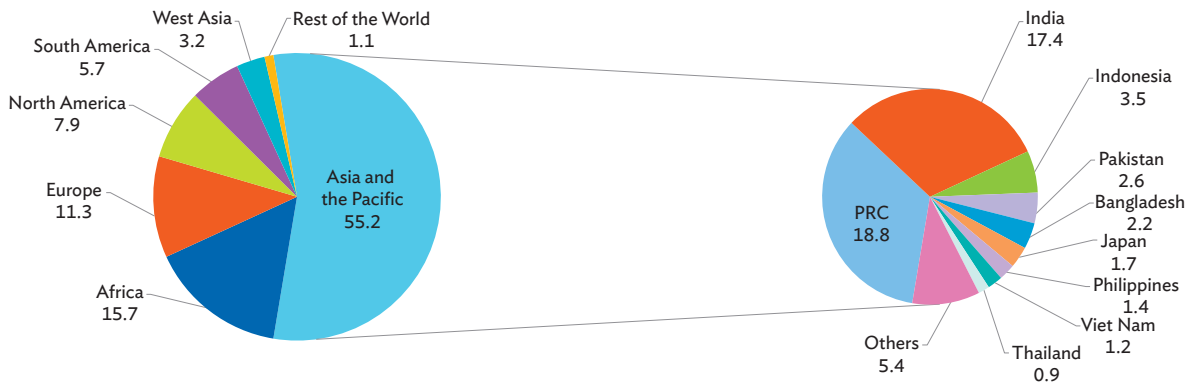
- Asia and the Pacific accounts for nearly 55% of the global population and six of the world's 10 most populous economies. The region's population is forecast to grow to 5.3 billion by 2050.
- Population growth and fertility rates have slowed in most economies.
- India's population is expected to surpass that of the People's Republic of China in the next 7 years.
- The region's population is aging, and this has major implications for economic growth. Many Pacific economies have a high dependency ratio because of a significant proportion of the population that is below the age of 15.
- The rate of urbanization is increasing in most of the region. Asia is home to 12 of the world's 23 biggest cities and eight of the 10 most densely populated cities.
- Based on the United Nations Development Programme's Human Development Index, about half of developing member economies are in the "medium human development" category and all but two have shown improvements in quality of life indicators since 2000.

Key trends

Over half the world's population lives in Asia and the Pacific. The population of the 48 regional members of the Asian Development Bank (ADB) was 3.99 billion in 2014 (Table 1.1), comprising 55% of the global total (Figure 1.1). Of the world's 10 most populous countries, six are in Asia—the People's Republic of China (PRC), India, Indonesia, Pakistan, Bangladesh, and Japan.

The populations of the PRC and India far surpass those of any other country in the world. With 1.37 billion and 1.27 billion people, respectively, they together account for 36% of the world population. Nine other economies in Asia have a population of more than 50 million, while more than half—or 28 economies—have fewer than 10 million people. Nine out of the 14 Pacific economies have a population of fewer than 200,000 (Table 1.1).

Figure 1.1: Percentage Distribution of Population by Global Region, and by Economy in Asia and the Pacific, 2014



PRC = People's Republic of China.
Note: The aggregate for the West Asia region was adjusted to exclude for Armenia, Azerbaijan, and Georgia, which are included in the total for Asia and the Pacific.
Source: Table 1.1.

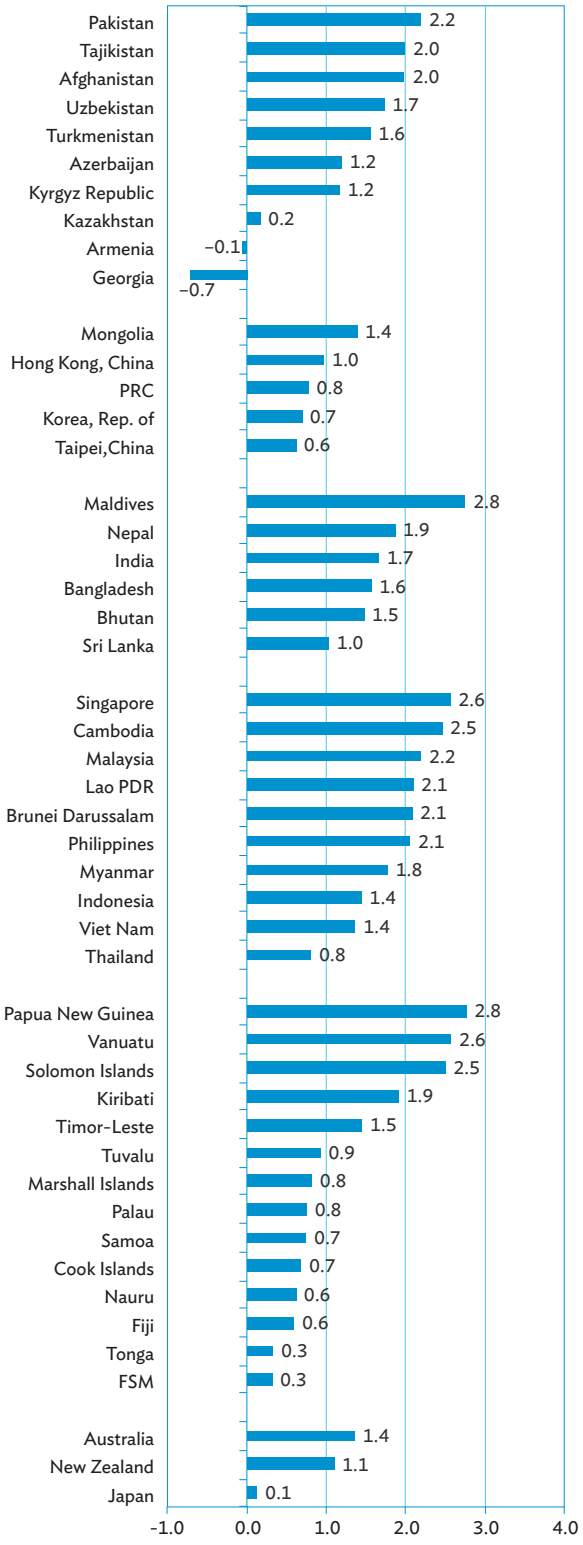
The United Nations forecasts that the population of the region will peak in the middle of the 21st century, reaching 5.3 billion in 2050 before declining to 4.9 billion in 2100. India is expected to become the most populous country in the world by 2022, surpassing the PRC at a time when both will have populations of about 1.4 billion. India's population is likely to continue to grow until it reaches about 1.7 billion in 2050, while the PRC's is expected to remain steady until the 2030s when it will begin to decline.[1]

Population growth rates slowed in more than three-fourths of developing member economies between 1990 and 2014. The average annual population growth rate of developing members declined from 2.6% in 1990 to 1.0% in 2014 (Table 1.1). Among the most populous economies, the PRC's population growth rate fell from 1.4% in 1990 to 0.5% in 2014, and India's rate declined from 2.1% to 1.2%. The average annual population growth rate in 1990–2014 exceeded 2.0% in 11 economies: Brunei Darussalam, Cambodia, Lao People's Democratic Republic, Malaysia, Maldives, Pakistan, Papua New Guinea, Philippines, Singapore (due to immigration), Solomon Islands, and Vanuatu (Figure 1.2).

Total fertility rates have declined significantly in most economies in recent decades. The region's total fertility rate fell from 3.9 children per woman in 1990, or the earliest year in which data are available, to 2.5 in 2013 (Table 1.12). Every economy in Asia and the Pacific experienced a declining fertility rate over this period except Australia (Figure 1.3). In 2013, the total fertility rate was 4.0 or higher in four of the 14 Pacific economies. The only other economy in the region with a fertility rate above 4.0 in 2013 was Afghanistan. The region's lowest fertility rates of less than 1.5 children per woman were in Hong Kong, China (1.1); Taipei,China (1.1); Japan (1.4); the Republic of Korea (1.2); and Singapore (1.2). The PRC's total fertility rate

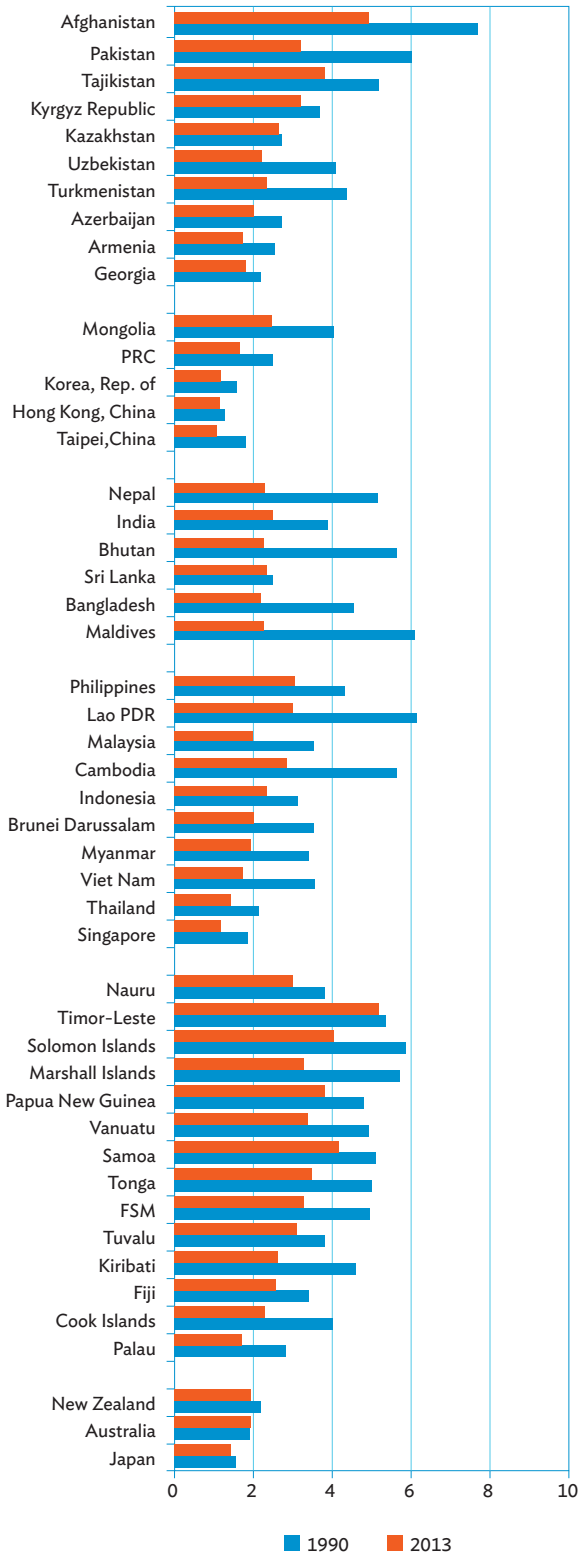
[1] United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Population Prospects: The 2015 Revision*. New York.

Figure 1.2: Average Annual Population Growth Rate, 1990–2014



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.1 .

Figure 1.3: Total Fertility Rate, 1990 and 2013



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.12.

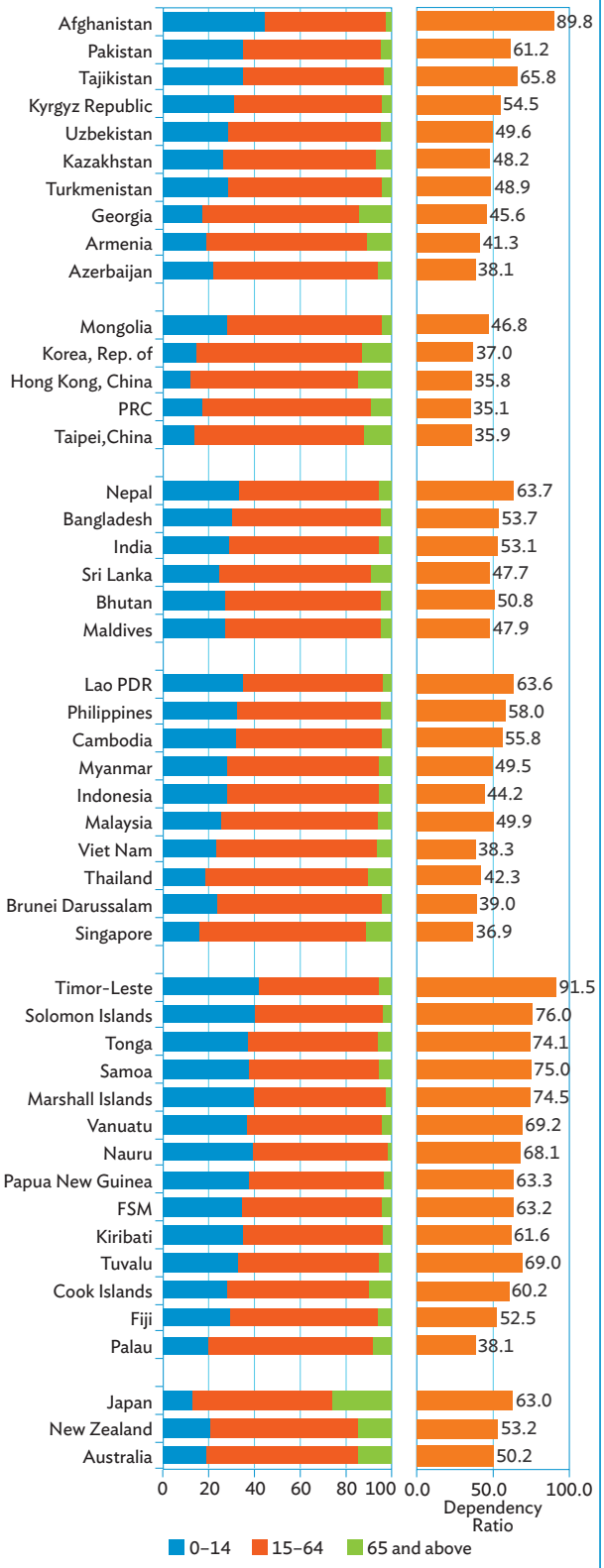
of 1.7 was well below the rates of the other four most populous developing economies: Bangladesh (2.2), Indonesia (2.3), India (2.5), and Pakistan (3.2).

Asia and the Pacific's population is aging, and this has major implications for economic growth. The share of older people in the population is rising, which reflects both a decline in fertility and rising life expectancy. Figure 1.4 shows the age profile and dependency ratio for all economies in Asia and the Pacific. The dependency ratio is an age–population ratio of those age groups typically not in the labor force (14 years and below, and 65 years and above) to those typically in the labor force (15–64 years). Figure 1.5 presents the region's current (2014) and projected (2050) age profiles by gender. As can be seen, a significantly larger proportion of the region's population will comprise persons over the age of 65 in 2050. Prior to that, economies with a relatively young age structure, such as India and Pakistan, should benefit from a rising share of the working-age population in their total population, and therefore enjoy a declining dependency ratio. By contrast, aging will reduce economic growth in economies where it is most advanced, such as in Japan and the Republic of Korea. For the region as a whole, favorable demographic factors are expected to contribute less to growth than in past decades.[2]

Developed member economies have a relatively high proportion of people aged 65 and above, and therefore high dependency ratios. Japan stands out in this regard with 25.7% of the population 65 years and older, while in Australia and New Zealand the proportions are 14.7% and 14.4%, respectively. Among developing member economies, those with proportions higher than 10.0% are Armenia; Georgia; Hong Kong, China; the Republic of Korea; Singapore; Taipei,China; and Thailand. Conversely, economies with the highest percentage of children under the age of 15 are Afghanistan (44.9%), Marshall Islands (40.1%), and Timor-Leste (42.3%). These economies also have high dependency ratios.

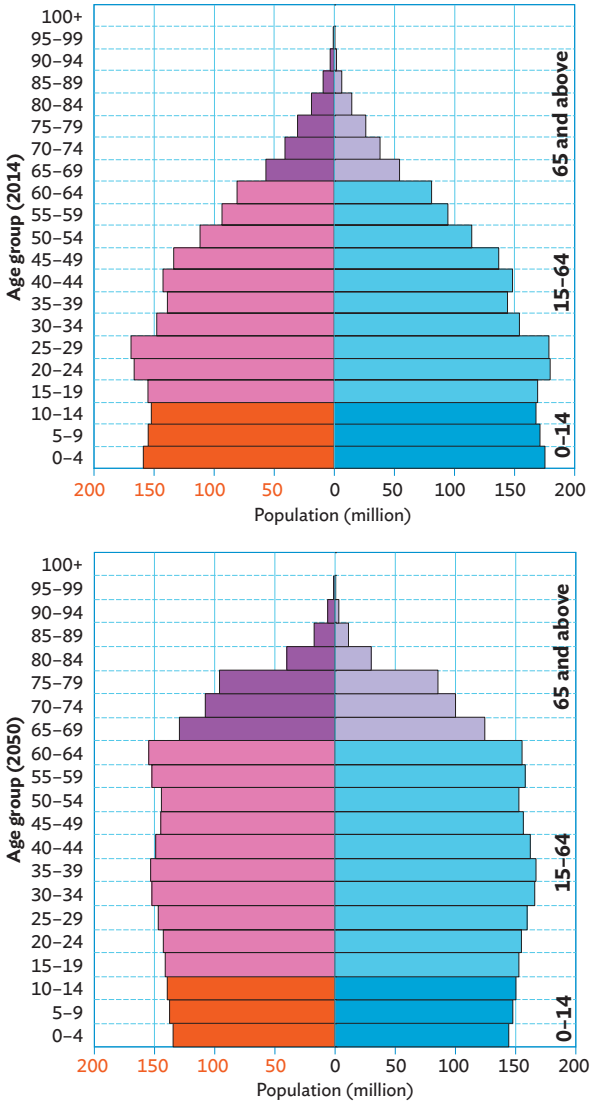
[2] D. Park, S.-H. Lee, and A. Mason. 2012. *Aging, Economic Growth, and Old-Age Security in Asia.* Cheltenham, United Kingdom: Edward Elgar.

Figure 1.4: Population by Age Group and Age Dependency Ratio, 2014



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Sources: Table 1.3 and 1.4.

Figure 1.5: Population Pyramids in Asia and the Pacific, 2014 and 2050



Source: United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Population Prospects: The 2015 Revision.* New York.

The Asia and Pacific region has become more urbanized. Migration from rural to urban is driven largely by greater employment opportunities in cities, as well as improved access to services such as healthcare and education.[3] Today, the majority of the population lives in cities in half of the region's economies. Table 1a shows that Asia is home to

[3] M. Amare, L. Hohfeld, S. Jitsuchon, and H. Waibe. 2012. Rural–Urban Migration and Employment Quality: A Case Study from Thailand. *ADB Economics Working Paper Series No. 209.* Manila: Asian Development Bank.

Table 1a: Largest Urban Agglomerations Ranked by Population—2010, 2015, and 2030

Economy	City	2010		2015		2030	
		Rank	Population (millions)	Rank	Population (millions)	Rank	Population (millions)
Japan	Tokyo	1	36.83	1	38.00	1	37.19
India	Delhi	2	21.94	2	25.70	2	36.06
Mexico	Ciudad de México (Mexico City)	3	20.13	6	21.00	10	23.86
China, People's Rep. of	Shanghai	4	19.98	3	23.74	3	30.75
Brazil	São Paulo	5	19.66	4	21.07	11	23.44
Japan	Kinki M.M.A. (Osaka)	6	19.49	8	20.24	13	19.98
India	Mumbai (Bombay)	7	19.42	5	21.04	4	27.80
United States	New York-Newark	8	18.37	10	18.59	14	19.89
Egypt	Al-Qahirah (Cairo)	9	16.90	9	18.77	8	24.50
China, People's Rep. of	Beijing	10	16.19	7	20.38	5	27.71
Bangladesh	Dhaka	11	14.73	11	17.60	6	27.37
India	Kolkata (Calcutta)	12	14.28	14	14.86	15	19.09
Argentina	Buenos Aires	13	14.25	13	15.18	18	16.96
Pakistan	Karachi	14	14.08	12	16.62	7	24.84
Turkey	Istanbul	15	12.70	15	14.16	20	16.69
Brazil	Rio de Janeiro	16	12.37	19	12.90	23	14.17
United States	Los Angeles-Long Beach-Santa Ana	17	12.16	21	12.31	26	13.26
Philippines	Manila	18	11.89	18	12.95	19	16.76
Russian Federation	Moskva (Moscow)	19	11.46	22	12.17	...	...
China, People's Rep. of	Chongqing	20	11.24	16	13.33	17	17.38
Nigeria	Lagos	21	10.78	17	13.12	9	24.24
France	Paris	22	10.46	25	10.84	...	...
China, People's Rep. of	Shenzhen	23	10.22	26	10.75	29	12.67
Republic of Korea	Seoul	24	9.80	...	...	...	...
United Kingdom	London	25	9.70	28	10.31	...	...
Indonesia	Jakarta	26	9.63	27	10.32	25	13.81
China, People's Rep. of	Guangzhou, Guangdong	27	9.62	20	12.46	16	17.57
China, People's Rep. of	Tianjin	28	9.45	24	11.21	22	14.66
Congo, Dem. of	Kinshasa	29	9.38	23	11.59	12	20.00
Japan	Chukyo M.M.A. (Nagoya)	30	9.16	...	...	...	...
India	Bangalore	...		29	10.09	21	14.76
Peru	Lima	...		30	9.90	30	12.22
India	Chennai (Madras)	...		...	...	24	13.92
Pakistan	Lahore	...		...	...	27	13.03
India	Hyderabad	...		...	...	28	12.77

... = data not available at cutoff date.
Note: Nine economies from Asia are represented, including 17 megacities in 2010, 18 in 2015, and 21 in 2030.
Source: Table 1.2; and United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Urbanization Prospects: The 2015 Revision*. New York.

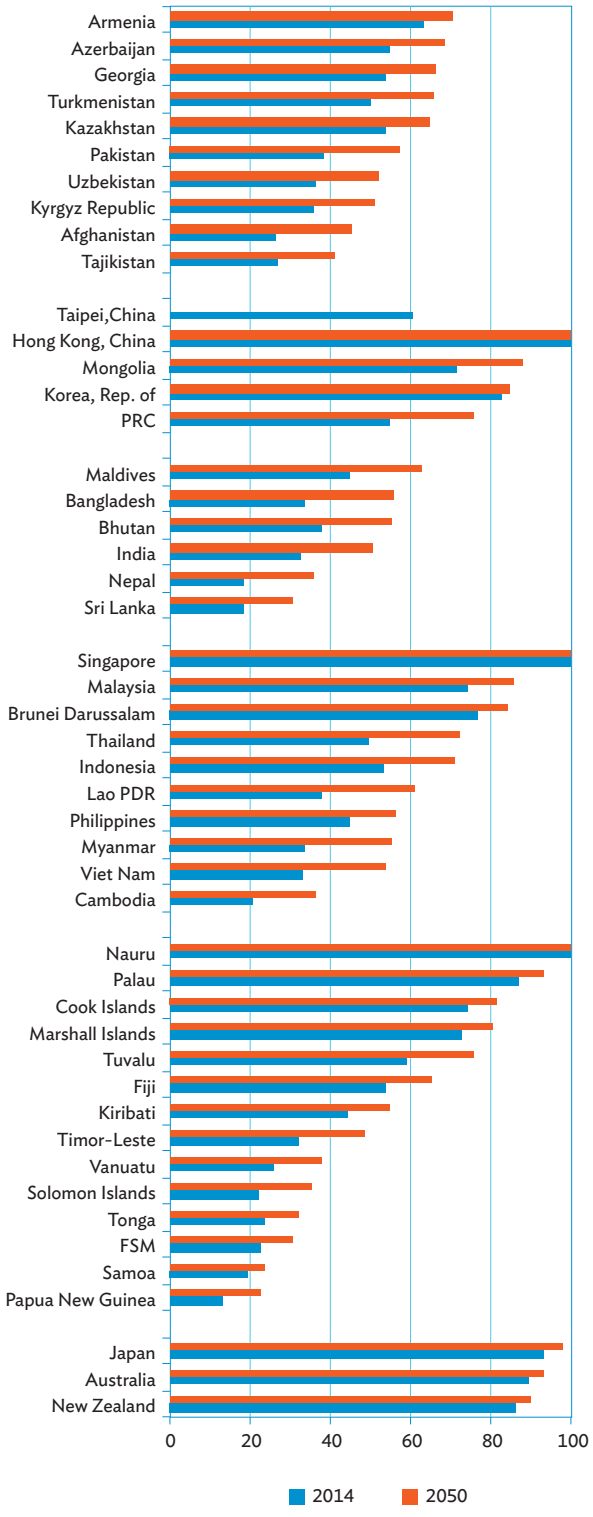
12 of the world's 23 megacities—urban areas with populations exceeding 10 million—and has eight of the world's 10 most densely populated cities as measured by people per square kilometer.[4]

The percentage of the population living in cities is projected to increase in every economy in the region by 2050, with the exception of the three economies that are already fully urbanized: Hong Kong, China; Nauru; and Singapore (Figure 1.6). In the PRC, the urbanization rate is expected to rise by 21 percentage points to 76% by 2050, and in India by 18 percentage points to 50%. On the other hand, some economies are expected to remain predominantly rural in 2050, with at least 60% of the population residing in rural areas, including Cambodia, Nepal, Sri Lanka, and a number of Pacific economies (Federated States of Micronesia, Papua New Guinea, Samoa, Solomon Islands, Tonga, and Vanuatu).

Rising rates of urbanization have been accompanied by rising levels of inequality in about half of the region's economies. Figure 1.7 shows Gini coefficients in 1995 and the most recent year for which data are available. The Gini coefficient measures the extent to which the distribution of

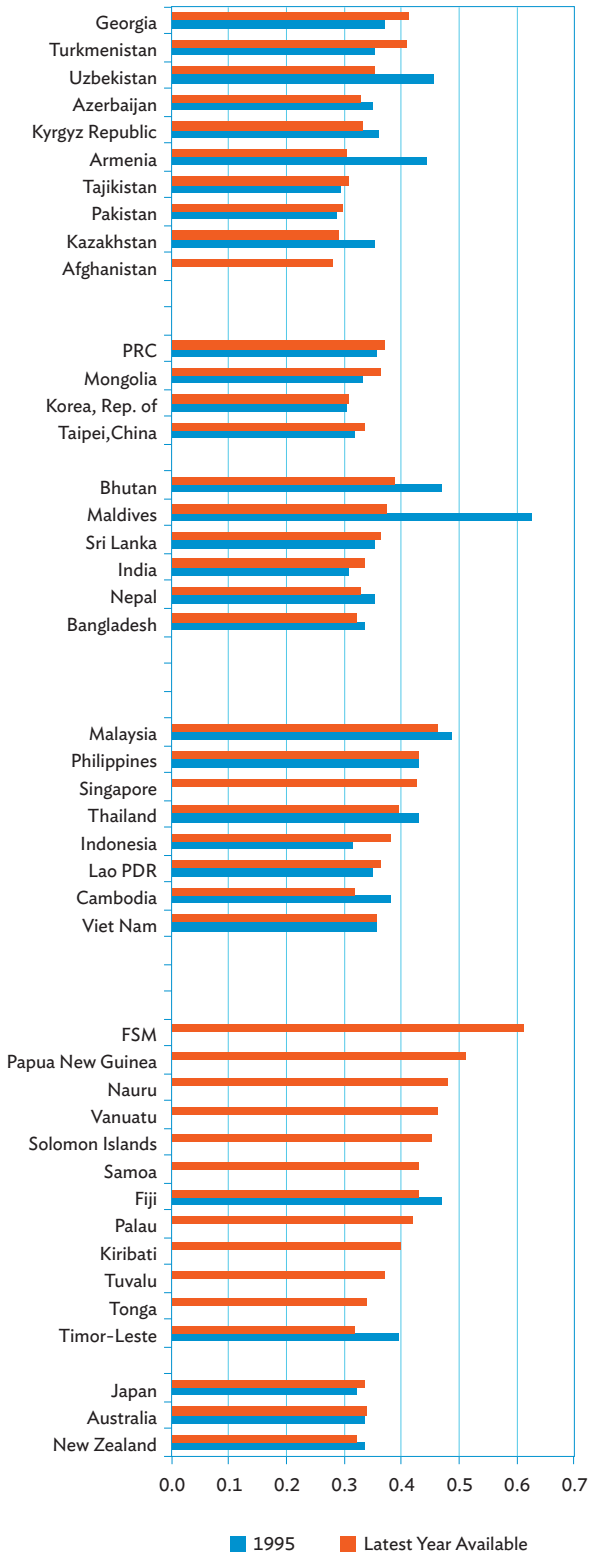
4 Asian Development Bank. 2013. *Asian Development Outlook*. Manila.

Figure 1.6: Urbanization Rate, 2014 and 2050



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Sources: Table 1.2; and United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Urbanization Prospects: The 2015 Revision*. New York.

Figure 1.7: Gini Coefficient, 1995 and Latest Year Available



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 1.9.

income among individuals or households within an economy deviates from a perfectly equal distribution. A Gini coefficient of 0 represents perfect equality in which wealth is shared equally among all members of an economy, while 1.0 implies perfect inequality in which a single member controls the entire wealth of an economy. Between 1995 and the most recent year for which data are available, notable increases in the Gini coefficient, which reflect widening inequality, occurred in Indonesia (from 0.31 to 0.38), Turkmenistan (from 0.35 to 0.41), and Georgia (from 0.37 to 0.41) (Table 1.9). The largest declines in Gini coefficients, which reflect narrowing inequality, were observed in Armenia (from 0.44 to 0.30), the Maldives (from 0.63 to 0.37), and Uzbekistan (from 0.45 to 0.35).

The quality of life in the region's economies, as measured by the Human Development Index (HDI), continues to improve. The HDI is calculated by the United Nations Development Programme for 187 economies worldwide. It covers three important aspects of welfare: life expectancy at birth, the average of mean years of schooling and expected years of schooling, and per capita gross national income. Table 1.b shows the HDI values and global rankings for 43 economies in the region in 2000 and 2013. In 2013, seven of the region's economies were in the top category of "very high human development," while 11 were classified as having "high human development." Fiji, PRC, Thailand, and Tonga were new additions to the latter group.

About half the regional economies were in the category of "medium human development," including India and Indonesia. Bangladesh, the region's fifth most populous economy, was a new addition to the medium group, while the fourth most populous economy, Pakistan, remained in the "low human development" group, along with

Table 1b: Human Development Index in 2013

HDI Global Rank		Economy	HDI 2013	Average annual HDI growth (%)
2000	2013			2000–2013
VERY HIGH HUMAN DEVELOPMENT				
(5)	2	Australia	0.933	0.29
(19)	7	New Zealand	0.910	0.32
(25)	9	Singapore	0.901	0.92
(27)	15	Korea, Rep. of	0.891	0.65
(23)	15	Hong Kong, China	0.891	0.74
(9)	17	Japan	0.890	0.28
(32)	30	Brunei Darussalam	0.852	0.27
HIGH HUMAN DEVELOPMENT				
	60	Palau	0.775	0.34
(59)	62	Malaysia	0.773	0.58
(79)	70	Kazakhstan	0.757	0.84
(89)	73	Sri Lanka	0.750	0.77
(88)	76	Azerbaijan	0.747	1.21
(81)	79	Georgia	0.744	0.02
(76)	87	Armenia	0.730	0.92
(72)	88	Fiji	0.724	0.55
(70)	89	Thailand	0.722	0.83
(96)	91	China, People's Rep. of	0.719	1.52
	100	Tonga	0.705	0.37
MEDIUM HUMAN DEVELOPMENT				
(87)	103	Turkmenistan	0.698	–0.46
(84)	103	Maldives	0.698	1.19
(113)	103	Mongolia	0.698	1.43

HDI Global Rank		Economy	HDI 2013	Average annual HDI growth (%)
2000	2013			2000–2013
MEDIUM HUMAN DEVELOPMENT				
(101)	106	Samoa	0.694	0.45
(110)	108	Indonesia	0.684	0.90
(95)	116	Uzbekistan	0.661	–0.73
(77)	117	Philippines	0.660	0.49
(109)	121	Viet Nam	0.638	0.96
	124	Micronesia, Fed. States of	0.630	...
(102)	125	Kyrgyz Republic	0.628	0.52
	128	Timor-Leste	0.620	2.25
(131)	131	Vanuatu	0.616	0.99
	133	Kiribati	0.607	...
(112)	133	Tajikistan	0.607	1.07
(124)	135	India	0.586	1.49
(130)	136	Cambodia	0.584	1.75
(140)	136	Bhutan	0.584	1.30
(143)	139	Lao PDR	0.569	1.44
(145)	142	Bangladesh	0.558	1.62
LOW HUMAN DEVELOPMENT				
(142)	145	Nepal	0.540	1.42
(138)	146	Pakistan	0.537	1.30
(127)	150	Myanmar	0.524	1.69
(121)	157	Solomon Islands	0.491	0.25
(133)	157	Papua New Guinea	0.491	1.17
	169	Afghanistan	0.468	2.46

... = data not available at cutoff date, HDI = human development index, Lao PDR = Lao People's Democratic Republic.
Note: 2000 HDI ranking in parenthesis for those countries with available data.
Source: Derived from Table 1.10.

five other smaller economies. Between 2000 and 2013, every economy in Asia and the Pacific except Turkmenistan and Uzbekistan showed improvement in its HDI. Timor-Leste, PRC, Afghanistan, and Cambodia had the largest increases in their indexes over this period.

Data Issues and Comparability

Demographic data are either based on vital registration records or on censuses and surveys. In many developing member economies, vital registration records are incomplete and, therefore, cannot be used for statistical purposes. In most economies, population censuses are conducted every 10 years. For this reason, the growth rates are probably more reliable than the levels. The United Nations Department of Economics and Social Affairs' Population Division used future trends on fertility, mortality, and international migration to project population numbers until 2100. The medium-fertility variant used assumes fertility rates above 2.1 children per woman in 2005–2010.

Statistics on urban population are compiled according to each economy's national definition, as there is no agreed international standard for defining an urban area. National estimates are used for urban ratios. If national estimates are not available, data from *World Urbanization Prospects* are used.

Data on numbers of physicians and health resources are compiled by the World Health Organization, while data on pupils, teachers, and education resources are compiled by the United Nations Educational, Scientific and Cultural Organization Institute of Statistics from country sources.

Household surveys are the best source for labor force data, but these surveys are not carried out in all economies. Some rely on census data supplemented by enterprise surveys and unemployment registration records. Unemployment registration records are often incomplete and may refer only to formal employment, while a breakdown by economic activities also may not be available.

The statistics on the number of people living with HIV are estimates based on methods and on parameters developed by the UNAIDS Reference Group Estimates, Modelling and Projections. The estimates are presented together with ranges, called "plausibility bounds," where the wider the bound, the greater the uncertainty surrounding an estimate.

Table 1.1: Midyear Population

Regional Member	Population (million)						Population Growth Rates (%)					
	1990	1995	2000	2005	2010	2014	1990	1995	2000	2005	2010	2014
Developing Member Economies												
Central and West Asia	**190.0**	**212.3**	**231.8**	**251.7**	**279.2**	**300.6**	**4.8**	**3.1**	**1.8**	**1.0**	**2.0**	**1.9**
Afghanistan	17.6	19.2	21.0	23.6	26.0	28.1	1.9	1.6	1.4	1.5	2.0	2.2
Armenia	...	3.3	3.2	3.2	3.3	3.0	...	...	−0.3	0.1	0.4	−0.3
Azerbaijan	7.2	7.7	8.1	8.5	9.1	9.5	1.4	1.2	1.1	1.2	1.2	1.2
Georgia[a]	5.4	4.8	4.4	4.3	4.4	4.5	0.4	−2.8	−0.8	0.1	1.2	0.1
Kazakhstan	16.4	15.8	14.9	15.1	16.3	17.3	−1.6	−2.0	−0.3	0.9	1.4	1.5
Kyrgyz Republic	4.4	4.5	4.9	5.1	5.4	5.8	2.0	0.6	1.4	1.2	0.3	2.0
Pakistan	109.7	124.5	140.0	154.0	173.5	188.0	2.7	2.5	2.3	1.9	2.1	2.0
Tajikistan	5.3	5.7	6.2	6.9	7.6	8.4	3.9	1.1	2.1	2.1	2.2	2.3
Turkmenistan	3.7	4.2	4.5	4.7	5.0	5.3	1.7	2.3	1.2	1.1	1.3	1.3
Uzbekistan	20.4	22.7	24.7	26.2	28.6	30.7	...	1.8	1.4	1.2	2.9	1.5
East Asia	**1,214.5**	**1,286.0**	**1,345.7**	**1,387.8**	**1,423.2**	**1,451.9**	**1.4**	**1.1**	**0.8**	**0.6**	**0.5**	**0.5**
China, People's Rep. of[a]	1,143.3	1,211.2	1,267.4	1,307.6	1,340.9	1,367.8	1.4	1.1	0.8	0.6	0.5	0.5
Hong Kong, China	5.7	6.2	6.7	6.8	7.0	7.2	0.3	2.0	0.9	0.4	0.7	0.7
Korea, Rep. of	42.9	45.1	47.0	48.1	49.4	50.4	1.0	1.0	0.8	0.2	0.5	0.4
Mongolia	2.2	2.2	2.4	2.6	2.7	3.0	2.4	1.4	1.7	1.2	1.8	2.2
Taipei,China	20.4	21.3	22.2	22.7	23.1	23.4	1.2	0.9	0.8	0.4	0.3	0.3
South Asia	**980.7**	**1,082.1**	**1,191.1**	**1,289.7**	**1,382.6**	**1,472.5**	**4.1**	**1.9**	**1.8**	**1.5**	**1.4**	**1.3**
Bangladesh	109.8	120.2	129.3	138.6	148.6	155.8	2.2	1.9	1.4	1.5	1.4	1.4
Bhutan	0.5	0.6	0.6	0.6	0.7	0.7	1.3	1.3	1.3	1.3	1.8	1.7
India	835.0	923.0	1,019.0	1,106.0	1,186.0	1,267.0	2.1	2.1	1.8	1.5	1.4	1.2
Maldives	0.2	0.2	0.3	0.3	0.4	0.4	2.5	2.0	1.5	3.3	2.3	3.6
Nepal	18.1	20.0	22.6	24.5	26.3	27.8	2.1	2.5	2.5	1.4	1.4	1.4
Sri Lanka	17.0	18.1	19.4	19.6	20.7	20.8	1.5	1.1	1.3	0.9	1.0	0.9
Southeast Asia	**396.3**	**433.5**	**467.8**	**500.1**	**588.0**	**618.6**	**1.8**	**1.9**	**1.5**	**1.3**	**2.0**	**1.2**
Brunei Darussalam	0.3	0.3	0.3	0.4	0.4	0.4	2.9	4.0	2.5	1.8	1.8	1.4
Cambodia	8.6	10.5	12.5	13.3	14.3	15.2	3.6	5.2	1.3	1.3	1.5	1.4
Indonesia	179.4	194.8	206.3	219.9	238.5	252.2	2.0	1.7	1.2	1.3	2.7	1.3
Lao PDR	4.1	4.6	5.1	5.6	6.3	6.8	2.1	2.2	2.0	2.0	2.2	1.9
Malaysia	18.1	20.7	23.5	26.0	28.6	30.3	2.5	2.6	2.5	2.1	1.8	1.2
Myanmar	...	...	...	...	49.6	51.5	...	...	...	...	...	0.9
Philippines	60.9	68.4	76.8	84.7	92.3	99.1	2.3	2.3	2.3	1.9	1.7	1.7
Singapore	3.0	3.5	4.0	4.3	5.1	5.5	2.9	3.1	1.7	2.4	1.8	1.3
Thailand	55.8	59.4	62.2	64.1	65.9	67.0	1.1	1.2	1.1	0.6	0.6	0.4
Viet Nam	66.0	71.4	77.1	81.9	86.9	90.7	1.9	1.7	1.4	1.2	1.1	1.1
The Pacific[b]	**6.2**	**7.1**	**8.0**	**9.0**	**10.1**	**11.1**	**5.3**	**2.6**	**3.6**	**2.4**	**2.4**	**2.5**
Cook Islands	17.0	19.4	18.0	21.5	23.7	18.6	3.0	−0.5	9.1	5.9	4.9	0.0
Fiji	737.0	775.0	802.0	827.0	850.7	866.0	...	0.4	0.6	0.7	0.6	0.4
Kiribati	72.3	77.7	84.5	92.5	103.1	112.3	3.5	1.5	1.3	2.4	2.2	2.2
Marshall Islands	44.6	48.0	51.2	51.2	52.9	53.8	1.5	1.5	0.8	1.4	1.2	0.4
Micronesia, Fed. States of	97.6	105.8	107.0	105.6	102.8	103.6	2.0	0.2	0.2	−0.3	−0.5	−0.1
Nauru	9.4	10.0	10.1	9.5	9.7	10.7	2.2	0.1	1.0	−2.2	1.9	1.8
Palau	15.1	17.2	18.9	19.8	18.3	17.7	2.2	2.6	...	0.8	−1.9	1.0
Papua New Guinea	3,690.0	4,426.7	5,190.0	5,920.2	6,796.8	7,590.6	2.2	3.1	3.1	2.8	2.8	2.8
Samoa	160.3	167.3	175.1	178.7	186.4	192.1	0.5	0.9	0.9	0.3	0.8	0.8
Solomon Islands	318.7	366.1	418.6	470.1	528.0	579.3	2.8	2.8	2.3	2.3	2.3	2.3
Timor-Leste	747.0	832.0	779.0	945.4	1,066.6	1,212.0	6.7	1.7	1.2	1.8	2.7	2.7
Tonga	96.0	97.4	99.1	101.2	102.8	103.8	...	0.3	0.4	0.4	0.2	0.2
Tuvalu	9.0	9.2	9.5	10.3	11.1	11.1	2.1	0.5	1.3	3.1	0.5	1.6
Vanuatu	147.3	168.4	191.7	217.8	245.4	271.1	2.7	2.6	2.7	2.6	2.7	2.4
Developed Member Economies	**143.9**	**147.2**	**149.7**	**152.1**	**154.5**	**155.1**	**0.3**	**0.3**	**0.3**	**0.2**	**0.3**	**0.1**
Australia	17.1	18.0	19.0	20.2	22.0	23.5	1.5	1.1	1.2	1.2	1.6	1.6
Japan	123.5	125.5	126.8	127.8	128.1	127.1	0.3	0.2	0.2	0.0	0.0	−0.2
New Zealand	3.3	3.7	3.9	4.1	4.4	4.5	0.9	1.5	0.6	1.1	1.2	2.3
DEVELOPING MEMBER ECONOMIES[c]	**2,787.6**	**3,021.1**	**3,244.3**	**3,438.3**	**3,683.1**	**3,854.7**	**2.6**	**1.6**	**1.3**	**1.1**	**1.2**	**1.0**
REGIONAL MEMBERS[c]	**2,931.5**	**3,168.2**	**3,394.1**	**3,590.3**	**3,837.5**	**4,009.9**	**2.5**	**1.6**	**1.3**	**1.0**	**1.1**	**1.0**
WORLD	**5,309.7**	**5,735.1**	**6,126.6**	**6,519.6**	**6,929.7**	**7,265.8**	**1.7**	**1.4**	**1.3**	**1.2**	**1.2**	**1.2**

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Population figures for Georgia refers to 1 January, and for the People's Republic of China to 31 December.
b Population figures for the Pacific developing member economies are in thousands while the regional total for the Pacific are in millions.
c For reporting economies only.

Sources: Economy sources; United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Population Prospects: The 2015 Revision*. http://esa.un.org/unpd/wpp/DVD/ (accessed August 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Monthly Bulletin of Statistics Online. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed July 2015).

Population

Table 1.2: Migration and Urbanization

Regional Member	Net International Migration Rate[a] (per 1,000 population)					Urban Population (as % of total population)				
	1990–1995	1995–2000	2000–2005	2005–2010	2010–2015	1990	1995	2000	2005	2014
Developing Member Economies										
Central and West Asia										
Afghanistan	30.9	−4.2	7.3	−5.2	3.1	16.7	18.2	20.0	20.3	24.4
Armenia	−29.3	−14.2	−9.5	−9.1	−0.7	...	66.3	64.8	64.1	63.5
Azerbaijan	−2.8	−3.0	0.3	−2.2	−0.3	53.7	52.3	51.1	52.5	53.2
Georgia[a]	−20.7	−15.9	−13.4	−13.3	−14.4	...	...	52.0	52.2	53.7
Kazakhstan	−18.6	−17.2	0.6	−0.4	1.9	...	55.7	56.5	57.1	56.9
Kyrgyz Republic	−12.1	−1.4	−6.9	−2.9	−4.0	37.6	35.6	34.7	34.8	33.6
Pakistan	−2.0	−1.1	−1.2	−1.6	−1.2	30.8(1991)	31.8	33.0	34.0	38.6
Tajikistan	−10.4	−10.9	−3.0	−1.8	−2.9	31.3	27.4	26.6	26.4	26.5
Turkmenistan	2.2	−2.8	−5.0	−2.3	−1.0	45.1	44.8	45.9	47.0	48.7
Uzbekistan	−3.7	−2.5	−3.6	−2.2	−1.4	40.3	38.3	37.2	36.1	50.9
East Asia										
China, People's Rep. of	−0.1	−0.1	−0.3	−0.3	−0.3	26.4	29.0	36.2	43.0	54.8
Hong Kong, China	5.2	17.0	−1.2	1.3	4.2	99.5	100.0	100.0	100.0	100.0
Korea, Rep. of	−2.9	−1.3	1.0	1.7	1.2	73.8	78.2	79.6	81.3	82.4
Mongolia	−7.9	−4.5	−1.2	−1.1	−1.1	54.6	51.6	57.2	60.2	66.4
Taipei,China[b]	...	...	...	...	...	50.6	53.1	55.8	57.7	60.2(2013)
South Asia										
Bangladesh	−1.5	−1.2	−2.5	−4.8	−2.8	...	21.4	23.1	24.2	32.0
Bhutan	−32.9	0.1	11.5	4.9	2.7	...	...	21.0	30.9	38.1
India	−0.1	−0.1	−0.4	−0.5	−0.4	25.6	26.6	27.7	28.8	30.8
Maldives	−2.6	−0.8	−0.1	0.0	0.0	26.0	25.6	27.0	35.0	40.5(2010)
Nepal	0.8	−4.1	−7.5	−7.8	−2.7	8.3	...	14.2(2001)	16.7(2006)	17.0(2011)
Sri Lanka	−2.9	−5.0	−4.7	−5.2	−4.7	17.2	16.6	14.6(2001)	15.1	18.2(2012)
Southeast Asia										
Brunei Darussalam	1.0	1.2	1.3	1.3	1.0	65.8	68.6	71.2	73.5	76.9
Cambodia	8.3	6.1	−0.6	−4.3	−2.0	...	14.8(1998)	16.0	17.7	22.5
Indonesia	−0.4	−0.3	−0.8	−1.0	−0.6	30.9	35.9	42.0	45.9	53.0
Lao PDR	−2.0	−5.1	−6.3	−3.9	−3.6	15.4	17.4	22.0	27.4	37.6
Malaysia	3.1	3.6	4.0	4.8	3.1	51.1(1991)	56.0	62.0	66.5	73.0(2013)
Myanmar	−3.2	−2.3	−5.6	−5.8	−1.8	24.8	26.1	29.1	30.4	30.0
Philippines	−1.5	−2.1	−2.7	−4.1	−1.4	51.9(1993)	48.3	48.0	48.0	49.1(2012)
Singapore	15.3	13.8	20.7	18.8	14.9	100.0	100.0	100.0	100.0	100.0
Thailand	−2.8	2.3	3.4	−2.6	0.3	18.0	18.0	31.1	32.5	44.5(2013)
Viet Nam	−1.1	−0.6	−1.9	−2.0	−0.4	19.5	20.7	24.2	27.1	33.1
The Pacific										
Cook Islands	...	...	...	...	...	58.5(1991)	58.8(1996)	67.6(2001)	70.2(2003)	...
Fiji	−9.5	−10.7	−15.1	−6.8	−6.6	41.6	46.0	47.9	49.9	53.4
Kiribati	−12.3	−7.3	−4.6	−1.2	...	35.1	36.5	43.0	43.6	44.2
Marshall Islands	...	...	...	...	...	65.1	66.7	68.4	69.9	72.4
Micronesia, Fed. States of	−4.4	−25.3	−24.1	−23.1	−15.7	25.8	25.6	22.3	22.3	22.4
Nauru	...	...	...	...	...	100.0	100.0	100.0	100.0	100.0
Palau	...	...	...	...	...	69.4	71.4	69.5	77.4	77.0(2010)
Papua New Guinea	0.0	0.0	0.0	0.0	...	15.0	14.1	13.2	13.1	13.0
Samoa	−16.5	−20.1	−17.7	−16.8	−13.4	21.2	21.5	22.0	21.2	19.3
Solomon Islands	−0.6	−0.4	−2.2	−4.8	...	13.7	14.7	15.8	17.8	21.9
Timor-Leste	−1.0	−36.6	0.0	−20.5	−8.9	...	22.5	24.3	26.1	...
Tonga	−23.2	−18.0	−16.4	−16.0	−15.4	22.7	22.9	23.0	23.2	23.6
Tuvalu	...	...	...	...	...	40.7	44.0	46.0	49.7	58.8
Vanuatu	−0.4	−8.0	−0.5	1.0	...	18.7	20.2	21.7	23.5	24.7(2013)
Developed Member Economies										
Australia	4.0	4.1	5.8	10.7	8.9	85.4	86.1	87.2	88.0	89.2(2013)
Japan	0.7	0.0	1.0	0.7	0.6	77.3	78.0	78.6	86.0	92.5(2013)
New Zealand	6.7	2.3	6.7	2.9	0.3	84.7	85.3	85.7	86.1	85.9

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Refers to annual average.
b For urban population, refers to localities of 100,000 or more inhabitants.

Sources: Economy sources; United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Population Prospects: The 2015 Revision*. http://esa.un.org/unpd/wpp/DVD/ (accessed August 2015); United Nations, Department of Economic and Social Affairs, Population Division. 2014. *World Urbanization Prospects: The 2014 Revision*. http://esa.un.org/unpd/wup/CD-ROM/ (accessed August 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Monthly Bulletin of Statistics Online. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed July 2015).

Table 1.3: Population Aged 0–14 Years and Aged 15–64 Years

(% of total population)

Regional Member	Aged 0–14 Years						Aged 15–64 Years					
	1990	1995	2000	2005	2010	2014[a]	1990	1995	2000	2005	2010	2014[a]
Developing Member Economies												
Central and West Asia												
Afghanistan	48.1	47.8	48.6	47.6	47.6	44.9	49.7	49.9	49.2	50.2	50.1	52.7
Armenia	30.4	29.5	25.9	21.9	20.5	18.7	64.0	62.1	64.1	66.5	68.9	70.8
Azerbaijan	34.2	33.9	31.1	26.0	22.7	22.0	61.6	61.4	63.3	67.6	71.3	72.4
Georgia	24.6	24.1	21.9	18.3	16.9	17.2	66.0	64.6	65.6	67.0	68.8	68.7
Kazakhstan	31.5	29.7	27.6	24.6	24.2	26.1	62.7	63.1	65.5	67.7	69.0	67.1
Kyrgyz Republic	37.6	37.6	35.0	31.1	30.0	31.0	57.4	57.0	59.6	63.3	65.5	64.7
Pakistan	43.0	42.7	41.1	38.2	36.2	35.2	53.1	53.3	54.8	57.6	59.4	60.3
Tajikistan	43.6	44.3	42.9	38.4	35.5	34.9	52.5	51.8	53.6	57.9	61.1	62.0
Turkmenistan	40.5	39.6	36.3	32.7	29.2	28.4	55.7	56.3	59.4	62.7	66.6	67.5
Uzbekistan	40.9	40.2	36.8	32.1	29.1	28.5	55.1	55.4	58.5	62.8	66.2	66.8
East Asia												
China, People's Rep. of	28.8	27.8	25.1	20.1	17.4	17.2	65.8	66.3	68.3	72.4	74.3	73.6
Hong Kong, China	21.5	19.4	17.2	14.1	12.1	11.9	69.8	70.9	71.8	73.7	75.0	73.6
Korea, Rep. of	25.6	23.0	21.0	18.5	16.2	14.3	69.4	71.1	71.7	72.3	72.7	73.0
Mongolia	40.5	38.6	34.8	28.9	27.0	27.9	55.4	57.6	61.5	67.3	69.2	68.1
Taipei,China	27.1	23.8	21.1	18.7	15.6	14.0	66.7	68.6	70.3	71.6	73.6	74.0
South Asia												
Bangladesh	42.3	39.9	37.1	34.5	32.1	30.0	54.5	56.7	59.1	61.3	63.2	65.1
Bhutan	43.6	43.9	40.6	34.1	30.1	27.4	53.5	52.7	55.6	61.8	65.4	67.6
India	37.9	36.6	34.7	32.8	30.9	29.2	58.2	59.3	60.9	62.4	64.0	65.3
Maldives	47.5	46.5	40.7	33.5	28.7	27.6	49.7	50.5	55.6	62.0	66.4	67.7
Nepal	42.5	41.6	41.0	39.8	37.2	33.5	54.0	54.8	55.2	55.8	57.9	61.1
Sri Lanka	32.1	29.5	26.8	25.6	25.4	24.8	62.4	64.4	67.0	67.6	67.2	66.3
Southeast Asia												
Brunei Darussalam	34.5	33.0	30.5	27.7	25.3	23.5	62.8	64.4	67.1	69.3	71.2	72.3
Cambodia	44.3	46.5	41.6	37.1	33.3	31.8	52.8	50.5	55.3	59.5	62.9	64.2
Indonesia	36.4	33.7	30.7	29.9	28.9	28.0	59.8	62.2	64.6	65.3	66.2	66.9
Lao PDR	44.2	44.3	43.3	40.5	37.0	35.1	52.3	52.1	53.1	55.8	59.3	61.1
Malaysia	37.1	35.7	33.3	30.1	27.3	25.0	59.3	60.6	62.8	65.5	67.8	69.4
Myanmar	37.6	34.8	31.9	30.7	29.8	28.1	58.2	60.6	63.3	64.4	65.2	66.7
Philippines	40.9	39.8	38.5	37.1	33.6	32.2	55.9	57.2	58.3	59.5	62.2	63.3
Singapore	21.5	22.3	21.5	19.1	17.3	15.9	72.9	71.4	71.2	72.6	73.6	73.1
Thailand	30.2	27.1	24.0	22.2	19.2	18.0	65.3	67.4	69.5	70.1	71.9	71.9
Viet Nam	37.4	35.6	31.7	27.2	23.7	23.1	56.9	58.5	61.9	66.3	69.8	70.3
The Pacific												
Cook Islands	...	...	34.7	31.4	28.0	28.2	...	...	59.1	61.3	64.0	62.4
Fiji	38.4	36.6	35.0	30.5	29.0	28.8	58.6	60.4	61.5	65.4	66.2	65.6
Kiribati	...	...	40.6	37.0	35.2	35.2	...	...	55.9	59.5	61.3	61.3
Marshall Islands	...	...	42.3	41.3	41.8	40.1	...	...	55.5	56.5	55.9	57.4
Micronesia, Fed. States of	44.1	43.5	40.3	38.8	36.9	34.6	52.3	52.9	56.0	57.2	59.3	61.2
Nauru	...	...	40.1	37.1	35.6	39.2	...	...	58.6	61.2	63.1	59.2
Palau	...	...	23.9	24.1	20.5	19.8	...	...	70.7	70.2	73.7	72.4
Papua New Guinea	42.2	40.8	40.2	39.9	39.0	37.5	55.4	56.8	57.3	57.5	58.3	59.5
Samoa	40.4	40.7	40.7	39.6	38.3	37.5	55.8	55.1	54.8	55.6	56.7	57.3
Solomon Islands	45.5	43.3	41.9	41.3	40.7	39.8	51.8	54.0	55.3	55.7	56.0	56.8
Timor-Leste	39.4	42.6	50.0	48.2	41.3	42.3	58.8	55.4	47.7	49.2	54.5	52.2
Tonga	39.4	39.5	38.3	38.0	37.4	37.0	56.1	55.1	56.0	55.9	56.7	57.1
Tuvalu	...	...	37.1	34.3	32.0	32.7	...	...	57.0	60.1	62.7	61.9
Vanuatu	43.8	42.7	41.5	39.7	38.2	36.8	52.6	53.8	55.2	57.0	57.9	59.1
Developed Member Economies												
Australia	22.0	21.5	20.8	19.8	19.0	18.7	66.9	66.6	66.8	67.3	67.5	66.6
Japan	18.3	16.0	14.6	13.8	13.3	12.9	69.7	69.6	68.2	66.3	63.8	61.4
New Zealand	23.2	23.0	22.7	21.6	20.5	20.3	65.7	65.4	65.5	66.4	66.5	65.3
DEVELOPING MEMBER ECONOMIES[b]	**34.2**	**32.9**	**30.7**	**27.7**	**25.6**	**24.7**	**61.3**	**62.2**	**63.9**	**66.4**	**68.0**	**68.4**
REGIONAL MEMBERS[b]	**33.4**	**32.2**	**30.0**	**27.2**	**25.2**	**24.3**	**61.7**	**62.5**	**64.1**	**66.4**	**67.9**	**68.1**
WORLD	**32.9**	**31.9**	**30.2**	**28.0**	**26.7**	**26.2**	**61.0**	**61.7**	**63.0**	**64.7**	**65.7**	**65.7**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a The United Nations Population Division projected the country's population based on the medium-fertility variant where fertility is above 2.1 children per woman in 2005–2010 censuses.

b For reporting economies only.

Sources: United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Population Prospects: The 2015 Revision*. http://esa.un.org/unpd/wpp/DVD/ (accessed August 2015); Statistics for Development Division. www.spc.int/sdp/index.php (accessed July 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Monthly Bulletin of Statistics Online. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed July 2015).

Population

Table 1.4: Population Aged 65 Years and Over and Age Dependency Ratio

Regional Member	Aged 65 Years and Over (% of total population)						Age Dependency Ratio					
	1990	1995	2000	2005	2010	2014[a]	1990	1995	2000	2005	2010	2014[a]
Developing Member Economies												
Central and West Asia												
Afghanistan	2.2	2.3	2.2	2.2	2.3	2.4	101.1	100.5	103.3	99.1	99.5	89.8
Armenia	5.6	8.4	10.0	11.6	10.5	10.6	56.2	60.9	55.9	50.4	45.1	41.3
Azerbaijan	4.2	4.7	5.6	6.4	5.9	5.6	62.2	62.9	57.9	48.0	40.2	38.1
Georgia	9.3	11.3	12.5	14.6	14.3	14.1	51.4	54.8	52.5	49.1	45.4	45.6
Kazakhstan	5.9	7.2	6.8	7.7	6.8	6.7	59.5	58.5	52.6	47.7	44.9	48.9
Kyrgyz Republic	5.0	5.4	5.5	5.6	4.5	4.2	74.1	75.5	67.9	57.9	52.6	54.5
Pakistan	3.9	4.0	4.1	4.3	4.4	4.5	88.4	87.6	82.5	73.7	68.4	65.8
Tajikistan	3.8	3.8	3.5	3.7	3.3	3.1	90.4	92.9	86.7	72.7	63.5	61.2
Turkmenistan	3.8	4.1	4.3	4.6	4.1	4.1	79.4	77.5	68.4	59.4	50.0	48.2
Uzbekistan	4.0	4.4	4.7	5.1	4.7	4.6	81.5	80.4	70.9	59.2	51.0	49.6
East Asia												
China, People's Rep. of	5.3	5.9	6.7	7.5	8.2	9.2	51.9	50.7	46.4	38.1	34.5	35.8
Hong Kong, China	8.7	9.6	11.0	12.2	12.9	14.5	43.2	40.9	39.3	35.7	33.3	35.9
Korea, Rep. of	5.0	5.9	7.3	9.2	11.1	12.7	44.1	40.6	39.5	38.4	37.6	37.0
Mongolia	4.1	3.8	3.7	3.7	3.8	4.0	80.5	73.7	62.5	48.5	44.4	46.8
Taipei,China	6.2	7.6	8.6	9.7	10.7	12.0	49.9	45.8	42.3	39.7	35.8	35.1
South Asia												
Bangladesh	3.1	3.4	3.8	4.3	4.7	5.0	83.3	76.4	69.2	63.2	58.3	53.7
Bhutan	3.0	3.4	3.8	4.1	4.5	5.0	87.1	89.7	79.9	61.7	52.9	47.9
India	3.8	4.1	4.4	4.8	5.1	5.5	71.7	68.6	64.3	60.2	56.3	53.1
Maldives	2.8	3.0	3.7	4.5	4.9	4.7	101.2	98.1	79.9	61.3	50.6	47.7
Nepal	3.5	3.6	3.8	4.4	5.0	5.4	85.2	82.6	81.1	79.2	72.8	63.7
Sri Lanka	5.5	6.1	6.2	6.9	7.3	8.9	60.2	55.2	49.2	48.0	48.7	50.8
Southeast Asia												
Brunei Darussalam	2.7	2.7	2.4	3.0	3.5	4.2	59.1	55.4	49.1	44.3	40.4	38.3
Cambodia	2.9	3.0	3.1	3.4	3.7	4.0	89.3	98.0	80.8	67.9	58.9	55.8
Indonesia	3.8	4.2	4.7	4.8	4.9	5.1	67.3	60.8	54.8	53.2	51.1	49.5
Lao PDR	3.5	3.5	3.6	3.7	3.7	3.8	91.4	91.8	88.3	79.1	68.5	63.6
Malaysia	3.6	3.7	3.8	4.4	4.9	5.6	68.7	65.1	59.1	52.7	47.4	44.2
Myanmar	4.2	4.6	4.8	4.9	5.0	5.2	72.0	65.0	57.9	55.3	53.4	49.9
Philippines	3.1	3.1	3.2	3.4	4.2	4.5	78.8	75.0	71.6	68.1	60.7	58.0
Singapore	5.6	6.3	7.3	8.2	9.0	11.1	37.1	40.0	40.4	37.7	35.8	36.9
Thailand	4.5	5.5	6.6	7.7	8.9	10.1	53.2	48.4	44.0	42.6	39.1	39.0
Viet Nam	5.7	5.9	6.4	6.6	6.5	6.6	75.8	70.9	61.5	50.9	43.3	42.3
The Pacific												
Cook Islands	...	...	6.2	7.3	8.0	9.4	...	...	69.3	63.1	56.2	60.2
Fiji	2.9	3.0	3.4	4.1	4.8	5.6	70.6	65.5	62.5	53.0	51.1	52.5
Kiribati	...	...	3.6	3.5	3.5	3.5	...	...	79.0	68.0	63.1	63.2
Marshall Islands	...	...	2.1	2.2	2.3	2.5	...	...	80.0	76.9	78.8	74.1
Micronesia, Fed. States of	3.6	3.5	3.7	4.0	3.8	4.2	91.2	88.9	78.7	74.8	68.8	63.3
Nauru	...	...	1.3	1.7	1.3	1.6	...	...	70.7	63.4	58.5	69.0
Palau	...	...	5.4	5.7	5.8	7.8	...	...	41.4	42.5	35.7	38.1
Papua New Guinea	2.3	2.4	2.5	2.6	2.8	3.0	80.4	76.0	74.5	73.9	71.6	68.1
Samoa	3.9	4.2	4.5	4.8	5.1	5.2	79.3	81.4	82.5	79.9	76.4	74.5
Solomon Islands	2.8	2.7	2.8	3.0	3.3	3.4	93.2	85.1	81.0	79.5	78.6	76.0
Timor-Leste	1.7	2.0	2.3	2.6	4.3	5.5	70.0	80.4	109.6	103.4	83.6	91.5
Tonga	4.5	5.4	5.7	6.0	5.9	5.9	78.2	81.4	78.7	78.8	76.3	75.0
Tuvalu	...	...	5.9	5.6	5.3	5.4	...	...	75.4	66.5	59.5	61.6
Vanuatu	3.6	3.5	3.3	3.3	3.9	4.1	90.2	85.9	81.2	75.4	72.9	69.2
Developed Member Economies												
Australia	11.1	11.9	12.4	12.9	13.5	14.7	49.5	50.2	49.7	48.6	48.2	50.2
Japan	11.9	14.4	17.2	19.8	22.9	25.7	43.4	43.8	46.6	50.7	56.8	63.0
New Zealand	11.1	11.5	11.8	12.0	13.0	14.4	52.3	52.8	52.7	50.6	50.4	53.2
DEVELOPING MEMBER ECONOMIES[b]	**4.5**	**4.9**	**5.4**	**5.9**	**6.4**	**6.9**	**63.1**	**60.8**	**56.5**	**50.6**	**47.0**	**46.2**
REGIONAL MEMBERS[b]	**4.9**	**5.3**	**5.9**	**6.4**	**7.0**	**7.6**	**62.1**	**60.0**	**56.1**	**50.6**	**47.4**	**46.7**
WORLD	**6.1**	**6.5**	**6.8**	**7.3**	**7.6**	**8.1**	**63.9**	**62.1**	**58.7**	**54.6**	**52.3**	**52.2**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a The United Nations Population Division projected the country's population based on the medium-fertility variant where fertility is above 2.1 children per woman in 2005–2010 censuses.

b For reporting economies only.

Sources: United Nations, Department of Economic and Social Affairs, Population Division. 2015. *World Population Prospects: The 2015 Revision*. http://esa.un.org/unpd/wpp/DVD/ (accessed August 2015); Statistics for Development Division. www.spc.int/sdp/index.php (accessed July 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Monthly Bulletin of Statistics Online. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed July 2015).

Table 1.5: Labor Force Participation Rate

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Developing Member Economies												
Central and West Asia												
Afghanistan	49.2	48.5	47.6	47.8	47.9	47.9	48.0	48.0	48.1	48.0	47.9	47.9
Armenia	68.1	66.1	64.6	60.4	59.6	59.0	58.5	59.2	61.6	63.1	63.0	63.4
Azerbaijan	62.0	63.7	64.1	64.2	64.2	64.1	64.2	64.8	64.5	65.0	65.6	66.1
Georgia	64.1	66.4	63.6	63.6	63.5	63.4	63.5	63.8	64.0	64.3	64.7	65.0
Kazakhstan	69.8	69.4	70.1	69.6	69.9	70.4	70.8	71.2	71.5	71.9	72.2	72.5
Kyrgyz Republic	66.0	65.7	64.9	64.7	65.6	65.8	65.9	66.1	66.4	66.7	67.1	67.5
Pakistan	50.6	49.2	51.0	52.6	53.6	53.2	53.1	53.6	54.0	54.1	54.2	54.4
Tajikistan	66.7	66.9	66.5	66.2	66.3	66.6	66.8	67.0	67.3	67.5	67.7	67.9
Turkmenistan	60.2	60.1	60.5	60.5	60.5	60.5	60.5	60.5	60.6	60.9	61.2	61.5
Uzbekistan	59.4	58.9	59.6	59.8	60.0	60.2	60.4	60.6	60.8	61.1	61.4	61.6
East Asia												
China, People's Rep. of	78.9	78.6	77.1	73.2	72.6	72.1	71.6	71.2	70.7	71.0	71.1	71.3
Hong Kong, China	63.6	62.0	60.7	60.9	60.9	60.9	60.6	60.5	59.5	59.3	59.1	58.9
Korea, Rep. of	60.1	61.7	61.0	61.5	61.4	61.4	60.9	60.2	60.3	60.5	60.8	61.0
Mongolia	57.4	60.0	60.7	60.3	60.4	60.6	59.0	61.4	61.3	61.8	62.3	62.9
Taipei,China	59.2	58.7	57.7	57.8	57.9	58.3	58.3	57.9	58.1	58.2	58.4	58.4
South Asia												
Bangladesh	75.8	73.5	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.8	70.8	70.8
Bhutan	64.5	63.7	66.7	71.2	71.4	71.4	71.3	71.1	71.5	71.8	72.2	72.5
India[a]	60.9	60.5	59.1	60.8	59.7	58.6	57.5	56.5	55.4	54.8	54.1	54.2
Maldives	49.9	51.4	54.7	62.4	64.2	64.5	64.9	65.3	65.7	66.1	66.5	66.8
Nepal	85.1	85.5	85.9	84.6	84.3	84.0	83.7	83.6	83.5	83.4	83.4	83.3
Sri Lanka	57.4	55.6	56.9	55.0	58.0	56.4	56.2	55.9	55.0	55.0	55.0	55.0
Southeast Asia												
Brunei Darussalam	65.2	66.3	67.7	66.5	66.2	65.9	65.5	65.2	64.9	64.6	64.3	64.0
Cambodia	80.1	80.3	78.5	80.7	81.3	81.9	82.4	82.4	82.5	82.5	82.5	82.5
Indonesia	65.5	67.0	67.4	67.7	67.7	67.7	67.7	67.9	67.8	67.8	67.8	67.7
Lao PDR	81.4	81.0	79.9	78.5	78.3	78.0	77.8	77.7	77.5	77.6	77.6	77.7
Malaysia	61.6	61.7	62.8	60.8	60.4	60.0	59.6	59.3	59.1	59.2	59.3	59.4
Myanmar	75.6	76.1	76.7	77.7	77.9	78.1	78.2	78.4	78.5	78.5	78.6	78.6
Philippines	65.4	66.6	65.2	64.8	63.9	63.3	63.8	64.1	64.7	65.2	65.2	65.2
Singapore[b]	63.2	61.9	63.2	63.0	65.0	65.0	65.6	65.4	66.2	66.1	66.6	66.7
Thailand	81.5	74.0	72.8	73.4	72.7	73.5	73.4	72.8	72.4	72.4	72.4	72.3
Viet Nam	79.2	78.5	77.8	77.1	76.9	76.7	76.6	76.6	76.7	76.9	77.2	77.5
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	71.0	...	...
Fiji	56.5	58.9	57.4	56.2	55.7	55.2	55.0	55.0	55.0	55.0	55.0	55.0
Kiribati	...	...	...	63.6	...	...	...	...	59.3	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	30.9	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	59.2	...	...	...
Nauru	...	...	...	...	75.8	...	...	...	...	63.0	...	...
Palau	...	...	...	69.1	...	...	...	...	...	...	...	...
Papua New Guinea	72.4	70.7	72.2	72.9	72.9	72.8	72.6	72.6	72.4	72.3	72.3	72.3
Samoa	58.9	57.2	65.2	49.4	48.2	46.9	45.6	44.2	42.8	41.3	41.4	41.5
Solomon Islands	65.2	65.3	66.1	66.5	66.5	66.5	66.5	66.4	66.4	66.4	66.3	66.3
Timor-Leste	61.2	60.1	56.3	49.3	47.1	44.9	42.7	40.6	38.6	38.3	38.1	37.9
Tonga	55.7	60.5	61.3	64.0	64.2	64.3	64.3	64.2	64.2	64.1	64.0	63.9
Tuvalu	...	...	...	...	...	...	...	...	...	...	59.4	...
Vanuatu	83.5	80.5	77.0	73.6	72.9	72.3	71.6	71.0	71.0	70.9	70.9	70.8
Developed Member Economies												
Australia	63.9	63.8	63.4	64.5	64.9	65.4	65.7	65.6	65.6	65.6	65.3	65.2
Japan	63.2	63.5	62.4	60.5	60.4	60.5	60.3	60.0	60.1	59.1	58.9	59.2
New Zealand	63.7	64.3	64.8	67.3	67.9	68.1	68.1	67.9	67.7	68.0	67.8	67.8

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Figures are computed using data on total labor force and total population.
b Refers to Singapore residents only.

Sources: Economy sources; International Labour Organization. *Key Indicators of the Labour Market Online. 8th Edition*. http://www.ilo.org/kilm (accessed July 2015); and for Kiribati, Nauru, and Tuvalu: The Secretariat of the Pacific Community. National Minimum Development Indicator Database. http://www.spc.int/nmdi/ (accessed July 2015).

Labor Force and Employment

Table 1.6: Unemployment Rate

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	3.4	...	...	...	...	...	...	...	...	...	...	...	...
Armenia[a]	...	6.7	11.7	8.2	7.5	7.0	16.4	18.7	19.0	18.4	17.3	16.2	10.8
Azerbaijan[b]	–	0.8	11.8	7.3	6.6	6.3	5.9	5.7	5.6	5.4	5.2	5.0	...
Georgia	...	...	10.3	13.8	13.6	13.3	16.5	16.9	16.3	15.1	15.0	14.6	12.4
Kazakhstan	...	11.0	12.8	8.1	7.8	7.3	6.6	6.6	5.8	5.4	5.3	5.2	5.0
Kyrgyz Republic	...	5.7	7.5	8.1	8.3	8.1	8.2	8.4	8.6	8.5	8.4	8.3	8.0
Pakistan	3.1	5.3	7.8	7.7	6.1	5.2	5.3	5.4	5.6	5.9	5.9	6.2	6.0
Tajikistan[c]	–	2.0	2.7	1.9	2.2	2.3	2.2	2.0	2.1	2.3	2.4	2.3	2.4
Turkmenistan	2.4	...	2.4	...	...	...	...	...	...	...	...	...	...
Uzbekistan[c]	...	0.3	0.4	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	...	...
East Asia													
China, People's Rep. of[d]	2.5	2.9	3.1	4.2	4.1	4.0	4.2	4.3	4.1	4.1	4.1	4.1	4.1
Hong Kong, China	1.3	3.2	4.9	5.6	4.8	4.0	3.5	5.3	4.3	3.4	3.3	3.4	3.3
Korea, Rep. of	2.4	2.1	4.1	3.7	3.5	3.2	3.2	3.6	3.7	3.4	3.2	3.1	3.5
Mongolia[e]	5.5	5.5	4.6	3.3	3.2	2.8	2.8	11.6	9.9	7.7	8.2	7.9	7.9
Taipei,China	1.7	1.8	3.0	4.1	3.9	3.9	4.1	5.9	5.2	4.4	4.2	4.2	...
South Asia													
Bangladesh	...	...	4.3	...	4.2	...	...	...	4.5	...	...	4.3	...
Bhutan	...	...	...	3.1	3.1	3.7	...	4.0	3.3	3.1	2.1	2.9	...
India	...	...	2.7	3.1	...	...	...	2.5	...	2.8	...	...	...
Maldives	0.9	0.8	2.0	...	14.4	...	...	...	11.7	...	...	...	...
Nepal[f]	...	4.5	1.8	...	...	...	2.7	...	...	...	...	...	...
Sri Lanka	15.9	12.3	7.6	7.4	6.5	6.0	5.2	5.7	4.9	4.2	4.0	4.4	4.3
Southeast Asia													
Brunei Darussalam	...	4.9	4.7	4.3	4.0	3.4	3.7	3.5	2.9	1.9	1.1	...	...
Cambodia	...	2.5	2.5	...	...	...	0.4	0.1	0.4	0.2	0.2	0.3	0.2
Indonesia	2.5	7.2	6.1	11.2	10.3	9.1	8.4	7.9	7.1	6.6	6.1	5.9	...
Lao PDR	...	3.6	...	1.4	...	...	...	...	1.9	...	...	...	...
Malaysia	5.1	3.1	3.0	3.5	3.3	3.2	3.3	3.7	3.3	3.1	3.0	3.1	...
Myanmar	4.2	4.2	...	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	...	...
Philippines	8.4	9.5	11.2	7.9	8.0	7.3	7.4	7.5	7.3	7.0	7.0	7.1	...
Singapore	1.7	2.7	4.4	4.2	3.4	2.9	2.8	4.1	2.8	2.7	2.6	2.6	2.6
Thailand	2.2	1.7	3.6	1.8	1.5	1.4	1.4	1.5	1.0	0.7	0.7	0.7	...
Viet Nam	...	...	2.3	2.5	4.9	4.1	3.6	2.8	2.7	2.0	1.8	1.7	1.9
The Pacific													
Cook Islands	...	...	...	...	8.9	...	...	...	...	8.2	...	...	8.9
Fiji	6.4	5.4	8.4	7.7	8.3	8.6	8.6	8.7	8.4	8.4	8.5	8.1	...
Kiribati	2.8	0.2	1.6	6.1	...	...	...	...	30.6	...	...	...	...
Marshall Islands	...	...	30.9	30.9	30.9	30.9	30.9	...	...	3.2	...	...	...
Micronesia, Fed. States of	13.5	...	22.0	...	...	...	...	...	16.2	...	...	...	...
Nauru	...	...	...	...	36.3	...	...	...	...	...	...	...	...
Palau	7.8	7.0	2.3	4.2	...	...	...	...	...	...	4.1	...	...
Papua New Guinea	7.7	...	...	...	...	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	1.3	...	...	...	...	5.7	8.7	...	...
Solomon Islands[g]	...	...	12.0	...	...	...	...	2.0	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	3.6	...	...	...	...
Tonga	4.1	...	...	...	1.1	...	...	...	...	1.1	...	...	...
Tuvalu	...	...	...	6.5	...	...	...	...	...	...	39.6	...	...
Vanuatu	...	...	...	...	...	...	...	4.6	...	...	...	...	...
Developed Member Economies													
Australia	6.9	8.5	6.3	5.0	4.8	4.4	4.2	5.6	5.2	5.1	5.2	5.7	6.1
Japan	2.1	3.2	4.7	4.4	4.1	3.9	4.0	5.1	5.1	4.6	4.3	4.0	3.6
New Zealand	8.0	6.5	6.1	3.8	3.9	3.7	4.2	6.1	6.5	6.5	6.9	6.2	5.8

... = data not available at cutoff date, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic.

a Before 2009, data were based on administrative sources. From 2009, estimates were derived from Annual Household Labour Force Survey within the framework of the Households Integrated Living Condition Survey.
b Based on the International Labour Organization's methodology starting 2000.
c Based on officially registered unemployed only.
d Refers to urban areas only.
e From 2008, data were based on results of the Labour Force Survey. Unemployment data prior to 2008 were taken from administrative data on the number of registered unemployed people.
f Data for 1995 and 2000 refer to 1996 and 1999 figures, respectively.
g Data for 2000 refers to 1999 figures.

Sources: Economy sources; International Labour Organization. *Key Indicators of the Labour Market Online. 8th Edition*. http://www.ilo.org/kilm (accessed July 2015); and for Nauru, Papua New Guinea and Solomon Islands: The Secretariat of the Pacific Community. National Minimum Development Indicator Database. http://www.spc.int/nmdi/ (accessed July 2015).

Table 1.7: Unemployment Rate Among 15–24-Year-Olds

(%)

Regional Member	Total		Female		Male	
	1995	2013	1995	2013	1995	2013
Developing Member Economies						
Central and West Asia						
Afghanistan	7.9	17.5	12.8	22.8	7.0	16.4
Armenia	47.8	33.1	59.0	39.1	39.2	29.6
Azerbaijan	14.9	14.8	14.2	15.8	15.6	13.3
Georgia	29.1	31.0	31.3	34.8	27.5	28.8
Kazakhstan	12.6	4.5	15.3	5.1	10.3	3.9
Kyrgyz Republic	15.5	15.6	17.2	18.2	14.1	13.9
Pakistan	8.9	8.5	18.0	11.9	7.6	7.5
Tajikistan	16.9	15.6	13.0	12.4	19.7	17.7
Turkmenistan	19.9	20.2	21.3	21.6	19.1	19.3
Uzbekistan	20.0	20.3	21.4	22.0	19.1	19.3
East Asia						
China, People's Rep. of	8.9	10.1	7.3	8.1	10.4	11.7
Hong Kong, China	6.8	9.1	5.9	7.6	7.7	10.6
Korea, Rep. of	6.2	9.2	5.1	8.9	7.5	9.5
Mongolia	14.2	9.2	13.7	9.7	14.7	8.8
Taipei,China	4.1	12.8	4.0	12.5	4.1	13.1
South Asia						
Bangladesh	7.4	9.2	6.4	9.5	8.1	9.0
Bhutan	7.3	6.7	8.5	6.8	6.5	6.5
India	8.9	10.5	8.9	11.3	9.0	10.3
Maldives	22.9	26.5	35.1	36.4	17.7	18.7
Nepal	4.0	4.6	2.8	3.3	5.1	5.9
Sri Lanka	34.6	17.6	45.2	24.0	27.8	14.1
Southeast Asia						
Brunei Darussalam	10.9	11.7	11.9	12.8	10.3	10.8
Cambodia	3.9	0.7	4.1	0.8	3.5	0.7
Indonesia	12.7	21.6	13.8	22.1	11.9	21.2
Lao PDR	5.8	3.4	4.5	2.6	7.4	4.3
Malaysia	8.9	11.1	9.6	11.8	8.5	10.5
Myanmar	9.6	9.9	10.5	10.9	8.6	8.9
Philippines	15.9	16.7	18.8	18.6	14.1	15.4
Singapore	6.9	10.3	7.3	11.3	6.5	9.4
Thailand	2.5	3.1	2.5	3.3	2.5	2.9
Viet Nam	3.8	5.4	3.7	6.2	3.9	4.8
The Pacific						
Cook Islands	19.9 (2006)	18.3 (2011)	19.4 (2006)	15.6 (2011)	20.1 (2006)	15.3 (2011)
Fiji	11.8	19.2	15.7	25.1	9.9	15.6
Kiribati	3.6 (1990)	54.0 (2011)	2.5 (1990)	61.8 (2011)	4.7 (1990)	47.6 (2011)
Marshall Islands	62.6 (1999)	50.0 (2011)	67.0 (1999)	50.0 (2011)	59.8 (1999)	50.0 (2011)
Micronesia, Fed. States of	32.7 (1994)	11.3 (2010)	...	10.4 (2010)	24.7 (1994)	12.2 (2010)
Nauru	58.2 (2006)	45.5 (2011)	65.9 (2006)	54.4 (2011)	51.7 (2006)	54.4 (2011)
Palau	17.4 (1990)	...	6.0 (2000)	10.5 (2006)	5.0 (2000)	12.8 (2006)
Papua New Guinea	6.0	4.7	6.8	5.4	5.3	3.9
Samoa	4.0 (2006)	16.0 (2011)	6.1 (2006)	22.0 (2011)	3.0 (2006)	22.0 (2011)
Solomon Islands	9.2	9.7	10.4	10.9	8.4	8.9
Timor-Leste	15.4	13.3	19.9	18.7	12.7	10.1
Tonga	2.3	3.2 (2011)	2.6 (2006)	4.1 (2011)	2.2 (2006)	2.7 (2011)
Tuvalu	31.2 (2002)	63.7 (2012)	43.3 (2002)	...	22.5 (2002)	...
Vanuatu	3.1 (2000)	8.9 (2009)	2.1 (2000)	9.2 (2009)	4.0 (2000)	8.6 (2009)
Developed Member Economies						
Australia[a]	15.4	12.2	14.8	11.3	15.9	13.0
Japan[b]	6.2	6.8	6.2	5.9	6.2	7.6
New Zealand[c]	12.3	15.8	12.3	16.3	12.4	15.4

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Excludes Jervis Bay Territory beginning 1993.
b Data are averages of monthly estimates.
c Excludes Chathams, Antarctic Territory, and other minor offshore islands. Data are averages of quarterly estimates.

Sources: International Labour Organization. *Key Indicators of the Labour Market. 8th Edition*. http://www.ilo.org/kilm (accessed July 2015); The Secretariat of the Pacific Community. 2004. The Pacific Islands Regional Millenium Development Goals Report (accessed July 2015); and the National Minimum Development Indicator Database. Secretariat of the Pacific Community. http://www.spc.int/nmdi/ (accessed July 2015).

Table 1.8: Employment in Agriculture, Industry, and Services

(% of total employment)

Regional Member	Agriculture				Industry				Services			
	1990	2000	2010	2013	1990	2000	2010	2013	1990	2000	2010	2013
Developing Member Economies												
Central and West Asia												
Afghanistan	69.6	...	...	...	15.3	...	...	...	15.1	...	...	...
Armenia	...	44.4	38.6	36.3	...	14.1	17.4	17.0	...	41.6	44.0	46.7
Azerbaijan	30.9	39.1	38.2	37.1	12.7	5.9	5.8	5.9	56.4	54.9	56.0	57.0
Georgia	...	52.1	52.2	51.7	...	9.8	6.5	6.7	...	38.0	41.3	41.5
Kazakhstan	18.8	31.5	28.3	24.2	21.0	13.9	18.7	19.8	60.2	54.7	53.0	56.0
Kyrgyz Republic[a]	32.7	53.1	31.2	31.7	27.9	10.5	21.1	20.2	39.4	36.5	47.7	48.1
Pakistan	51.1	48.4	45.1	43.7	13.0	11.6	13.4	14.1	36.0	40.0	41.5	42.2
Tajikistan[b]	43.0	64.9	65.9	66.3	20.1	6.9	4.2	4.1	37.0	28.1	29.9	29.5
Turkmenistan	41.8	47.6	...	...	10.8	13.0	...	...	47.4	39.4	...	...
Uzbekistan[c]	39.3	34.4	26.8	27.2	15.1	12.7	13.2	13.0	45.6	52.8	59.9	59.8
East Asia												
China, People's Rep. of	60.1	50.0	36.7	29.5	13.3	22.5	28.7	29.9	26.6	27.5	34.6	40.6
Hong Kong, China	0.7	0.7	0.0	0.0	27.7	27.7	3.7	3.5	71.5	71.6	96.1	96.5
Korea, Rep. of	17.9	10.6	6.6	6.1	27.6	20.4	17.0	16.8	54.5	69.0	76.4	77.2
Mongolia	33.0	48.6	33.5	29.8	16.8	11.2	16.2	20.4	50.2	40.1	50.2	49.8
Taipei,China	12.8	7.8	5.2	5.0	32.3	28.1	27.3	27.3	54.9	64.1	67.5	67.8
South Asia												
Bangladesh[d]	...	50.8	...	77.6	...	10.0	...	...	...	39.2	...	...
Bhutan	...	...	59.4	56.3	...	...	6.6	11.0	...	...	34.0	32.7
India[e]	...	59.9	51.1	47.2	...	16.3	22.4	24.7	...	23.7	26.6	28.1
Maldives	25.2	13.7	4.3	...	16.0	13.4	9.4	...	58.8	72.9	86.3	...
Nepal[f,g]	81.2	76.1	...	...	2.7	9.8	...	...	14.7	14.1	...	...
Sri Lanka	46.8	36.0	32.5	29.7	19.4	23.6	24.6	26.2	33.8	40.3	42.9	44.1
Southeast Asia												
Brunei Darussalam[h]	...	1.4	...	...	...	11.2	...	...	...	87.4	...	...
Cambodia	...	73.7	72.3	64.3	...	7.0	9.2	8.1	...	19.3	18.6	27.6
Indonesia	55.9	45.3	38.3	35.0	10.8	13.5	13.9	14.3	33.3	41.2	47.7	50.6
Lao PDR	...	...	72.2	...	...	...	8.1	...	...	...	19.7	...
Malaysia	26.0	16.7	13.6	13.0	20.5	23.8	18.2	17.6	53.5	59.5	68.2	69.4
Myanmar	65.6	...	...	...	7.7	...	...	...	26.7	...	...	...
Philippines	44.9	37.1	33.2	31.0	10.6	10.4	9.0	8.9	44.4	52.5	57.8	60.0
Singapore[i]	0.3	0.1	0.2	0.1	25.9	19.5	15.3	13.9	73.8	80.3	84.5	86.0
Thailand	63.3	44.2	38.2	41.7	9.9	15.0	14.2	15.0	26.7	40.8	47.6	43.2
Viet Nam	72.1	64.4	49.5	46.8	8.8	10.1	21.0	14.5	19.0	25.5	29.5	38.7
The Pacific												
Cook Islands	6.0	...	...	...	8.0	...	...	...	86.0	...	...	...
Fiji	2.5	1.6	...	...	33.1	30.7	...	...	64.4	67.7	...	...
Kiribati	...	2.8	...	...	...	7.4	...	...	...	89.8	...	...
Marshall Islands	...	20.5	11.0	...	...	7.9	0.7	...	...	71.6	88.2	...
Micronesia, Fed. States of[j]	48.0	52.2	...	...	6.0	...	...	...	46.0	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	8.0	7.1	...	...	1.7	0.7	...	...	90.4	92.2	...	...
Papua New Guinea[g]	...	72.3	...	...	...	3.6	...	...	...	22.7	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	28.7	...	...	...	8.8	...	...	...	62.5	...	...	...
Timor-Leste	...	...	51.2	...	...	...	8.8	...	...	...	40.0	...
Tonga	38.1	...	...	...	15.3	...	...	...	46.6	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	5.6	4.8	3.2	2.6	15.7	12.8	10.6	10.4	78.8	82.4	86.2	86.9
Japan	7.2	5.1	4.0	3.7	24.2	20.6	16.9	16.5	68.6	74.4	79.1	79.8
New Zealand[g]	10.6	8.7	6.8	6.4	24.6	23.2	11.4	10.9	64.5	67.7	81.8	82.6

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Data for 2013 refers to 2011.
b Data for 2013 refers to 2012.
c Data for 2013 refers to 2012.
d Data for 2013 only includes agriculture since there is no breakdown for industry and services.
e Data for 2013 refers to 2012.
f Data for 1990 refers to 1991 figure and for 2000 to 1999.
g Does not include those that are not adequately defined.
h Data for 2000 refers to 2001.
i Based on total employed residents only.
j Data for 2000 includes only agriculture since there is no available data for industry and services.

Sources: International Labour Organization. *Key Indicators of the Labour Market. 8th Edition*. Http://www.ilo.org/kilm (accessed July 2015); and economy sources.

Table 1.9: Poverty and Inequality

Regional Member	Proportion of Population below $2 (PPP) a Day (%)		Income Ratio of Highest 20% to Lowest 20% [a]		Gini Coefficient	
	1995	Latest year	1995	Latest year	1995	Latest year
Developing Member Economies						
Central and West Asia						
Afghanistan	...	...	...	4.0 (2007)	...	0.278 (2008)
Armenia	38.9 (1996)	15.5 (2012)	9.2 (1996)	4.5 (2012)	0.444 (1996)	0.303 (2012)
Azerbaijan	53.9	2.4 (2008)	6.1	5.1 (2008)	0.350	0.330 (2008)
Georgia	14.0 (1996)	31.3 (2012)	7.1 (1996)	8.9 (2012)	0.371 (1996)	0.414 (2012)
Kazakhstan	18.8 (1996)	0.8 (2010)	6.2 (1996)	4.0 (2010)	0.353 (1996)	0.290 (2009)
Kyrgyz Republic	30.1 (1993)	21.1 (2011)	6.1 (1998)	5.4 (2011)	0.360 (1998)	0.334 (2011)
Pakistan	83.3 (1996)	50.7 (2010)	3.9 (1996)	4.1 (2010)	0.287 (1996)	0.296 (2010)
Tajikistan	82.2 (1999)	27.4 (2009)	4.6 (1999)	4.7 (2009)	0.295 (1999)	0.308 (2009)
Turkmenistan	85.7 (1993)	49.7 (1998)	6.2 (1993)	7.7 (1998)	0.354 (1993)	0.408 (1998)
Uzbekistan	...	...	12.7 (1998)	5.8 (2003)	0.453 (1998)	0.352 (2003)
East Asia						
China, People's Rep. of [b]	66.2 (1996)	18.6 (2011)	6.0 (1996)	10.1 (2010)	0.357 (1996)	0.370 (2011)
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	...	...	5.4 (2006)	5.7 (2011)	0.306 (2006)	0.307 (2012)
Mongolia	...	...	5.5	6.2 (2007)	0.332	0.365 (2008)
Taipei,China	...	...	5.3	6.1 (2013)	0.317	0.336 (2013)
South Asia						
Bangladesh	85.5	76.5 (2010)	4.9	4.7 (2010)	0.335	0.321 (2010)
Bhutan	...	15.2 (2012)	9.9 (2003)	6.8 (2012)	0.468 (2003)	0.387 (2012)
India [b]	81.7 (1993)	59.2 (2011)	4.1 (1993)	5.0 (2009)	0.308 (1993)	0.336 (2011)
Maldives	37.0 (1998)	12.2 (2004)	46.6 (1998)	6.8 (2004)	0.627 (1998)	0.374 (2004)
Nepal	89.0	56.0 (2010)	5.5	5.0 (2010)	0.352	0.328 (2010)
Sri Lanka	46.7	23.9 (2009)	5.5	5.8 (2009)	0.354	0.364 (2009)
Southeast Asia						
Brunei Darussalam	...	...	...	...	...	...
Cambodia	75.2 (1994)	41.3 (2011)	5.8 (1994)	4.6 (2011)	0.383 (1994)	0.318 (2011)
Indonesia [b]	77.0 (1996)	43.3 (2011)	4.5 (1996)	5.7 (2010)	0.313 (1996)	0.381 (2011)
Lao PDR	78.8 (1997)	62.0 (2012)	5.4 (1997)	5.8 (2012)	0.349 (1997)	0.362 (2012)
Malaysia	11.0	2.3 (2009)	12.0	11.3 (2009)	0.485	0.462 (2009)
Myanmar	...	...	...	...	...	...
Philippines	55.2 (1994)	41.7 (2012)	8.3 (1994)	8.4 (2012)	0.429 (1994)	0.430 (2012)
Singapore	...	...	...	...	...	0.425 (1998)
Thailand	16.1 (1996)	3.5 (2010)	8.1 (1996)	6.9 (2010)	0.429 (1996)	0.394 (2010)
Viet Nam	85.7 (1993)	12.5 (2012)	5.6 (1993)	6.1 (2012)	0.357 (1993)	0.356 (2012)
The Pacific						
Cook Islands	...	...	...	...	...	...
Fiji	48.7 (2002)	22.9 (2008)	12.6 (2002)	8.0 (2008)	0.468 (2002)	0.428 (2008)
Kiribati	...	...	...	7.8 (2006)	...	0.400 (2006)
Marshall Islands	...	...	...	70.0 (1999)	...	...
Micronesia, Fed. States of [c]	...	44.7 (2000)	...	40.2 (2000)	...	0.611 (2000)
Nauru	...	...	..	16.2 (2006)	...	0.480 (2006)
Palau	...	...	...	7.6 (2006)	...	0.420 (2006)
Papua New Guinea	...	57.4 (1996)	...	12.5 (1996)	...	0.509 (1996)
Samoa	...	...	...	7.9 (2008)	...	0.430 (2006)
Solomon Islands	...	...	...	10.3 (2006)	...	0.450 (2006)
Timor-Leste	...	71.1 (2007)	...	4.4 (2007)	0.395 (2001)	0.319 (2007)
Tonga	...	...	...	...	...	0.340 (2001)
Tuvalu	...	...	...	6.2 (2004)	...	0.370 (2004)
Vanuatu	...	...	...	...	...	0.460 (2006)
Developed Member Economies						
Australia	...	...	5.0	5.4 (2012)	0.337	0.340 (2003)
Japan	...	...	5.7	6.2 (2009)	0.323	0.336 (2009)
New Zealand	...	...	5.3	5.2 (2011)	0.335	0.323 (2011)

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Derived from income or expenditure share of the highest 20% and lowest 20% groups.
b Values are weighted average of urban and rural populations.
c Urban estimates for the proportion of population below $2 a day.

Sources: Economy sources; World Bank. PovcalNet Database Online. http://iresearch.worldbank.org/PovcalNet/index.htm (accessed July 2015); World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2015); OECD Database on Income Distribution and Poverty. http://www.oecd.org/social/inequality-and-poverty.htm (accessed July 2015); for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Monthly Bulletin of Statistics Online. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed July 2015); and ADB estimates.

Poverty Indicators

Table 1.10: Human Development Index[a]

Regional Member	1990	2000	2005	2008	2010	2011	2012	2013	Rank in 2013[b]
Developing Member Economies									
Central and West Asia	**0.546**	**0.609**	**0.617**	**0.639**	**0.647**	**0.650**	**0.654**	**0.658**	**...**
Afghanistan	0.296	0.341	0.396	0.430	0.453	0.458	0.466	0.468	169
Armenia	0.632	0.648	0.693	0.722	0.720	0.724	0.728	0.730	87
Azerbaijan	...	0.639	0.686	0.724	0.743	0.743	0.745	0.747	76
Georgia	...	0.742	0.710	0.730	0.733	0.736	0.741	0.744	79
Kazakhstan	0.686	0.679	0.734	0.744	0.747	0.750	0.755	0.757	70
Kyrgyz Republic	0.607	0.586	0.605	0.617	0.614	0.618	0.621	0.628	125
Pakistan	0.402	0.454	0.504	0.536	0.526	0.531	0.535	0.537	146
Tajikistan	0.610	0.529	0.572	0.591	0.596	0.600	0.603	0.607	133
Turkmenistan	0.408	0.741	0.642	0.658	0.687	0.690	0.693	0.698	103
Uzbekistan	0.728	0.727	0.626	0.643	0.648	0.653	0.657	0.661	116
East Asia	**0.640**	**0.700**	**0.744**	**0.774**	**0.784**	**0.791**	**0.796**	**0.800**	**...**
China, People's Rep. of	0.502	0.591	0.645	0.682	0.701	0.710	0.715	0.719	91
Hong Kong, China	0.775	0.810	0.839	0.877	0.882	0.886	0.889	0.891	15
Korea, Rep. of	0.731	0.819	0.856	0.874	0.882	0.886	0.888	0.891	15
Mongolia	0.552	0.580	0.637	0.665	0.671	0.682	0.692	0.698	103
Taipei,China	...	...	...	...	...	...	...	...	...
South Asia	**0.517**	**0.526**	**0.574**	**0.594**	**0.605**	**0.612**	**0.616**	**0.619**	**...**
Bangladesh	0.382	0.453	0.494	0.515	0.539	0.549	0.554	0.558	142
Bhutan	0.882	0.494	0.579	...	0.569	0.579	0.580	0.584	136
India	0.431	0.483	0.527	0.554	0.570	0.581	0.583	0.586	135
Maldives	0.400	0.599	0.659	0.675	0.688	0.692	0.695	0.698	103
Nepal	0.388	0.449	0.477	0.501	0.527	0.533	0.537	0.540	145
Sri Lanka	0.620	0.679	0.710	0.725	0.736	0.740	0.745	0.750	73
Southeast Asia	**0.548**	**0.614**	**0.651**	**0.669**	**0.680**	**0.684**	**0.688**	**0.691**	**...**
Brunei Darussalam	0.786	0.822	0.838	0.843	0.844	0.846	0.852	0.852	30
Cambodia	0.403	0.466	0.536	0.564	0.571	0.575	0.579	0.584	136
Indonesia	0.528	0.609	0.640	0.654	0.671	0.678	0.681	0.684	108
Lao PDR	0.395	0.473	0.511	0.533	0.549	0.560	0.565	0.569	139
Malaysia	0.641	0.717	0.747	0.760	0.766	0.768	0.770	0.773	62
Myanmar	0.347	0.421	0.472	0.500	0.514	0.517	0.520	0.524	150
Philippines	0.591	0.619	0.638	0.648	0.651	0.652	0.656	0.660	117
Singapore	0.744	0.800	0.840	0.868	0.894	0.896	0.899	0.901	9
Thailand	0.572	0.649	0.685	0.704	0.715	0.716	0.720	0.722	89
Viet Nam	0.476	0.563	0.598	0.617	0.629	0.632	0.635	0.638	121
The Pacific	**0.594**	**0.581**	**0.618**	**0.628**	**0.629**	**0.631**	**0.634**	**0.635**	**...**
Cook Islands	...	...	...	...	...	...	...	...	...
Fiji	0.619	0.674	0.694	0.712	0.721	0.722	0.722	0.724	88
Kiribati	...	...	...	...	0.599	0.599	0.606	0.607	133
Marshall Islands	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	0.627	0.627	0.629	0.630	124
Nauru	...	...	...	...	...	...	...	...	...
Palau	0.832	0.741	0.771	0.772	0.768	0.770	0.773	0.775	60
Papua New Guinea	0.363	0.423	0.441	0.467	0.479	0.484	0.490	0.491	157
Samoa	...	0.654	0.681	0.683	0.688	0.690	0.693	0.694	106
Solomon Islands	...	0.475	0.483	0.506	0.489	0.494	0.489	0.491	157
Timor-Leste	...	0.465	0.505	0.579	0.606	0.607	0.616	0.620	128
Tonga	0.631	0.672	0.695	0.696	0.701	0.702	0.704	0.705	100
Tuvalu	...	...	...	...	...	...	...	...	...
Vanuatu	0.523	0.542	0.674	0.608	0.617	0.618	0.617	0.616	131
Developed Member Economies	**0.835**	**0.876**	**0.893**	**0.900**	**0.904**	**0.906**	**0.909**	**0.911**	**...**
Australia	0.866	0.898	0.912	0.922	0.926	0.928	0.931	0.933	2
Japan	0.817	0.858	0.873	0.881	0.884	0.887	0.888	0.890	17
New Zealand	0.821	0.873	0.894	0.899	0.903	0.904	0.909	0.910	7

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Data for 2014 will be available in November 2015 from the 2015 Human Development Report.
b Rank among the 187 economies classifed in United Nations Development Programme's *Human Development Report 2014*.

Sources: United Nations Development Programme. *Human Development Report 2014*. http://hdr.undp.org/en (accessed 21 July 2015).

Table 1.11: Life Expectancy at Birth

(years)

Regional Member	Both Sexes			Female			Male		
	1990	2000	2013	1990	2000	2013	1990	2000	2013
Developing Member Economies									
Central and West Asia									
Afghanistan	48.6	54.8	60.9	49.6	56.0	62.2	47.6	53.8	59.7
Armenia	67.7	71.3	74.5	70.8	74.7	78.0	64.9	68.0	71.3
Azerbaijan	64.7	66.8	70.7	69.1	69.9	73.9	60.6	63.8	67.6
Georgia	70.0	71.6	74.1	73.9	75.4	77.8	66.3	68.1	70.5
Kazakhstan	68.3	65.5	70.5	73.1	71.1	75.1	63.8	60.2	65.8
Kyrgyz Republic	68.3	68.6	70.2	72.6	72.4	74.3	64.2	64.9	66.3
Pakistan	61.2	63.9	66.6	61.9	64.7	67.5	60.5	63.1	65.7
Tajikistan	62.9	63.8	67.4	66.1	67.8	70.8	59.8	60.0	64.1
Turkmenistan	62.7	63.9	65.5	66.5	67.9	69.8	59.1	60.1	61.4
Uzbekistan	66.7	66.9	68.2	70.0	70.3	71.7	63.6	63.8	65.0
East Asia									
China, People's Rep. of	69.5	72.1	75.4	71.1	73.6	76.7	67.9	70.7	74.1
Hong Kong, China	77.4	80.9	83.8	80.3	83.9	86.7	74.6	78.0	81.1
Korea, Rep. of	71.3	75.8	81.5	75.5	79.6	84.8	67.3	72.3	78.3
Mongolia	60.3	62.9	67.5	62.9	65.9	71.6	57.8	60.1	63.7
Taipei,China	74.0	76.9	80.0	76.8	79.9	83.3	71.3	73.8	76.7
South Asia									
Bangladesh	60.0	65.3	70.7	59.7	65.6	71.5	60.3	65.1	69.9
Bhutan	52.5	60.3	68.3	52.3	60.4	68.7	52.6	60.2	68.0
India	58.5	62.2	66.5	59.0	63.4	68.3	58.1	61.0	64.7
Maldives	60.6	69.5	77.9	60.1	70.3	79.0	61.1	68.7	76.9
Nepal	55.0	62.0	68.4	55.5	63.0	69.6	54.6	61.2	67.3
Sri Lanka	69.7	71.2	74.2	73.2	75.0	77.4	66.3	67.5	71.2
Southeast Asia									
Brunei Darussalam	73.7	76.0	78.6	75.6	78.0	80.5	71.9	74.2	76.7
Cambodia	54.8	61.9	71.7	57.4	64.6	74.5	52.2	59.3	69.1
Indonesia	63.4	67.3	70.8	65.5	69.3	72.9	61.5	65.3	68.8
Lao PDR	54.1	61.6	68.2	55.4	62.9	69.7	52.9	60.4	66.9
Malaysia	70.8	72.9	75.0	72.6	74.9	77.4	69.0	70.9	72.7
Myanmar	58.7	62.0	65.1	61.0	64.2	67.2	56.5	60.0	63.1
Philippines	65.2	66.8	68.7	68.0	70.0	72.2	62.5	63.7	65.4
Singapore	75.3	78.0	82.3	77.6	80.0	84.6	73.1	76.0	80.2
Thailand	70.4	70.9	74.4	73.6	74.8	77.8	67.4	67.2	71.1
Viet Nam	70.5	73.6	75.8	75.1	78.5	80.5	66.1	69.0	71.3
The Pacific									
Cook Islands	69.2 (1991)	71.9	75.2	71.9 (1991)	74.7	78.1	66.7 (1991)	69.2	72.4
Fiji	65.6	67.6	69.9	67.6	70.2	73.0	63.6	65.2	67.0
Kiribati	56.0	60.2	65.1	58.5	62.5	67.6	53.6	58.0	62.7
Marshall Islands	63.9	68.4	72.3	65.3	70.4	74.6	62.5	66.6	70.2
Micronesia, Fed. States of	66.2	67.3	69.0	66.8	67.9	69.9	65.7	66.7	68.0
Nauru	57.7 (1992)	60.9	66.1	61.2 (1992)	64.5	69.5	54.4 (1992)	57.4	62.0
Palau	66.8	68.5	72.3	70.0	71.7	75.7	63.8	65.4	69.2
Papua New Guinea	55.7	58.8	62.4	58.5	61.0	64.6	53.0	56.7	60.4
Samoa	65.0	69.5	73.3	68.4	72.8	76.5	61.8	66.3	70.2
Solomon Islands	56.7	62.8	67.7	57.1	64.1	69.2	56.4	61.6	66.3
Timor-Leste	48.5	59.5	67.5	50.1	60.7	69.1	46.9	58.3	66.0
Tonga	69.6	70.8	72.6	71.1	72.8	75.7	68.1	68.8	69.8
Tuvalu	61.3	61.6	65.5	63.3	63.6	67.7	59.4	59.7	63.4
Vanuatu	63.2	67.6	71.7	64.7	69.3	73.8	61.8	65.9	69.7
Developed Member Economies									
Australia	77.0	79.2	82.2	80.2	82.0	84.4	74.0	76.6	80.1
Japan	78.8	81.1	83.3	81.9	84.6	86.6	75.9	77.7	80.2
New Zealand	75.4	78.6	81.4	78.4	81.3	83.2	72.5	76.1	79.7
WORLD	**65.7**	**67.7**	**71.0**	**67.9**	**69.9**	**73.1**	**63.6**	**65.6**	**68.9**

Lao PDR = Lao People's Democratic Republic.

Sources: World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed June 2015); US Census Bureau Online. http://www.census.gov/; and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Social Indicators. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed June 2015).

Table 1.12: Births, Deaths, and Fertility Rates

Regional Member	Crude Birth Rate (per 1,000 people)			Crude Death Rate (per 1,000 people)			Total Fertility Rate (births per woman)		
	1990	2000	2013	1990	2000	2013	1990	2000	2013
Developing Member Economies									
Central and West Asia									
Afghanistan	50.5	50.0	34.1	16.3	12.3	7.8	7.7	7.7	4.9
Armenia	21.6	13.2	13.7	8.5	8.5	8.7	2.5	1.7	1.7
Azerbaijan	25.9	14.5	18.3	6.1	5.8	5.8	2.7	2.0	2.0
Georgia	16.9	12.0	13.3	9.5	10.0	11.5	2.2	1.6	1.8
Kazakhstan	21.7	14.7	22.7	7.7	10.1	8.0	2.7	1.8	2.6
Kyrgyz Republic	29.3	19.8	27.2	7.0	7.0	6.1	3.7	2.4	3.2
Pakistan	40.3	31.2	25.2	10.1	8.0	6.9	6.0	4.5	3.2
Tajikistan	40.4	30.5	33.0	9.8	7.8	6.6	5.2	4.0	3.8
Turkmenistan	35.3	23.7	21.3	8.8	7.7	7.8	4.3	2.8	2.3
Uzbekistan	33.7	21.4	22.5	6.1	5.5	4.8	4.1	2.6	2.2
East Asia									
China, People's Rep. of	21.1	14.0	12.1	6.7	6.5	7.2	2.5	1.5	1.7
Hong Kong, China	12.0	8.1	7.9	5.2	5.1	6.0	1.3	1.0	1.1
Korea, Rep. of	15.2	13.3	8.6	5.6	5.2	5.3	1.6	1.5	1.2
Mongolia	32.2	19.3	22.7	10.1	7.7	6.8	4.1	2.1	2.4
Taipei,China	16.6	13.8	8.5	5.2	5.7	6.7	1.8	1.7	1.1
South Asia									
Bangladesh	35.1	27.0	20.0	10.1	7.2	5.7	4.6	3.1	2.2
Bhutan	37.9	27.6	19.6	13.4	8.9	6.5	5.6	3.6	2.2
India	30.7	25.6	20.4	10.6	8.9	7.9	3.9	3.1	2.5
Maldives	41.3	24.5	22.0	9.4	5.1	3.4	6.1	3.3	2.3
Nepal	37.9	32.8	21.0	12.5	8.7	6.7	5.2	4.1	2.3
Sri Lanka	20.6	18.5	17.9	6.5	7.0	7.1	2.5	2.2	2.3
Southeast Asia									
Brunei Darussalam	31.5	22.8	15.5	3.5	2.8	3.1	3.5	2.4	2.0
Cambodia	42.3	27.5	25.7	12.4	8.5	6.0	5.6	3.8	2.9
Indonesia	25.9	21.5	18.8	7.8	6.8	6.2	3.1	2.5	2.3
Lao PDR	42.9	30.9	26.8	13.3	8.4	5.9	6.2	4.2	3.0
Malaysia	28.2	22.7	17.7	4.9	4.4	4.7	3.5	2.8	2.0
Myanmar	26.8	20.9	17.2	10.1	8.8	8.5	3.4	2.4	1.9
Philippines	33.0	29.6	24.4	6.6	6.1	6.0	4.3	3.8	3.0
Singapore	18.4	11.8	9.3	4.8	3.9	4.6	1.9	1.4	1.2
Thailand	19.2	14.6	10.2	5.6	6.8	7.7	2.1	1.7	1.4
Viet Nam	28.8	17.3	15.5	6.3	5.4	5.7	3.6	2.0	1.7
The Pacific									
Cook Islands	32.0 (1991)	23.0	15.0	7.0 (1991)	6.0	8.0	4.0 (1991)	3.1	2.3
Fiji	28.9	24.8	20.4	6.3	6.1	6.8	3.4	3.1	2.6
Kiribati	37.0	32.0	22.0	11.0	9.0	7.0	4.6	4.3	2.6
Marshall Islands	41.0	35.0	27.0	7.0	5.0	4.0	7.0	5.0	4.0
Micronesia, Fed. States of	34.0	29.9	23.5	6.5	6.3	6.2	5.0	4.3	3.3
Nauru	31.0 (1992)	28.0	26.0	9.0 (1992)	7.0	6.0	9.0 (1992)	7.0	6.0
Palau	21.0	14.0	11.0	9.0	8.0	8.0	2.8	2.0	1.7
Papua New Guinea	35.1	35.0	28.9	10.5	9.1	7.7	4.8	4.5	3.8
Samoa	33.1	30.6	26.2	7.3	6.1	5.4	5.1	4.5	4.1
Solomon Islands	40.0	35.6	30.8	11.0	7.7	5.9	5.9	4.7	4.0
Timor-Leste	42.9	42.5	35.8	15.7	9.4	5.7	5.3	7.1	5.2
Tonga	33.0	31.0	24.0	5.0	5.0	5.0	5.0	4.5	3.5
Tuvalu	34.0	25.0	24.0	11.0	11.0	9.0	3.8	3.6	3.1
Vanuatu	36.1	32.4	26.6	8.1	6.2	4.8	4.9	4.4	3.4
Developed Member Economies									
Australia	15.4	13.0	13.2	7.0	6.7	6.3	1.9	1.8	1.9
Japan	10.0	9.4	8.2	6.7	7.7	10.1	1.5	1.4	1.4
New Zealand	17.5	14.7	13.1	8.1	6.9	6.6	2.2	2.0	2.0
WORLD	**25.7**	**21.4**	**19.2**	**9.1**	**8.6**	**8.0**	**3.3**	**2.6**	**2.5**

Lao PDR = Lao People's Democratic Republic.

Sources: World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed June 2015); US Census Bureau Online. http://www.census.gov/ (accessed August 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Social Indicators. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed June 2015).

Table 1.13: Primary Education Completion Rate[a]

(%)

Regional Member	Both Sexes		Female		Male	
	2000	2013	2000	2013	2000	2013
Developing Member Economies						
Central and West Asia						
Afghanistan	34.1 (2005)	...	18.7 (2005)	...	48.4 (2005)	...
Armenia	93.7 (2002)	83.3 (2011)	94.7 (2002)	81.9 (2011)	92.8 (2002)	85.1 (2011)
Azerbaijan	89.5	92.0 (2012)	85.5	91.6 (2012)	93.8	92.3 (2012)
Georgia	98.1	108.6	97.9	109.9	98.4	107.5
Kazakhstan	94.9	102.2	95.4	103.1	94.5	101.4
Kyrgyz Republic	93.4	97.7 (2012)	92.8	97.4 (2012)	94.0	98.0 (2012)
Pakistan	61.2 (2005)	73.1	51.0 (2005)	67.1	70.9 (2005)	78.6
Tajikistan	91.3	98.2 (2014)	88.0	97.7 (2014)	98.1	98.7 (2014)
Turkmenistan	...	...	...	...	...	...
Uzbekistan	95.5	91.8 (2011)	100.4 (2001)	90.6 (2011)	101.3 (2001)	92.9 (2011)
East Asia						
China, People's Rep. of	87.3 (1997)	...	85.6 (1997)	...	89.0 (1997)	...
Hong Kong, China	96.0 (2003)	96.2	95.4 (2003)	97.2 (2012)	96.5 (2003)	99.4 (2012)
Korea, Rep. of	104.1	100.0 (2010)	104.6	99.3 (2010)	103.6	100.7 (2010)
Mongolia	86.9	130.2 (2012)	89.3	129.9 (2012)	84.6	130.5 (2010)
Taipei,China	...	...	...	...	...	...
South Asia						
Bangladesh	63.5	74.6 (2011)	66.0	79.8 (2011)	61.1	69.5 (2011)
Bhutan	51.0	98.4	47.3	100.7	54.5	96.1
India	72.9	96.5 (2011)	64.5	96.6 (2011)	80.7	96.3 (2011)
Maldives	189.1 (2003)	107.2 (2011)	187.5 (2003)	103.4 (2011)	190.7 (2003)	110.8 (2011)
Nepal	69.5	99.8	59.3	104.3	79.4	95.6
Sri Lanka	106.5 (2001)	96.8 (2012)	105.8 (2001)	97.2 (2012)	107.1 (2001)	96.5 (2012)
Southeast Asia						
Brunei Darussalam	115.9	97.9	113.0	100.8 (2012)	118.7	103.0 (2012)
Cambodia	47.2	97.3	53.1	94.7	53.1	99.9
Indonesia	95.0 (2001)	104.5 (2012)	95.4 (2001)	106.6 (2012)	94.5 (2001)	102.6 (2012)
Lao PDR	67.1	101.0	61.3	93.3 (2012)	72.8	96.9 (2012)
Malaysia	95.0 (1999)	97.3 (2008)	94.4 (1999)	97.3 (2008)	95.5 (1999)	97.4 (2008)
Myanmar	75.9	95.0 (2010)	73.7	96.8 (2010)	78.1	93.2 (2010)
Philippines	100.4 (2001)	91.3 (2009)	105.5 (2001)	93.9 (2009)	95.6 (2001)	88.7 (2009)
Singapore	...	...	...	...	...	...
Thailand	84.7	...	87.5 (1999)	...	89.1 (1999)	...
Viet Nam	97.8	97.5	95.5	97.7	100.0	97.2
The Pacific						
Cook Islands	87.9 (1999)	102.7 (2012)	85.9 (1999)	102.1 (2012)	89.8 (1999)	103.4 (2012)
Fiji	95.3	103.6 (2012)	94.2	104.5 (2012)	96.3	102.8 (2012)
Kiribati	102.1	115.2 (2008)	97.5	116.2 (2008)	106.4	114.1 (2008)
Marshall Islands	92.5 (1999)	99.8 (2011)	84.2 (1999)	103.9 (2011)	100.4 (1999)	95.9 (2011)
Micronesia, Fed. States of	...	...	...	...	...	...
Nauru	87.0 (2001)	90.3 (2012)	90.1 (2001)	98.2 (2012)	84.3 (2001)	82.8 (2012)
Palau	98.8	82.7 (2014)	90.4	78.7 (2014)	106.7	86.4 (2014)
Papua New Guinea	55.1	78.1 (2012)	50.5	71.9 (2012)	59.5	83.9 (2012)
Samoa	94.0	102.4 (2012)	95.5	99.9 (2012)	92.7	104.8 (2012)
Solomon Islands	72.5 (1994)	86.3	...	86.3	...	86.3
Timor-Leste	...	71.0 (2011)	...	71.9 (2011)	...	70.2 (2011)
Tonga	106.5 (2001)	100.3 (2012)	104.9 (2001)	101.3 (2012)	107.9 (2001)	99.5 (2012)
Tuvalu	109.9	80.1	112.1	109.2 (2006)	107.9	89.3 (2006)
Vanuatu	92.1	83.6 (2010)	94.4	86.8 (2010)	89.9	80.9 (2010)
Developed Member Economies						
Australia	...	...	...	...	...	...
Japan	103.1	102.1 (2012)	103.0	102.0 (2012)	103.1	102.1 (2012)
New Zealand	96.7 (1995)	...	96.5 (1995)	...	...	...

.. = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a The total number of new entrants in the last grade of primary education, irrespective of age, expressed as percentage of the total population of the theoretical entrance age to the last grade of primary.

Sources: UNESCO Institute of Statistics Data Centre Online. http://www.uis.unesco.org/Pages/default.aspx (accessed July 2015); and World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2015).

Table 1.14: Adult Literacy Rate

(15 years and over, %)

Regional Member	Both Sexes		Female		Male	
	2000	2013	2000	2013	2000	2013
Developing Member Economies						
Central and West Asia						
Afghanistan	...	31.7 (2011)	21.0	17.6 (2011)	51.0	45.4 (2011)
Armenia	99.4 (2001)	99.6 (2012)	99.2 (2001)	99.5 (2012)	99.7 (2001)	99.7 (2012)
Azerbaijan	98.8 (1999)	99.8 (2012)	98.2 (1999)	99.7 (2012)	99.5 (1999)	99.9 (2012)
Georgia	99.7 (2002)	99.7 (2012)	99.6 (2002)	99.7 (2012)	99.8 (2002)	99.8 (2012)
Kazakhstan	99.5 (1999)	99.7 (2010)	99.3 (1999)	99.6 (2010)	99.8 (1999)	99.8 (2010)
Kyrgyz Republic	98.7 (1999)	99.2 (2009)	98.1 (1999)	99.0 (2009)	99.3 (1999)	99.5 (2009)
Pakistan	42.7 (1998)	54.7 (2011)	29.0 (1998)	42.0 (2011)	55.3 (1998)	67.0 (2011)
Tajikistan	99.5	99.7 (2012)	99.2	99.7 (2012)	99.7	99.8 (2012)
Turkmenistan	98.8 (1995)	99.6 (2012)	98.3 (1995)	99.5 (2012)	99.3 (1995)	99.7 (2012)
Uzbekistan	98.6	99.5 (2012)	98.1	99.3 (2012)	99.2	99.7 (2012)
East Asia						
China, People's Rep. of	90.9	95.1 (2010)	86.5	92.7 (2010)	95.1	97.5 (2010)
Hong Kong, China	...	...	91.0 (2003)	...	97.0 (2003)	...
Korea, Rep. of	...	...	96.6 (2004)	...	99.1 (2004)	...
Mongolia	97.8	97.4 (2011)	97.5	97.9 (2011)	98.0	96.8 (2011)
Taipei,China	...	...	...	...	...	...
South Asia						
Bangladesh	47.5 (2001)	58.8 (2012)	40.8 (2001)	55.1 (2012)	53.9 (2001)	62.5 (2012)
Bhutan	52.8 (2005)	...	38.7 (2005)	...	65.0 (2005)	...
India	61.0 (2001)	62.8 (2006)	47.8 (2001)	50.8 (2006)	73.4 (2001)	75.2 (2006)
Maldives	96.3	98.4 (2006)	96.4	98.4 (2006)	96.2	98.4 (2006)
Nepal	48.6 (2001)	57.4 (2011)	34.9 (2001)	46.7 (2011)	62.7 (2001)	71.1 (2011)
Sri Lanka	90.7 (2001)	91.2 (2010)	89.1 (2001)	90.0 (2010)	92.3 (2001)	92.6 (2010)
Southeast Asia						
Brunei Darussalam	92.7 (2001)	95.4 (2012)	90.2 (2001)	93.7 (2012)	95.2 (2001)	97.1 (2012)
Cambodia	67.3 (1998)	73.9 (2009)	57.0 (1998)	65.9 (2009)	79.5 (1998)	82.8 (2009)
Indonesia	90.4 (2004)	92.8 (2011)	86.8 (2004)	86.8 (2011)	94.0 (2004)	94.0 (2011)
Lao PDR	69.6	72.7 (2005)	58.5	63.2 (2005)	81.4	82.5 (2005)
Malaysia	88.7	93.1 (2010)	85.4	90.7 (2010)	92.0	95.4 (2010)
Myanmar	89.9	92.6 (2012)	86.4	90.5 (2012)	93.9	95.0 (2012)
Philippines	92.6	95.4 (2008)	92.7	95.8 (2008)	92.5	95.0 (2008)
Singapore	92.5	96.4 (2012)	88.6	94.4 (2012)	96.6	98.5 (2012)
Thailand	92.6	96.4 (2010)	90.5	91.5 (2010)	94.9	95.6 (2010)
Viet Nam	90.2	93.4 (2011)	86.6	91.4 (2011)	93.9	95.4 (2011)
The Pacific						
Cook Islands	...	...	99.0 (2002)	...	100.0 (2002)	...
Fiji	...	...	91.9 (2003)	...	95.5 (2003)	...
Kiribati	...	...	91.0	...	94.4	...
Marshall Islands	...	...	92.4	...	92.4	...
Micronesia, Fed. States of	...	...	94.0	...	96.0	...
Nauru	...	...	99.0 (1990)	...	99.0 (1990)	...
Palau	...	99.5	97.0	99.6	90.0	99.5
Papua New Guinea	57.3	62.9 (2012)	50.9	60.3 (2012)	63.4	65.5 (2012)
Samoa	98.5 (2004)	98.9 (2012)	98.2 (2004)	98.7 (2012)	98.8 (2004)	99.1 (2012)
Solomon Islands	76.6 (1999)	...	69.0 (1999)	...	83.7 (1999)	...
Timor-Leste	37.6 (2001)	58.3 (2010)	30.0 (2001)	53.0 (2010)	45.3 (2001)	63.6 (2010)
Tonga	98.9 (1997)	99.0 (2006)	99.0 (1997)	99.1 (2006)	98.8 (1997)	99.0 (2006)
Tuvalu	...	...	...	...	...	...
Vanuatu	78.1 (2004)	83.4 (2012)	76.0 (2004)	81.9 (2012)	80.1 (2004)	84.9 (2012)
Developed Member Economies						
Australia	...	...	...	...	...	...
Japan	...	...	...	...	...	...
New Zealand	...	...	...	...	...	...

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

Sources: UNESCO Institute for Statistics Data Centre Online. http://www.uis.unesco.org/Pages/default.aspx (accessed July 2015); and United Nations Economic and Social Commission for Asia and the Pacific. *Statistical Yearbook for Asia and the Pacific 2013*. http://www.unescap.org/stat/data/syb2013/ (accessed July 2015).

Table 1.15: Education Resources

Regional Member	Primary Pupil-Teacher Ratio			Secondary Pupil-Teacher Ratio		
	1990	2000	2013	1990	2000	2013
Developing Member Economies						
Central and West Asia						
Afghanistan	41.2	33.2 (1999)	44.7 (2012)	24.8	28.4 (1994)	31.6 (2007)
Armenia	20.6 (1994)	20.3 (2001)	19.3 (2007)	10.5 (1994)	6.9 (2002)	13.3 (2011)
Azerbaijan	19.8 (1991)	18.7	11.9 (2012)	10.3 (1995)	7.8	9.0 (2007)
Georgia	17.2 (1991)	16.8	6.3 (2012)	6.9 (1991)	7.5	7.6 (2009)
Kazakhstan	20.7	18.7	16.5	13.3	11.3	8.6 (2012)
Kyrgyz Republic	15.9	24.1	23.9 (2012)	13.8	13.3	15.2 (2010)
Pakistan	41.1	33.0	41.4 (2012)	19.5	19.8 (1996)	21.0 (2012)
Tajikistan	21.3 (1991)	21.8	23.0 (2012)	10.6 (1995)	16.4	15.4 (2011)
Turkmenistan	...	...	94.0 (2011)	...	...	...
Uzbekistan	24.1	21.4	15.6 (2011)	10.9	11.5	13.3 (2011)
East Asia						
China, People's Rep. of	22.3	22.2 (2001)	18.2 (2012)	14.6	17.1	14.5 (2012)
Hong Kong, China	27.2	21.5	14.4 (2012)	20.7 (1995)	20.1 (1996)	17.5 (2006)
Korea, Rep. of	36.3	32.1	17.9 (2012)	27.7	21.0	15.9 (2012)
Mongolia	29.8	32.6	28.8 (2012)	18.8	19.9	14.5 (2010)
Taipei,China	28.5	19.0	13.3	21.9	17.7	15.2
South Asia						
Bangladesh	63.0	57.1	40.2 (2011)	27.4	38.4	32.2 (2012)
Bhutan	28.6 (1991)	41.1	24.0 (2012)	38.6 (1998)	32.5	19.9 (2012)
India	46.0	40.0	35.2 (2011)	28.7	33.6	25.9 (2011)
Maldives	26.2 (1998)	22.7	11.4 (2012)	17.0 (1998)	15.3	13.7 (2003)
Nepal	39.2	38.0	25.6	31.1	30.2	29.2
Sri Lanka	29.1	26.3 (2001)	24.4 (2012)	19.1	19.6 (2002)	17.3 (2012)
Southeast Asia						
Brunei Darussalam	15.3 (1991)	13.7	10.6 (2012)	11.8 (1991)	10.9	10.1 (2012)
Cambodia	35.0	50.1	45.7 (2012)	20.1	18.5	28.9 (2007)
Indonesia	23.3	22.1	18.6 (2012)	12.9	14.6	16.6 (2012)
Lao PDR	28.2	30.1	27.1 (2012)	11.8	21.3	19.9 (2011)
Malaysia	20.4	19.6	12.5 (2011)	19.3	18.4	13.6 (2011)
Myanmar	44.9	32.8	28.2 (2010)	12.5	31.9	34.1 (2010)
Philippines	32.7	35.2	31.4 (2009)	33.3	36.4 (2001)	34.8 (2009)
Singapore	25.8	25.6	17.4 (2009)	17.9 (1991)	19.4 (1999)	14.9 (2009)
Thailand	20.3	20.8	16.3 (2012)	16.2	24.0 (2001)	19.9 (2011)
Viet Nam	34.2	29.5	19.4 (2012)	18.0	28.0	18.6 (2010)
The Pacific						
Cook Islands	20.6 (1997)	17.8	14.8 (2012)	...	13.9	13.8 (2011)
Fiji	33.6	28.1	28.0 (2012)	...	20.2	19.3 (2012)
Kiribati	28.6	31.7	25.0 (2008)	12.2	17.6	17.4 (2008)
Marshall Islands	...	16.9 (2002)	...	...	16.7 (2002)	...
Micronesia, Fed. States of	...	...	16.6 (2007)	...	...	...
Nauru	...	21.5	22.4 (2008)	...	17.4	20.9 (2007)
Palau	...	15.7	...	...	15.1	...
Papua New Guinea	31.7	35.4	35.8 (2006)	21.7	22.2 (1998)	27.4 (2012)
Samoa	24.0	24.0	30.2 (2010)	18.2 (1991)	21.2	21.5 (2010)
Solomon Islands	19.4	19.2 (1999)	23.8 (2012)	17.5 (1991)	10.1	25.9 (2012)
Timor-Leste	...	61.9 (2001)	31.4 (2011)	...	28.0 (2001)	24.3 (2011)
Tonga	24.0	22.1	21.1 (2012)	17.7	14.6	14.6 (2011)
Tuvalu	20.8 (1994)	19.7	92.9 (2011)	...	...	...
Vanuatu	27.2	22.5	21.7 (2010)	15.8	24.7	13.9 (2002)
Developed Member Economies						
Australia	16.6 (1991)	17.9 (1999)	...	11.6 (1991)	12.6 (1995)	...
Japan	21.2	20.7	17.1 (2012)	17.1	14.0	11.7 (2012)
New Zealand	18.0	18.4	14.6 (2012)	15.4	15.5	14.4 (2012)

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

Sources: UNESCO Institute for Statistics Data Centre Online. Http://www.uis.unesco.org/Pages/default.aspx (accessed July 2015); World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Monthly Bulletin of Statistics Online. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed July 2015).

Table 1.16: Health Care Resources

(per 1,000 population)

Regional Member	Physicians			Hospital Beds		
	1990	2000	2013	1990	2000	2013
Developing Member Economies						
Central and West Asia						
Afghanistan	0.11	0.19 (2001)	0.27	0.25	0.40 (2001)	0.50 (2012)
Armenia	3.92	2.99	2.70	9.09	5.47	3.90 (2012)
Azerbaijan	3.92	3.61	3.40	10.10	8.68	4.70 (2012)
Georgia	4.93	4.73	4.27	9.80	4.77	2.60 (2012)
Kazakhstan	3.98	3.29	3.62	13.67	7.19	7.20 (2012)
Kyrgyz Republic	3.37	2.82	1.97	11.98	7.40	4.80 (2012)
Pakistan	0.46	0.66	0.83 (2010)	0.64	0.70 (2003)	0.60 (2012)
Tajikistan	2.55	2.13	1.92	10.66	6.54	5.50 (2011)
Turkmenistan	3.61	4.18 (2002)	2.39 (2010)	11.49	7.11 (1997)	4.00 (2012)
Uzbekistan	3.39	2.95	2.53	12.48	5.33	4.40 (2010)
East Asia						
China, People's Rep. of	1.56	1.68	1.94 (2012)	2.58	2.52	3.80 (2011)
Hong Kong, China	1.20 (1993)	1.32 (1995)	...	...	...	...
Korea, Rep. of	0.80	1.30	2.14 (2012)	3.10	6.10	10.30 (2009)
Mongolia	2.54	2.54 (1999)	2.84 (2011)	11.49 (1991)	7.50 (2002)	6.80 (2012)
Taipei,China	1.09	1.50	2.05	4.38	5.68	6.82
South Asia						
Bangladesh	0.18	0.23 (2001)	0.36 (2011)	0.30	0.30 (2001)	0.60 (2011)
Bhutan	0.33	0.05 (1999)	0.26 (2012)	0.85	1.60 (2001)	1.80 (2012)
India	0.48 (1992)	0.51 (1998)	0.70 (2012)	0.79 (1991)	0.69 (2002)	0.70 (2011)
Maldives	0.07	0.78	1.42 (2010)	0.76	1.70	4.30 (2009)
Nepal	0.05	0.05 (2001)	0.21 (2004)	0.24	0.20 (2001)	5.00 (2006)
Sri Lanka	0.15 (1993)	0.43	0.68 (2010)	2.74	2.90	3.60 (2012)
Southeast Asia						
Brunei Darussalam	0.75 (1991)	1.01	1.44 (2012)	...	2.60	2.80 (2012)
Cambodia	0.11 (1992)	0.16	0.17 (2012)	2.07	0.60 (2001)	0.70 (2011)
Indonesia	0.14	0.16	0.20 (2012)	0.67	0.60 (1998)	0.90 (2012)
Lao PDR	0.23	0.59 (1996)	0.18 (2012)	2.57	0.90 (2002)	1.50 (2012)
Malaysia	0.39	0.70	1.20 (2010)	2.13	1.80 (2001)	1.90 (2012)
Myanmar	0.08	0.30	0.61 (2012)	0.64	0.70	0.60 (2006)
Philippines	0.12	0.59	1.15 (2004)	1.39	1.00 (2001)	1.00 (2011)
Singapore	1.27	1.40 (2001)	1.95	3.61	2.90 (2001)	2.00 (2011)
Thailand	0.23	0.29	0.39 (2010)	1.63	2.20	2.10 (2010)
Viet Nam	0.40	0.53 (2001)	1.19	3.83	2.40 (2001)	2.00 (2010)
The Pacific						
Cook Islands	...	...	...	...	...	...
Fiji	0.47 (1992)	0.34 (1999)	0.43 (2010)	...	2.60 (1999)	2.00 (2009)
Kiribati	0.19	0.30 (1998)	0.38 (2010)	4.27	1.80 (1998)	1.30 (2011)
Marshall Islands	0.42 (1996)	0.47	0.44 (2010)	2.27	2.10 (1999)	2.70 (2010)
Micronesia, Fed. States of	0.45 (1993)	0.60	0.18 (2010)	...	2.80	3.20 (2009)
Nauru	1.45 (1995)	0.77 (2004)	0.71 (2008)	...	5.90 (2005)	...
Palau	1.11 (1998)	1.58	...	...	4.40 (1998)	...
Papua New Guinea	0.07	0.05	0.06 (2010)	4.02	...	...
Samoa	0.36 (1992)	0.70 (1999)	0.48 (2010)	...	3.30	0.97 (2005)
Solomon Islands	0.14 (1992)	0.13 (1999)	0.22 (2010)	0.83	2.20 (2003)	1.30 (2012)
Timor-Leste	...	0.10 (2004)	0.07 (2011)	...	...	5.90 (2010)
Tonga	0.51 (1991)	0.50	0.56 (2010)	...	3.20 (2001)	2.60 (2010)
Tuvalu	...	0.55 (2002)	1.09 (2010)	...	5.56 (2001)	...
Vanuatu	0.10 (1991)	0.11 (1997)	0.12 (2010)	...	3.10 (2001)	1.80 (2008)
Developed Member Economies						
Australia	2.20	2.50	3.27 (2011)	9.20 (1991)	7.80	3.90 (2010)
Japan	1.70	1.90	2.30 (2010)	15.60 (1993)	14.70	13.70 (2009)
New Zealand	1.90	2.20	2.74 (2010)	8.50	6.18 (2002)	2.30 (2011)

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

Sources: World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed: July 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. Monthly Bulletin of Statistics Online. http://eng.dgbas.gov.tw/mp.asp?mp=2 (accessed: July 2015).

Table 1.17: Estimated Number of Adults Living with HIV[a]

(aged 15 years and over, thousands)

Regional Member	Adults			Women		
	1990	2000	2013	1990	2000	2013
Developing Member Economies						
Central and West Asia						
Afghanistan	0.5	2.0	5.8	0.2	0.8	2.4
Armenia	0.0	1.0	3.8	0.0	0.2	0.7
Azerbaijan	0.0	1.2	7.8	0.0	0.4	2.4
Georgia	0.3	1.4	5.5 (2012)	0.1	0.5	1.2 (2012)
Kazakhstan	0.6	1.8 (2001)	13.0 (2009)	0.3	1.1 (2001)	7.7 (2009)
Kyrgyz Republic	0.1	0.8	8.5	0.0	0.4	3.7
Pakistan	0.6	5.2	76.0	0.1	1.4	21.5
Tajikistan	0.2	7.6	14.6	0.1	3.4	5.6
Turkmenistan	...	...	...	...	...	...
Uzbekistan	0.0	18.1	40.3	0.0	6.2	13.5
East Asia						
China, People's Rep. of	...	470.0 (2001)	730.0 (2009)	...	130.0 (2001)	230.0 (2009)
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	...	5.2 (2001)	9.5 (2009)	...	1.6 (2001)	2.9 (2009)
Mongolia	...	0.1 (2005)	0.6	...	0.0 (2005)	0.1
Taipei,China	...	...	...	...	...	...
South Asia						
Bangladesh	0.0	1.0	8.4	0.0	0.2	2.7
Bhutan	0.0	0.2	0.6	0.0	0.1	0.3
India	92.3	2,159.8	1,940.6	26.2	751.1	751.2
Maldives	...	0.0 (2005)	0.0	...	0.0 (2005)	0.0
Nepal	0.0	26.1	38.7	0.0	3.3	12.9
Sri Lanka	0.1	0.7	3.0	0.0	0.2	0.9
Southeast Asia						
Brunei Darussalam	...	...	...	...	...	...
Cambodia	1.5	112.4	70.4	0.4	44.5	37.1
Indonesia	0.1	41.1	609.1	0.0	17.1	243.9
Lao PDR	0.0	1.7	9.9	0.0	0.7	4.6
Malaysia	9.6	109.5	103.1	0.1	13.5	20.9
Myanmar	23.3	185.6	203.6	1.9	42.6	69.7
Philippines	0.1	2.9	24.8 (2012)	0.1	1.0	3.5 (2012)
Singapore	...	2.7 (2001)	3.3 (2009)	...	1.0 (2001)	1.0 (2009)
Thailand	242.4	706.5	450.2	27.5	207.2	192.9
Viet Nam	0.3	99.3	241.3	0.0	15.3	74.3
The Pacific						
Cook Islands	...	...	...	...	...	...
Fiji	0.0	0.2	0.6	0.0	0.1	0.2
Kiribati	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...
Nauru	...	...	...	...	...	...
Palau	...	...	...	...	...	...
Papua New Guinea	1.2	24.3	32.0	0.5	13.2	18.3
Samoa	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...
Tonga	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...
Developed Member Economies						
Australia	...	22.0 (2005)	28.1	...	1.8 (2005)	2.8
Japan	...	6.4 (2001)	8.1 (2009)	...	2.2 (2001)	2.7 (2009)
New Zealand	...	1.6 (2001)	2.4 (2009)	...	1.0 (2001)	1.0 (2009)

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The modelled HIV estimates are calculated by UNAIDS using the Spectrum computer package (www.futuresinstitute.org). For economies that do not have the modelled estimates, data were based on published or otherwise available information.

Source: UNAIDS/AidsInfo Online Database (2015/2010). http://www.unaids.org/en/dataanalysis/datatools/aidsinfo/ (accessed July 2015).

Economy and Output

Snapshots

- The Asia and Pacific region generated more than 40% of global gross domestic product (GDP) in purchasing power parity terms in 2014. The People's Republic of China and India accounted for nearly 70% of the region's output.
- GDP growth accelerated in slightly more than half of the region's economies in 2014.
- The role of services has expanded in about 80% of the Asia and Pacific region since 2000 and now generates at least half of GDP in nearly two-thirds of the region's reporting economies.
- Between 2000 and 2014, the share of agriculture in GDP fell in all but seven of the region's 47 economies. During the same period, the share of industry in GDP rose in slightly less than half of the region's economies.
- Between 2000 and 2014, or the latest year for which data are available, investment spending as a share of GDP increased in two-thirds of the region's reporting economies, household consumption spending as a share of GDP declined in two-thirds of the region's reporting economies, government consumption expenditure relative to GDP increased in slightly more than half of the region's reporting economies, and gross domestic saving as a share of GDP increased in more than two-thirds of the region's reporting economies.

Key trends

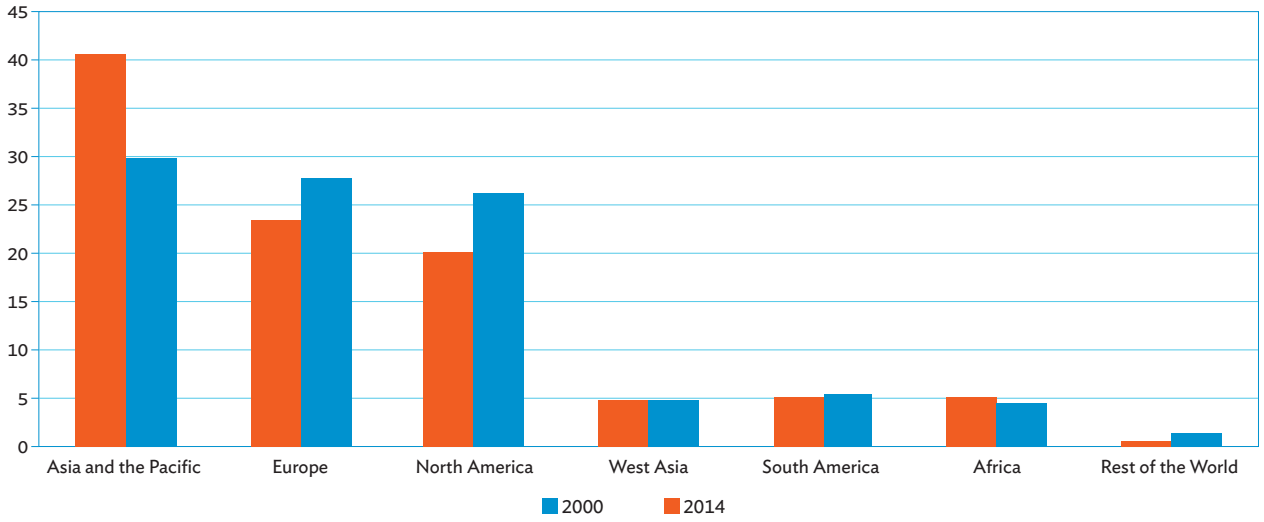
The share of global gross domestic product (GDP) generated by the Asia and Pacific region rose to 40.7% in 2014, increasing nearly 11 percentage points between 2000 and 2014. Figure 2.1 divides global GDP into seven regions. Each economy's GDP has been converted into a common currency using purchasing power parity (PPP) to eliminate differences in price levels. The Asia and Pacific region includes both developed and developing members. Europe's share of global GDP fell 4.5 percentage points to 23.4% between 2000 and 2014, while North America's share fell 6 percentage points to 20.2%.

The People's Republic of China (PRC) and India accounted for almost 70% of regional GDP in 2014. Figure 2.2 shows that the PRC contributed 48.9% of regional GDP and India 20.2%. India surpassed Japan in 2008 to become the region's second biggest economy in PPP-adjusted terms.

There is wide variation in PPP-adjusted per capita GDP within the region. Figure 2.3 shows per capita GDP in PPP terms in index form for 39 regional economies for 2000 and 2014. The average for all reporting economies in the region is equated to 100, which is represented by the red line. Economies with bars to the left of the red line had per capita GDP below that year's regional average, and those with bars to the right of the red line had per capita GDP above that year's regional average.

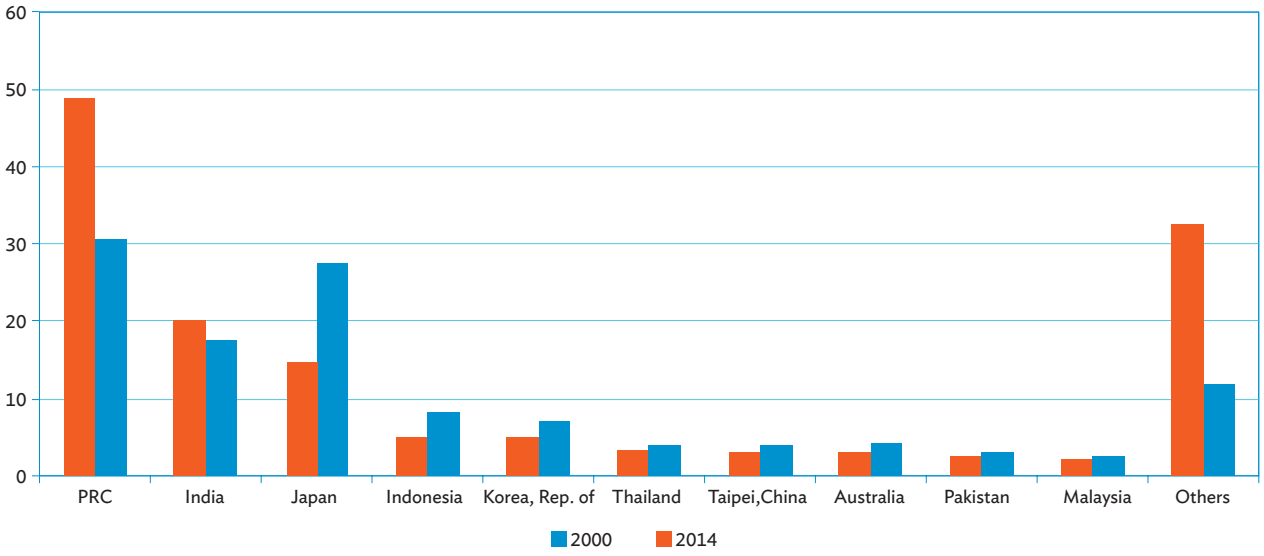
The PPP-adjusted per capita GDP in Singapore, which topped the list in 2014, was 47 times greater than that of Solomon Islands, at the bottom, and 7.5 times greater than the regional average. In addition to Singapore, the per capita GDP of seven other economies—Australia; Brunei Darussalam; Hong Kong, China; Japan; the Republic of Korea; New Zealand; and Taipei,China—was at least three

Figure 2.1: Percentage Distribution of GDP at PPP: The Asia and Pacific Region in the World Economy, 2000 and 2014



GDP = gross domestic product, PPP = puchasing power parity.
Sources: Derived from Table 2.1 and World Development Indicators Online (World Bank 2015).

Figure 2.2: Percentage Distribution of GDP at PPP—The Asia and Pacific region, 2000 and 2014



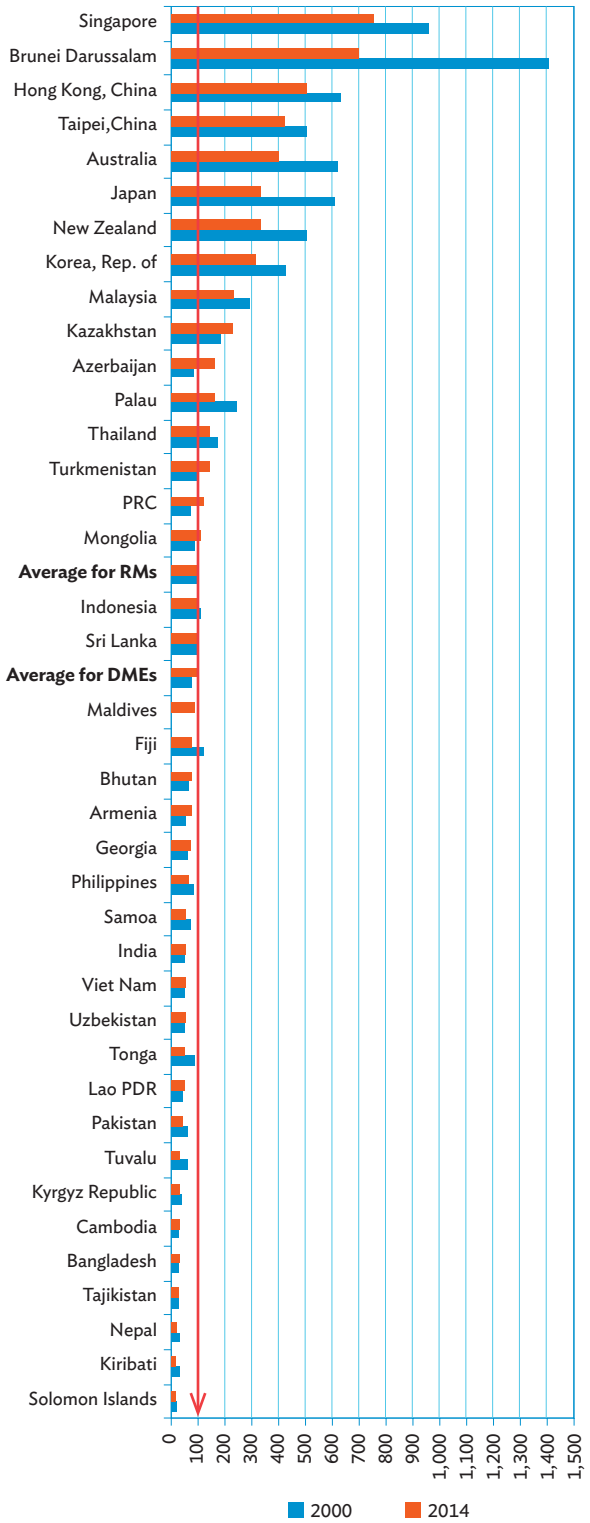
GDP = gross domestic product, PPP = puchasing power parity, PRC = People's Republic of China.
Sources: Derived from Table 2.1 and World Bank. 2015. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators.

times greater than the 2014 regional average. At the same time, 17 economies had a per capita GDP in 2014, or the latest year for which data are available, that was less than half of the regional average.

Among the most populous developing members, only the PRC's per capita GDP in 2014 was higher than the regional average. Meanwhile, in Bangladesh, India, Indonesia, and Pakistan, per capita GDP was below the regional average. The PRC first exceeded the regional average in 2009, while Indonesia fell just below the regional average and has remained there since 2010.

In 2014, GDP growth accelerated in slightly more than half of the region's economies. Unweighted average growth rate of developing Asia's GDP

Figure 2.3: Indexes of per Capita GDP, 2000 and 2014
(regional average = 100)



DME = developed member economy, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China, RM = regional member.
Source: ADB estimates from Table 2.2.

expanded to 4.8% in 2014, compared with 4.0% the previous year. Among the region's three developed economies, growth rose slightly in New Zealand between 2013 and 2014 (from 2.5% to 3.1%), was steady in Australia (2.5% in both years), and dipped into negative territory in Japan (from 1.6% to –0.1%) (Figure 2.4). Overall, GDP growth accelerated in just over half of the region's economies in 2014. Meanwhile, the unweighted average growth rate of the region as a whole (including the three developed economies) rose to 4.5% in 2014 from 3.9% in 2013.

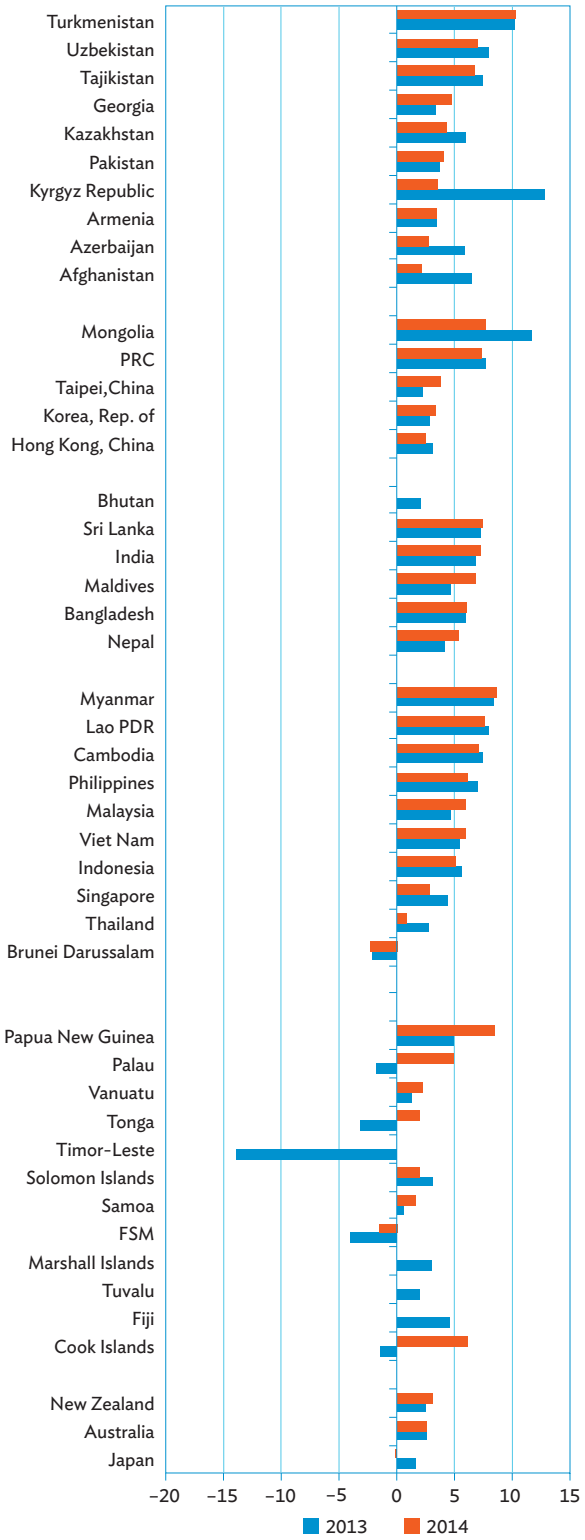
The PRC's GDP growth slowed to 7.4% in 2014 from 7.7% in 2013 as investment, particularly in real estate, slowed.[1] The deceleration from double-digit growth rates in previous years has been the result of government efforts to increase private consumption, dampen credit growth, pare back industrial overcapacity, and rein in local government debt. India's economic growth accelerated to 7.3% in 2014 from 6.9% in the previous year, led by services on the supply side and private consumption on the demand side.[2]

Elsewhere in the region, Thailand's economic growth continued to slow—falling to 0.9% in 2014 from 2.8% in 2013 (and from 7.1% in 2012) amid declining tourism receipts and investment. In Papua New Guinea, growth accelerated from 4.9% to 8.4%, driven by the commencement of liquefied natural petroleum exports. The only economy to achieve double-digit growth in 2014 was Turkmenistan at 10.3%, which was up slightly from 10.2% in 2013, driven by public investment and gas exports.[3]

Trade plays a pivotal role in many developing economies in the Asia and Pacific region. In 20 out of 32 developing economies reporting, the total value of exports of goods and services in 2014, or the latest year for which data are available, exceeded 30% of GDP (Figure 2.5). In 24 out of the same

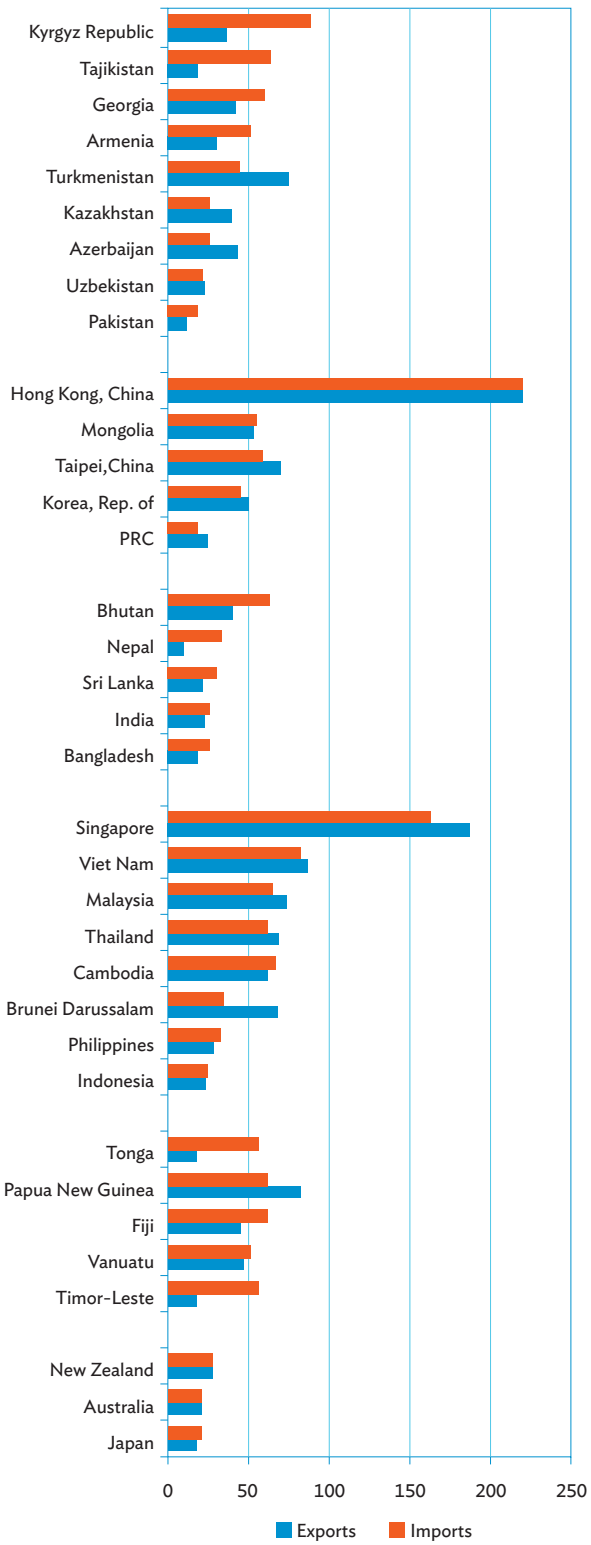
[1] Asian Development Bank. 2015. *Asian Development Outlook 2015: Financing Asia's Future Growth*. Manila.
[2] Ibid.
[3] Op. cit.

Figure 2.4: Real GDP Growth, 2013 and 2014
(%)



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 2.9.

Figure 2.5: Exports and Imports of Goods and Services, Latest Years
(% of GDP)



GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 2.7.

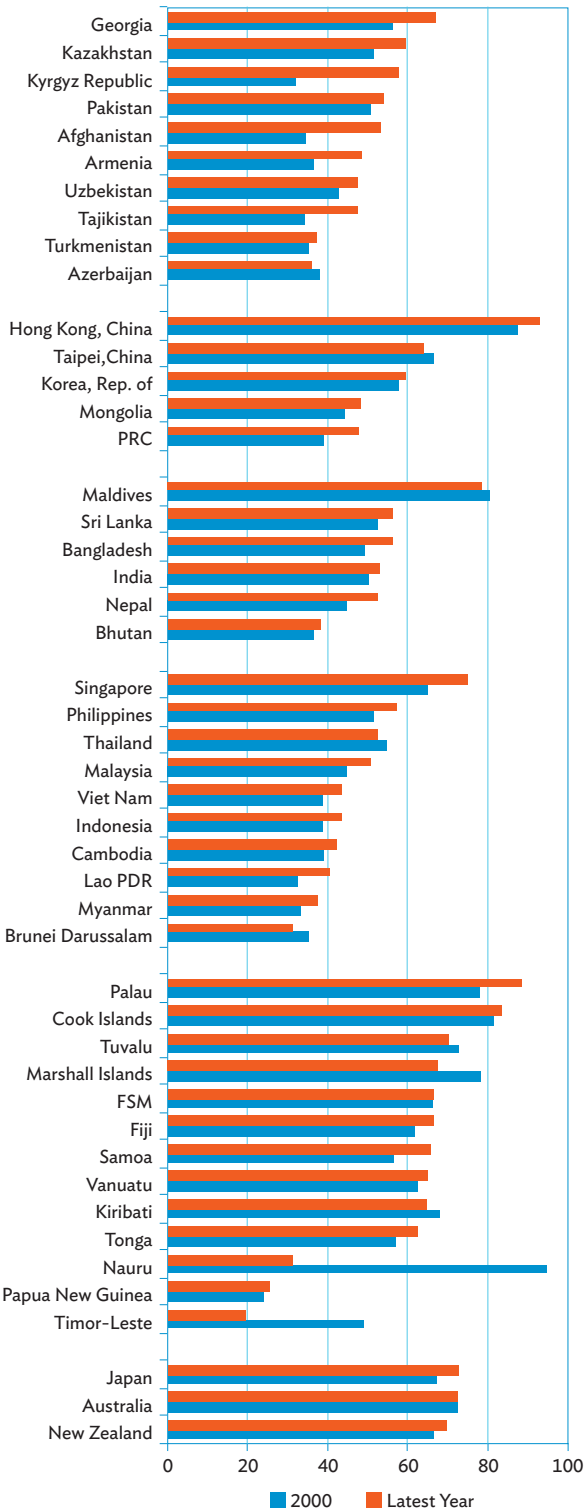
32 economies, total imports exceeded 30% of GDP. Hong Kong, China and Singapore were the only two economies in the region in which the values of imports and exports exceeded 100% of GDP. In the region's developed economies—Australia, Japan, and New Zealand—the ratios of exports to GDP and imports to GDP were less than 30% in all three cases. According to the United Nations Economic and Social Commission for Asia and the Pacific, the region's trade dependence—as measured by the ratio of merchandise exports to GDP—nearly tripled from 11% in 1990 to 31% in 2011.[4]

The services sector comprised at least half of GDP in nearly two-thirds of the region's reporting economies in 2014. Services have gained in importance in most of Asia and the Pacific, with 37 out of 47 economies seeing an increase in services' share of GDP between 2000 and 2014, or the latest year for which data are available (Figure 2.6a). Rising incomes and migration to cities have generated demand for services such as communication, transportation, retailing, and health. Structural changes in economies and declining labor intensity in agriculture and manufacturing have channeled more workers into services, which are often labor-intensive.

In the latest year for which data are available, services generated over 60% of GDP in the Maldives and in 10 out of 13 Pacific economies, many of which rely heavily on tourism. In Hong Kong, China—where the economy is dominated by trade, finance, and tourism—services comprised a 92.9% share of GDP in 2013. In the region's developed member economies—Australia, Japan, and New Zealand—services comprised about 70% of GDP in 2014, or the latest year for which data are available.

The share of services in the PRC's GDP increased from 39.0% in 2000 to 47.7% in 2014. In India, services' share of GDP rose from 50.5% to

Figure 2.6a: Services Value Added as Percentage of GDP, 2000 and Latest Year
(%)



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 2.4.

4 United Nations Economic and Social Commission for Asia and the Pacific. 2013. *Statistical Yearbook for Asia and the Pacific 2012*. Bangkok.

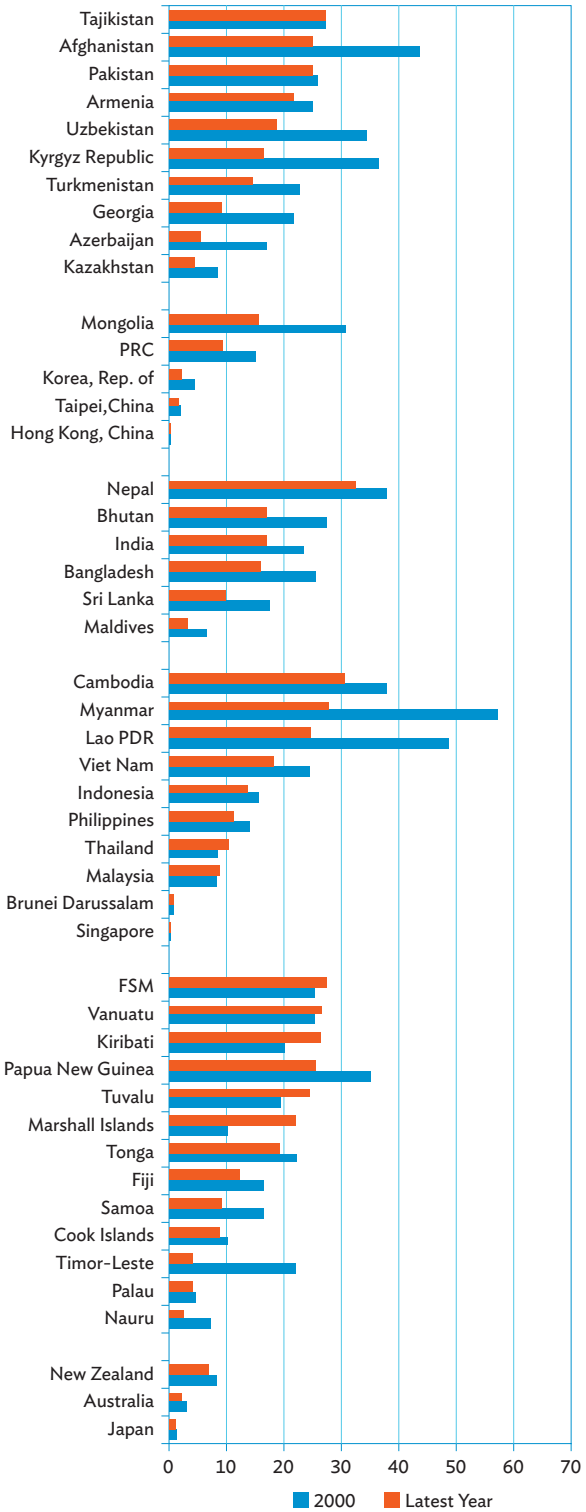
53.0% over the same period. Economies in which services make the smallest contribution to GDP include most of Southeast Asia (notably Brunei Darussalam and Myanmar); several economies in Central and West Asia (notably Azerbaijan and Turkmenistan); and Bhutan, Nauru, Papua New Guinea, and Timor-Leste.

Between 2000 and 2014, or the latest year for which data are available, the share of agriculture in GDP fell in all but seven of the region's 47 economies. At the same time that the importance of services has increased in most economies, the share of GDP generated by agriculture has generally declined. Agriculture comprises the largest share of GDP in Nepal (32.5%), Cambodia (30.5%), and Myanmar (27.9%) (Figure 2.6b). Meanwhile, Myanmar experienced the most significant decline in agriculture's share of GDP between 2000 and 2014, which dropped 29.3 percentage points.

The share of industry in GDP rose in slightly less than half (22 out of 47) of the region's reporting economies between 2000 and 2014, or the latest year for which data are available. Timor-Leste had the highest ratio of industry value added to GDP at 76.3% in 2013, up from 29.3% in 2000 (Figure 2.6c). Other notable increases during the period under review occurred in Nauru (from –1.8% to 66.2%), Myanmar (from 9.7% to 34.4%), and the Lao People's Democratic Republic (from 19.1% to 34.7%). The steepest declines occurred in Tajikistan (from 38.4% to 25.5%), Palau (from 17.4% to 7.4%), and Singapore (from 34.8% to 24.9%).

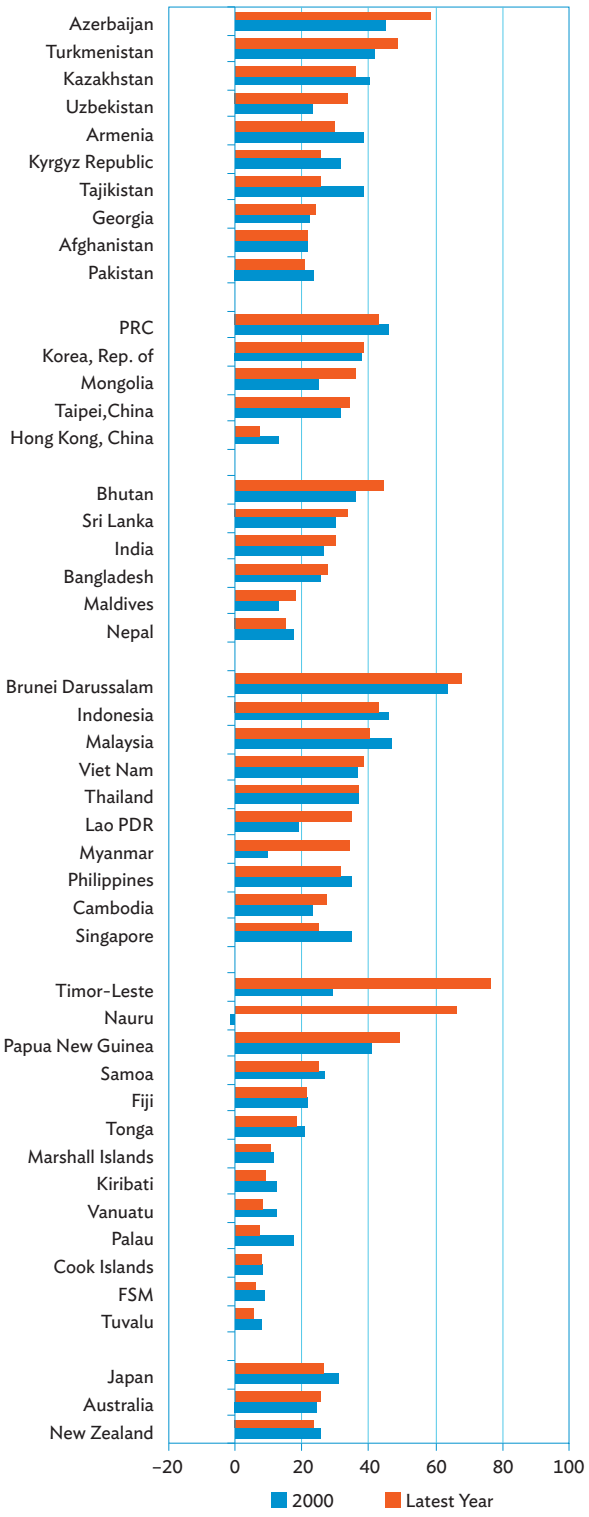
Two-thirds of the region's reporting economies (24 out of 36) have increased investment spending as a share of GDP since 2000. Figure 2.7a shows that gross domestic capital formation as a percentage of GDP rose in two-thirds (24 out of 36) of reporting economies between 2000 and 2014, or the latest year for which data are available. Capital formation consists of fixed capital investment in construction, durable equipment, breeding stocks and orchards,

Figure 2.6b: Agriculture Value Added as Percentage of GDP, 2000 and Latest Year
(%)



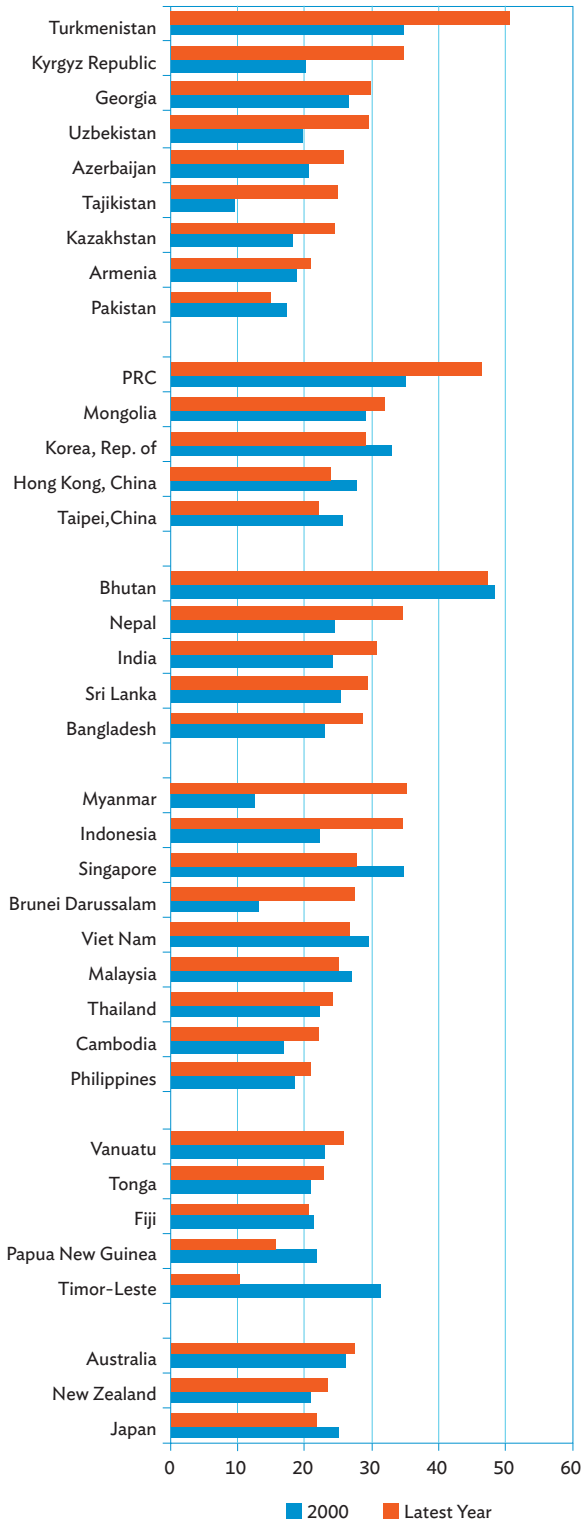
FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 2.4.

Figure 2.6c: Industry Value Added as Percentage of GDP, 2000 and Latest Year
(%)



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 2.4.

Figure 2.7a: Gross Domestic Capital Formation as Percentage of GDP, 2000 and Latest Year
(%)



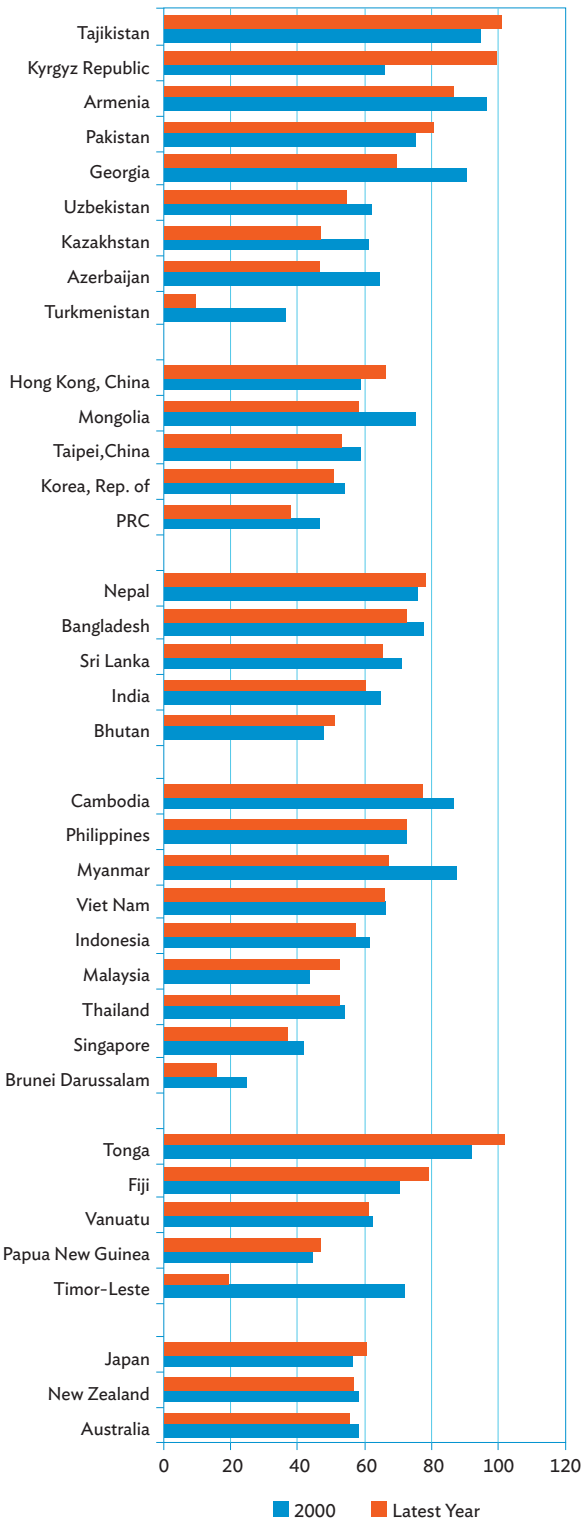
GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 2.6.

and intellectual property products; and changes in inventories.[5] Myanmar experienced the largest gain during the period under review, with capital formation as a share of GDP rising 23 percentage points to 35.3%. The next largest increase was in Turkmenistan, where capital formation rose nearly 16 percentage points to 50.7%. The economies with the highest levels of capital formation relative to GDP in 2014, or the latest year for which data are available, were Turkmenistan (50.7%), Bhutan (47.3%), and the PRC (46.4%). Except for Bhutan and Pakistan, all reporting economies in South Asia and Central and West Asia, respectively, posted an increase in their share of gross domestic capital formation to GDP.

Timor-Leste had the lowest share of gross domestic capital formation to GDP at 10.3% in 2013; it also posted the biggest decline in capital formation during the period under review, falling 21 percentage points.

Household consumption spending as a percentage of GDP has declined in two-thirds of the region's reporting economies (24 out of 36) since 2000. Among the most populous developing economies, private consumption as a share of GDP fell between 2000 and 2014, or the latest year for which data are available, in the PRC from 46.2% to 38.0%, in India from 64.6% to 60.1%, and in Indonesia from 61.7% to 57.2% (Figure 2.7b). Tonga posted the highest level of household consumption as a share of GDP (101.9%), while Turkmenistan posted the lowest (9.3%). The Kyrgyz Republic posted the largest increase in private consumption as a share of GDP between 2000 and 2014 (34 percentage points), while Timor-Leste registered the largest decline (53 percentage points).

Figure 2.7b: Household Consumption Expenditure as Percentage of GDP, 2000 and Latest Year
(%)



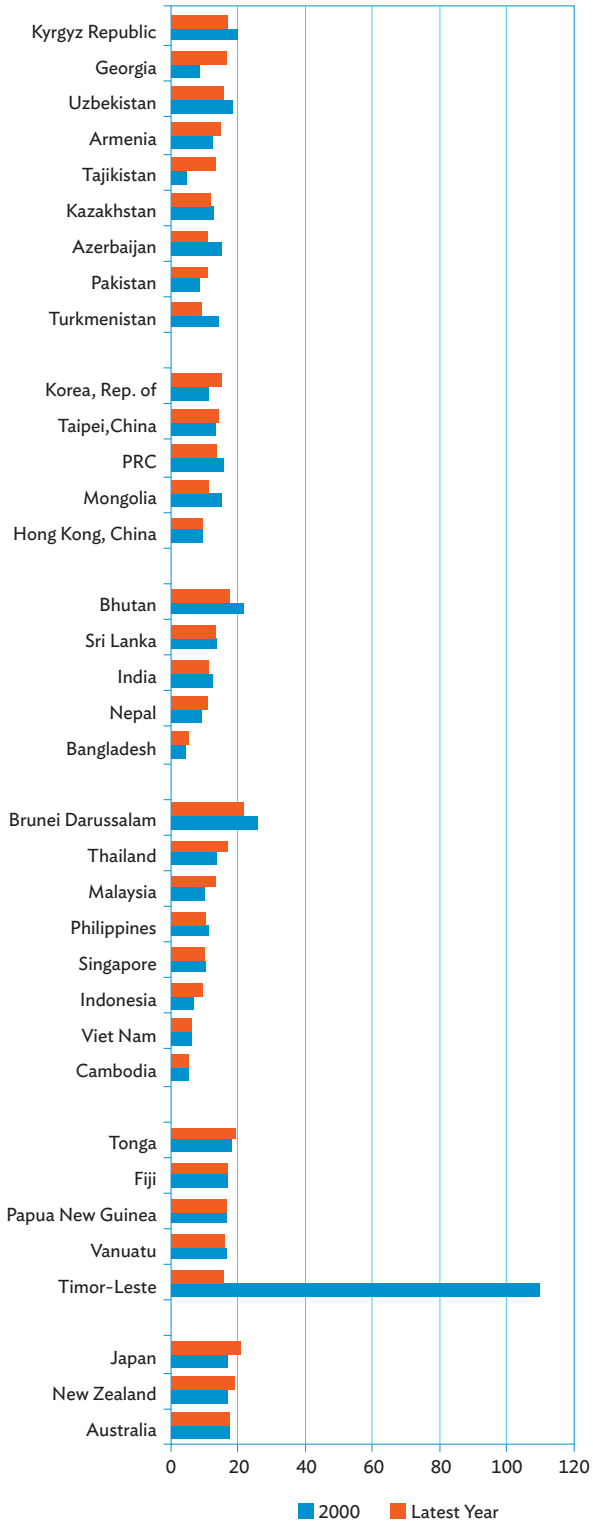
GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 2.5.

[5] United Nations Statistics Division. System of National Accounts. http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf

Government consumption expenditure relative to GDP has increased in slightly more than half of the region's reporting economies (18 out of 35) since 2000. In 2014, or the latest year for which data are available, government consumption expenditure as a share of GDP in all three developed economies—Japan (20.7%), New Zealand (18.9%), and Australia (17.7%)—exceeded that in every developing economy except Tonga (19.4%) and Brunei Darussalam (21.6%) (Figure 2.7c). Meanwhile, the lowest ratios of government consumption expenditure as a share of GDP were in Bangladesh (5.3%), Cambodia (5.5%), and Viet Nam (6.3%).

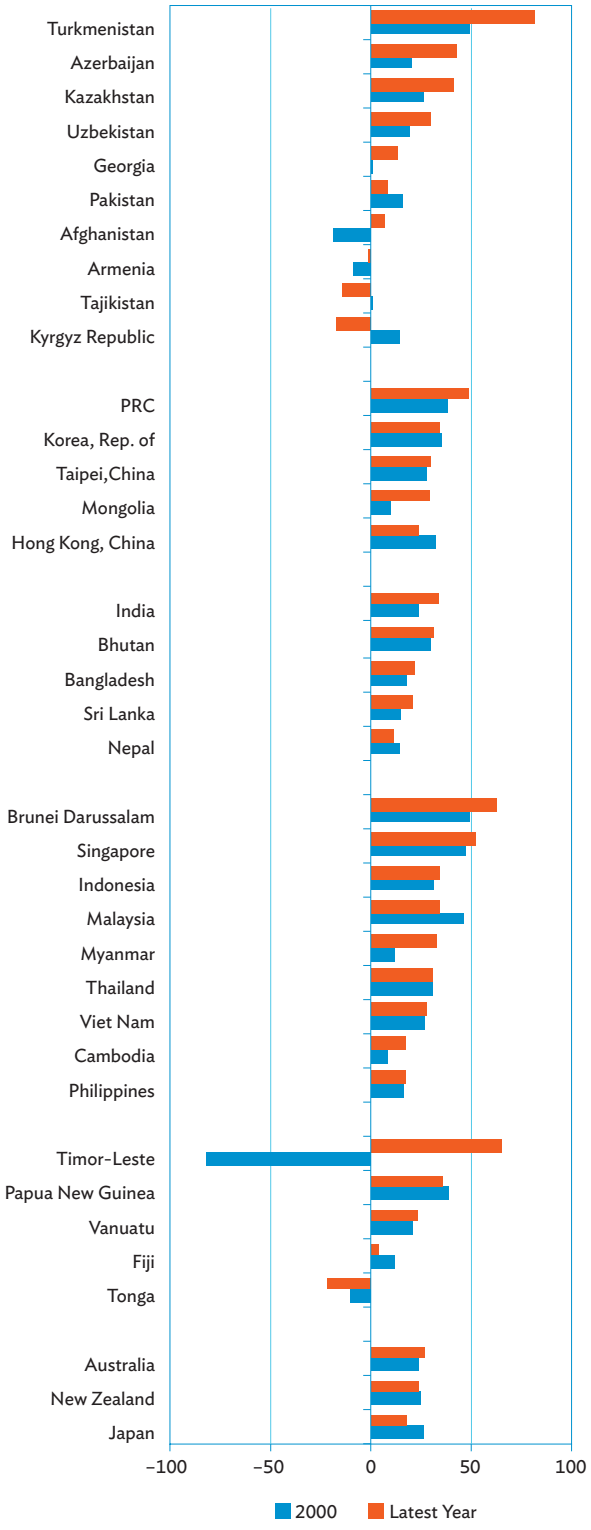
Gross domestic saving as a share of GDP has increased in more than two-thirds of the region's reporting economies (25 out of 37) since 2000. In 2014, or the most recent year for which data are available, Turkmenistan reported the highest ratio of domestic saving to GDP at 81.5%, while Tonga reported the lowest at –21.3% (Figure 2.7d). Timor-Leste reported the biggest turnaround with an increase of 147 percentage points from –81.7% to 64.8%. On the other hand, the Kyrgyz Republic posted the biggest drop with a decline of 31 percentage points from 14.3% to –16.7%. Among economies in Southeast Asia and South Asia, only Malaysia and Nepal, respectively, posted a decline in gross domestic saving as a percentage of GDP.

Figure 2.7c: Government Consumption Expenditure as Percentage of GDP, 2000 and Latest Year
(%)



GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 2.5.

Figure 2.7d: Gross Domestic Saving as Percentage of GDP, 2000 and Latest Year



GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 2.8.

Data issues and comparability

Indicators in this theme are derived from national accounts compiled in accordance with the United Nations System of National Accounts (SNA). These indicators may not be fully consistent across economies because of differences in their data compilation frameworks. While many economies have adopted the 1993 SNA framework, others are still using the 1968 SNA and a few have moved to the 2008 SNA that uses the chain volume measure as the valuation method.

Economies also have varying reference periods and price valuation methods. Some use the calendar year to compile national accounts while others use a fiscal year. Some economies with small statistical offices were not able to provide timely estimates.

National Accounts

Table 2.1: Gross Domestic Product at Purchasing Power Parity

(current international dollars, million)

Regional Member	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies											
Central and West Asia											
Afghanistan	...	26,954	30,327	36,145	37,714	44,545	46,549	51,634	58,306	62,986	65,300
Armenia	7,116	14,219	16,590	19,373	21,117	18,266	18,896	20,193	22,035	23,164	24,298
Azerbaijan	28,447	60,162	83,404	107,072	120,933	133,318	141,499	144,514	152,430	162,755	167,061
Georgia	11,447	18,315	20,649	23,816	24,845	24,088	25,907	28,346	30,639	32,128	34,150
Kazakhstan	114,504	210,653	240,357	268,715	283,027	288,599	313,449	343,915	367,593	395,455	425,946
Kyrgyz Republic	8,054	10,895	11,578	12,902	14,260	14,783	14,893	16,106	16,381	18,439	19,382
Pakistan	356,490	510,952	601,918	647,801	671,746	696,013	715,834	750,693	790,969	838,147	886,309
Tajikistan	6,163	10,990	12,074	13,340	14,632	15,337	16,539	17,287	18,925	20,637	22,334
Turkmenistan	18,750	27,499	31,452	35,860	41,937	44,835	49,556	58,014	65,612	74,881	82,819
Uzbekistan	48,288	70,587	79,441	87,758	103,570	109,477	117,120	131,147	144,367	158,754	171,416
East Asia											
China, People's Rep. of	3,660,409	6,554,224	7,605,017	8,897,049	9,941,543	10,885,346	12,358,728	13,810,256	15,147,732	16,554,708	18,030,932
Hong Kong, China	179,706	248,257	273,879	299,345	311,711	306,355	331,083	354,188	366,677	383,573	398,904
Korea, Rep. of	850,447	1,165,894	1,251,054	1,354,518	1,405,711	1,396,413	1,505,299	1,559,447	1,601,229	1,661,723	1,732,352
Mongolia	8,846	13,603	15,221	17,227	19,129	19,029	20,488	24,526	28,043	31,868	34,908
Taipei,China	476,231	638,410	693,775	783,848	804,883	798,285	893,964	947,053	983,982	1,020,885	1,074,928
South Asia											
Bangladesh	151,207	213,938	270,994	297,844	321,949	340,761	364,141	395,684	429,055	461,635	494,360
Bhutan	1,608	2,644	2,912	3,525	3,763	4,047	4,577	5,040	5,390	5,583	6,018
India	2,105,370	3,273,787	3,686,966	4,156,079	4,402,488	4,812,079	5,370,600	5,845,362	6,252,659	6,783,639	7,327,315
Maldives	...	2,024	2,495	2,832	3,239	3,145	3,408	3,704	3,821	4,059	4,400
Nepal	28,349	38,001	40,631	43,262	46,819	49,285	52,654	55,504	59,246	62,902	67,502
Sri Lanka	76,655	102,197	113,414	124,346	134,329	140,139	153,221	169,280	183,246	199,458	217,278
Southeast Asia											
Brunei Darussalam	19,587	24,379	26,233	26,973	26,969	26,694	30,718	32,480	33,788	33,677	31,716
Cambodia	13,260	23,269	26,567	30,059	32,700	32,983	35,370	38,652	42,175	46,128	50,245
Indonesia	973,477	1,377,638	1,498,074	1,635,525	1,767,893	1,863,774	2,003,952	2,171,519	2,343,797	2,511,435	2,676,109
Lao PDR	9,413	15,005	17,350	18,645	19,943	21,305	22,953	26,229	28,762	31,389	35,521
Malaysia	291,356	412,557	448,982	489,963	523,711	519,702	582,199	624,786	672,748	716,074	771,591
Myanmar	...	...	...	...	...	...	...	197,077	215,475	237,116	261,505
Philippines	261,128	367,111	398,228	435,877	462,883	471,754	513,961	543,771	590,831	642,746	692,706
Singapore	164,941	235,192	263,896	295,604	306,790	307,255	358,406	388,513	408,992	433,529	452,691
Thailand	454,915	683,119	738,112	791,376	830,321	816,178	891,753	913,511	1,003,154	1,046,475	1,067,308
Viet Nam	151,084	255,657	281,900	310,035	334,014	354,718	382,113	414,339	443,910	474,951	510,715
The Pacific											
Cook Islands	...	...	...	...	...	...	...	...	...	...	...
Fiji	4,146	5,250	5,512	5,610	5,779	5,742	5,984	6,273	6,503	6,828	7,191
Kiribati	118	144	142	157	164	168	169	176	188	196	205
Marshall Islands	121	152	159	170	170	168	181	184	196	205	...
Micronesia, Fed. States of	270	312	321	323	321	326	338	352	361	350	...
Nauru	...	...	...	...	...	...	...	...	...	...	...
Palau	195	260	263	270	260	234	242	268	285	284	309
Papua New Guinea	7,912	9,891	10,428	11,472	12,470	13,336	14,521	16,470	18,100	19,196	...
Samoa	532	797	800	1,097	1,071	961	1,020	1,099	1,082	1,094	1,144
Solomon Islands	371	500	583	675	775	765	802	867	918	1,028	1,028
Timor-Leste	1,086	4,289	6,410	6,577	9,411	6,803	8,089	11,200	11,834	9,725	...
Tonga	358	459	467	459	469	486	510	534	546	540	559
Tuvalu	23	26	27	30	33	32	31	34	35	36	37
Vanuatu	416	487	544	587	637	664	683	705	730	756	...
Developed Member Economies											
Australia	504,373	664,296	710,456	761,369	796,730	871,849	861,142	931,712	977,575	999,241	1,031,280
Japan	3,290,078	3,889,582	4,064,562	4,264,207	4,289,493	4,079,240	4,323,770	4,388,645	4,543,060	4,612,630	4,631,654
New Zealand	83,202	106,464	115,785	123,263	125,916	131,221	134,994	141,529	145,422	156,438	162,728
DEVELOPING MEMBER ECONOMIES[a]	**10,492,795**	**16,630,698**	**18,809,149**	**21,294,139**	**23,066,130**	**24,588,195**	**27,372,400**	**30,120,933**	**32,552,748**	**35,171,136**	**37,848,493**
REGIONAL MEMBERS[a]	**14,370,448**	**21,291,039**	**23,699,952**	**26,442,979**	**28,278,269**	**29,670,505**	**32,692,305**	**35,582,819**	**38,218,805**	**40,939,444**	**43,674,155**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a For reporting economies only.

Source: Asian Development Bank estimates.

Table 2.2: Gross Domestic Product Per Capita at Purchasing Power Parity

(current international dollars)

Regional Member	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies											
Central and West Asia											
Afghanistan	...	1,142	1,258	1,475	1,509	1,747	1,790	1,948	2,159	2,290	2,324
Armenia	2,209	4,418	5,149	6,006	6,532	5,637	5,810	6,669	7,286	7,665	8,062
Azerbaijan	3,523	7,078	9,687	12,275	13,683	14,900	15,628	15,754	16,408	17,278	17,524
Georgia	2,581	4,238	4,692	5,419	5,670	5,493	5,840	6,343	6,812	7,165	7,605
Kazakhstan	7,693	13,907	15,701	17,354	18,057	17,934	19,205	20,772	21,892	23,214	24,637
Kyrgyz Republic	1,648	2,117	2,227	2,454	2,696	2,738	2,749	2,940	2,950	3,256	3,355
Pakistan	2,547	3,319	3,839	3,976	4,037	4,096	4,126	4,239	4,377	4,546	4,714
Tajikistan	996	1,604	1,727	1,868	2,006	2,058	2,171	2,216	2,369	2,529	2,675
Turkmenistan	4,165	5,792	6,550	7,381	8,528	9,005	9,829	11,361	12,684	14,290	15,602
Uzbekistan	1,959	2,698	2,999	3,266	3,793	3,943	4,100	4,470	4,849	5,249	5,584
East Asia											
China, People's Rep. of	2,906	5,037	5,811	6,763	7,518	8,190	9,254	10,291	11,232	12,215	13,235
Hong Kong, China	26,963	36,438	39,941	43,281	44,800	43,936	47,135	50,086	51,250	53,363	55,084
Korea, Rep. of	18,091	24,220	25,863	27,872	28,718	28,393	30,465	31,327	32,022	33,089	34,356
Mongolia	3,670	5,314	5,877	6,621	7,237	7,071	7,481	8,802	9,875	10,993	11,781
Taipei,China	21,467	28,087	30,397	34,203	34,998	34,590	38,631	40,833	42,285	43,731	45,930
South Asia											
Bangladesh	1,169	1,544	1,927	2,089	2,225	2,323	2,450	2,643	2,830	3,003	3,173
Bhutan	2,702	4,164	4,501	5,350	5,608	5,921	6,577	7,116	7,480	7,616	8,077
India	2,072	2,973	3,299	3,665	3,828	4,126	4,543	4,880	5,153	5,521	5,890
Maldives	...	5,978	7,040	7,552	8,297	8,174	8,660	9,115	9,097	9,342	9,779
Nepal	1,254	1,552	1,636	1,718	1,834	1,904	2,006	2,085	2,195	2,298	2,432
Sri Lanka	3,959	5,202	5,703	6,205	6,644	6,853	7,419	8,112	8,972	9,692	10,461
Southeast Asia											
Brunei Darussalam	60,303	68,004	71,971	72,900	71,917	70,229	79,415	82,568	84,513	82,908	77,000
Cambodia	1,064	1,746	1,968	2,197	2,358	2,342	2,473	2,662	2,855	3,096	3,306
Indonesia	4,720	6,266	6,725	7,248	7,736	8,055	8,402	8,974	9,550	10,093	10,613
Lao PDR	1,850	2,669	3,019	3,177	3,324	3,481	3,669	4,110	4,415	4,700	5,217
Malaysia	12,403	15,840	16,911	18,108	18,997	18,507	20,365	21,498	22,797	23,933	25,499
Myanmar	...	...	...	...	...	...	...	3,930	4,253	4,633	5,078
Philippines	3,401	4,335	4,616	4,962	5,175	5,183	5,566	5,773	6,169	6,599	6,991
Singapore	40,950	55,134	59,957	64,421	63,394	61,604	70,598	74,949	76,988	80,295	82,763
Thailand	7,309	10,665	11,457	12,214	12,741	12,453	13,528	13,796	15,087	15,676	15,929
Viet Nam	1,959	3,121	3,402	3,681	3,924	4,123	4,396	4,717	5,001	5,294	5,629
The Pacific											
Cook Islands	...	...	...	...	...	...	...	...	...	...	...
Fiji	5,169	6,348	6,640	6,723	6,869	6,792	7,035	7,343	7,578	7,921	8,304
Kiribati	1,401	1,561	1,501	1,626	1,659	1,667	1,637	1,674	1,745	1,785	1,827
Marshall Islands	2,370	2,963	3,095	3,277	3,231	3,214	3,411	3,466	3,682	3,834	...
Micronesia, Fed. States of	2,523	2,956	3,059	3,088	3,088	3,155	3,289	3,392	3,473	3,372	...
Nauru	...	...	...	...	...	...	...	...	...	...	...
Palau	10,284	13,089	13,323	13,940	13,695	12,583	13,231	14,934	16,209	16,194	17,474
Papua New Guinea	1,524	1,671	1,714	1,834	1,939	2,017	2,136	2,357	2,520	2,600	...
Samoa	3,038	4,461	4,427	6,025	5,833	5,193	5,473	5,850	5,716	5,738	5,955
Solomon Islands	887	1,064	1,213	1,370	1,538	1,484	1,520	1,605	1,659	1,816	1,774
Timor-Leste	1,394	4,536	6,620	6,633	9,267	6,542	7,584	10,256	10,581	8,241	...
Tonga	3,614	4,534	4,600	4,497	4,583	4,741	4,958	5,178	5,290	5,213	5,389
Tuvalu	2,406	2,520	2,609	2,670	2,965	2,840	2,782	3,245	3,257	3,296	3,364
Vanuatu	2,171	2,234	2,434	2,560	2,708	2,777	2,782	2,801	2,829	2,856	...
Developed Member Economies											
Australia	26,506	32,924	34,739	36,556	37,495	40,193	39,086	41,706	43,011	43,209	43,902
Japan	25,938	30,441	31,791	33,314	33,495	31,857	33,761	34,335	35,615	36,223	36,432
New Zealand	21,567	25,754	27,669	29,152	29,496	30,405	30,907	32,128	32,804	35,554	36,162
DEVELOPING MEMBER ECONOMIES[a]	**3,267**	**4,854**	**5,428**	**6,074**	**6,508**	**6,864**	**7,554**	**8,116**	**8,683**	**9,287**	**9,917**
REGIONAL MEMBERS[a]	**4,275**	**5,950**	**6,552**	**7,227**	**7,648**	**7,941**	**8,653**	**9,204**	**9,790**	**10,385**	**10,996**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a For reporting economies only.

Source: Asian Development Bank estimates.

National Accounts

Table 2.3: Gross National Income Per Capita, Atlas Method
(current $)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	250	280	340	370	470	520	570	690	690	670
Armenia	...	450	660	1,520	1,990	2,710	3,520	3,250	3,370	3,420	3,680	3,780	3,780
Azerbaijan	...	400	610	1,270	1,890	2,710	3,870	4,800	5,370	5,530	6,290	7,350	7,590
Georgia	...	540	750	1,360	1,680	2,090	2,460	2,550	2,680	2,850	3,290	3,560	3,720
Kazakhstan	...	1,280	1,260	2,950	3,860	4,980	6,150	6,780	7,440	8,190	9,780	11,560	11,670
Kyrgyz Republic	...	360	280	450	500	610	760	860	850	880	1,040	1,220	1,250
Pakistan	420	490	490	740	820	910	1,020	1,060	1,080	1,150	1,260	1,360	1,410
Tajikistan	...	200	170	320	370	440	570	660	730	790	890	1,000	1,080
Turkmenistan	...	610	600	1,600	1,960	2,330	3,050	3,570	4,070	4,660	5,410	6,880	8,020
Uzbekistan	...	580	630	530	600	760	960	1,130	1,300	1,510	1,730	1,940	2,090
East Asia													
China, People's Rep. of	330	540	930	1,750	2,050	2,490	3,070	3,650	4,300	5,000	5,870	6,740	7,380
Hong Kong, China	12,660	23,500	26,930	28,890	30,290	32,070	33,950	32,350	33,620	35,690	36,320	38,520	40,320
Korea, Rep. of	6,480	11,650	10,750	17,800	19,980	22,460	22,850	21,090	21,320	22,620	24,640	25,870	27,090
Mongolia	1,430	460	470	900	1,120	1,410	1,800	1,790	2,000	2,600	3,670	4,360	4,280
Taipei,China	8,321	13,355	14,372	17,075	17,753	18,433	18,408	17,752	19,252	20,129	20,927	21,591	...
South Asia													
Bangladesh	300	330	420	540	560	590	650	710	780	870	950	1,010	1,080
Bhutan	580	510	780	1,220	1,340	1,630	1,750	1,830	1,990	2,170	2,320	2,330	2,390
India	390	380	450	730	810	950	1,030	1,150	1,260	1,410	1,500	1,530	1,570
Maldives	...	...	...	3,770	4,530	4,570	5,430	5,460	5,960	6,640	6,670	6,730	7,170
Nepal	210	210	230	310	340	380	440	490	540	610	690	720	730
Sri Lanka	470	700	860	1,210	1,350	1,540	1,770	1,970	2,260	2,580	2,910	3,180	3,400
Southeast Asia													
Brunei Darussalam	12,550	15,790	14,800	23,290	27,730	30,970	34,030	32,190	...	...	37,320	...	...
Cambodia	...	300	300	460	520	580	670	690	740	810	880	960	1,020
Indonesia	610	990	560	1,220	1,380	1,600	1,940	2,150	2,530	3,010	3,580	3,740	3,630
Lao PDR	190	350	280	460	510	620	750	890	1,000	1,120	1,300	1,490	1,650
Malaysia	2,370	4,010	3,420	5,250	5,830	6,620	7,520	7,620	8,200	8,890	9,890	10,510	10,760
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	720	1,020	1,220	1,520	1,650	1,900	2,240	2,490	2,750	2,640	2,980	3,300	3,470
Singapore	12,040	23,610	23,670	28,370	32,080	35,660	36,680	37,080	44,790	48,330	51,390	54,580	55,150
Thailand	1,490	2,730	1,950	2,590	2,870	3,270	3,740	3,850	4,300	4,590	5,180	5,320	5,370
Viet Nam	130	260	400	680	760	850	1,000	1,120	1,270	1,390	1,560	1,740	1,890
The Pacific													
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	1,790	2,460	2,230	3,590	3,630	3,830	4,020	3,870	3,650	3,720	4,020	4,370	4,540
Kiribati	720	1,160	1,390	1,760	1,710	1,810	1,950	1,870	1,890	1,940	2,420	2,720	2,150
Marshall Islands	...	3,040	2,850	3,570	3,620	3,760	3,740	3,700	3,770	3,900	3,990	4,300	...
Micronesia, Fed. States of	...	2,210	2,210	2,550	2,550	2,550	2,560	2,770	2,870	3,050	3,220	3,270	...
Nauru	...	..	..	2,684	2,490	2,381	4,774	4,192	5,554	7,899	10,277	...	...
Palau	...	5,770	5,770	9,410	9,370	9,510	9,270	8,670	8,900	9,530	9,920	10,000	11,110
Papua New Guinea	820	1,040	620	700	730	930	1,100	1,180	1,290	1,480	1,860	2,030	...
Samoa	...	...	1,600	2,370	2,560	2,830	3,050	3,020	3,220	3,590	3,860	3,960	4,050
Solomon Islands	...	900	1,010	900	970	960	980	820	910	1,120	1,520	1,830	1,830
Timor-Leste	...	...	...	910	1,340	1,860	3,010	2,370	3,000	4,080	3,940	4,250	3,120
Tonga	1,220	2,010	2,030	2,500	2,720	2,810	3,170	3,300	3,480	3,790	4,220	4,320	4,290
Tuvalu	...	...	...	3,740	3,930	4,710	4,910	5,130	4,720	5,080	5,650	5,840	...
Vanuatu	1,200	1,270	1,430	1,780	1,990	2,130	2,510	2,600	2,700	2,850	3,000	3,090	...
Developed Member Economies													
Australia	17,340	19,300	21,110	30,320	34,160	37,330	42,380	44,000	46,490	50,060	59,760	65,410	64,680
Japan	27,560	41,270	34,980	39,140	38,570	37,590	37,760	37,470	41,980	45,190	47,830	46,330	42,000
New Zealand	13,640	15,270	14,070	25,490	26,420	28,110	28,380	29,410	29,390	31,890	36,280	39,300	...

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

Source: World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed October 2015).

Table 2.4: Agriculture, Industry and Services Value Added
(% of GDP)[a]

Regional Member	Agriculture				Industry				Services			
	1990	2000	2010	2014	1990	2000	2010	2014	1990	2000	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	28.8	25.2	...	...	21.3	21.7	...	...	49.8	53.1
Armenia	...	25.1	18.8	21.7	...	38.3	36.3	29.7	...	36.5	45.0	48.6
Azerbaijan	29.3	17.0	5.9	5.7	33.7	45.1	64.3	58.3	37.0	37.9	29.8	36.0
Georgia	...	21.7	8.3	9.1	...	22.1	22.0	24.0	...	56.1	69.8	66.9
Kazakhstan	...	8.6	4.7	4.5	...	40.1	41.9	36.1	...	51.3	53.4	59.4
Kyrgyz Republic	33.6	36.6	18.7	16.6	35.5	31.3	28.2	25.5	31.0	32.1	53.1	57.8
Pakistan	26.0	25.9	24.3	25.0	25.2	23.3	20.6	20.9	48.8	50.7	55.1	54.1
Tajikistan	30.1	27.3	21.8	27.2	38.4	38.4	27.9	25.5	31.5	34.3	50.3	47.3
Turkmenistan	32.2	22.9	14.5	...	29.6	41.8	48.4	...	38.2	35.2	37.0	...
Uzbekistan	33.2	34.4	19.8	18.8	34.8	23.1	33.4	33.7	32.0	42.5	46.8	47.5
East Asia												
China, People's Rep. of	27.1	15.1	9.9	9.5	41.3	45.9	46.4	42.8	31.5	39.0	43.7	47.7
Hong Kong, China	0.2	0.1	0.1	...	24.4	12.6	7.0	...	75.4	87.3	93.0	...
Korea, Rep. of	8.7	4.4	2.5	2.3	39.9	38.1	38.3	38.2	51.5	57.5	59.3	59.4
Mongolia	15.2	30.9	13.1	15.6	40.6	25.0	37.0	36.2	44.2	44.1	50.0	48.1
Taipei,China	4.2	2.1	1.6	1.9	40.7	31.5	34.0	34.1	55.0	66.4	64.4	64.0
South Asia												
Bangladesh	30.2	25.5	17.8	16.1	21.5	25.3	26.1	27.6	48.3	49.2	56.0	56.3
Bhutan	34.9	27.4	17.5	...	24.6	36.0	44.6	...	40.5	36.6	37.9	...
India	29.3	23.4	18.2	17.0	26.9	26.2	27.2	30.0	43.8	50.5	54.6	53.0
Maldives	...	...	4.1	3.5	...	...	14.9	18.1	...	...	81.0	78.4
Nepal	48.4	37.8	35.4	32.5	12.3	17.3	15.1	15.1	39.3	44.9	49.5	52.4
Sri Lanka	24.2	17.6	12.8	9.9	28.9	29.9	29.4	33.8	46.9	52.5	57.8	56.3
Southeast Asia												
Brunei Darussalam	1.0	1.0	0.7	0.9	61.6	63.7	68.7	67.8	37.5	35.3	30.6	31.2
Cambodia	56.5	37.9	36.1	30.5	11.3	23.0	23.2	27.1	32.2	39.1	40.8	42.4
Indonesia	19.4	15.6	14.3	13.7	39.1	45.9	43.9	42.9	41.5	38.5	41.8	43.3
Lao PDR	61.2	48.5	30.6	24.8	14.5	19.1	29.8	34.7	24.3	32.4	39.6	40.5
Malaysia	15.0	8.3	10.2	9.0	41.5	46.8	40.9	40.4	43.5	44.9	48.9	50.6
Myanmar	57.3	57.2	36.8	27.9	10.5	9.7	26.5	34.4	32.2	33.1	36.7	37.7
Philippines	21.9	14.0	12.3	11.3	34.5	34.5	32.6	31.4	43.6	51.6	55.1	57.3
Singapore	0.3	0.1	0.0	0.0	32.3	34.8	27.6	24.9	67.3	65.1	72.3	75.0
Thailand	10.0	8.5	10.5	10.5	37.2	36.8	40.0	36.8	52.8	54.7	49.4	52.7
Viet Nam	38.7	24.5	18.9	18.1	22.7	36.7	38.2	38.5	38.6	38.7	42.9	43.4
The Pacific												
Cook Islands	20.7	10.3	4.9	9.0	7.4	8.3	8.5	7.5	71.9	81.4	86.6	83.5
Fiji	...	16.5	11.0	...	...	21.6	20.9	...	...	61.9	68.1	...
Kiribati	3.8	20.0	24.7	...	8.6	12.2	10.1	...	87.6	67.8	65.2	...
Marshall Islands	...	10.3	15.4	...	...	11.4	11.6	...	...	78.3	73.0	...
Micronesia, Fed. States of	...	25.4	26.2	27.5	...	8.7	7.8	6.1	...	66.0	65.9	66.4
Nauru	...	...	4.3	...	...	...	47.8	...	...	...	47.9	...
Palau	...	4.8	4.5	4.1	...	17.4	10.8	7.4	...	77.8	84.7	88.5
Papua New Guinea	29.7	35.2	31.5	25.5	31.2	40.7	45.1	49.1	39.0	24.1	23.4	25.4
Samoa	...	16.7	9.1	9.2	...	26.8	25.9	25.0	...	56.6	65.0	65.8
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[b]	...	22.0	4.5	...	...	29.3	77.8	...	...	48.7	17.7	...
Tonga	34.7	22.2	18.2	19.4	13.6	20.7	20.0	18.2	51.7	57.1	61.8	62.4
Tuvalu	25.6	19.4	27.6	...	14.5	7.8	5.7	...	59.8	72.8	66.7	...
Vanuatu	20.7	25.4	21.9	...	12.3	12.2	13.0	...	67.0	62.3	65.0	...
Developed Member Economies												
Australia	4.6	3.1	2.2	2.4	31.7	24.7	25.2	25.3	63.7	72.2	72.6	72.3
Japan	2.4	1.6	1.2	...	37.9	31.1	27.5	...	59.8	67.3	71.3	...
New Zealand	6.6	8.3	7.2	...	26.5	25.3	23.7	...	66.9	66.4	69.1	...

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Computed as a share of GDP at current prices.
b The treatment of oil production from 2004 on reflects 2008 System of National Accounts concepts on resident units. Prior to 2004, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.5: Household and Government Consumption Expenditure (% of GDP)[a]

Regional Member	Household Consumption						Government Consumption					
	1990	1995	2000	2005	2010	2014	1990	1995	2000	2005	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	115.7	97.4	80.5	...	...	...	10.0	14.0	12.4
Armenia	...	106.1	96.7	75.5	82.0	86.6	...	11.3	12.2	10.5	13.1	14.9
Azerbaijan	52.6	84.3	64.4	42.1	39.4	46.3	17.6	12.8	15.2	10.4	10.9	10.9
Georgia	...	...	90.5	66.9	74.9	69.6	...	...	8.5	17.3	21.1	16.7
Kazakhstan	...	71.1	61.1	48.6	44.6	46.8	...	13.6	12.8	12.5	11.6	12.0
Kyrgyz Republic	71.3	75.0	65.7	84.5	84.6	99.5	25.0	19.5	20.0	17.5	18.1	17.2
Pakistan	71.4	72.4	75.4	76.9	79.7	80.7	15.1	11.7	8.6	7.8	10.3	10.8
Tajikistan	63.0	68.5	94.6	81.1	84.7	...	6.8	2.9	4.8	14.6	11.3	...
Turkmenistan	49.3	60.6	36.5	46.6	5.1	...	23.0	8.4	14.2	13.2	9.5	...
Uzbekistan	61.4	50.6	61.9	46.7	49.0	54.6	25.3	22.3	18.7	17.6	15.8	15.6
East Asia												
China, People's Rep. of	50.6	46.7	46.2	39.5	35.7	38.0	14.1	13.8	15.8	14.3	13.1	13.6
Hong Kong, China	57.1	62.0	58.6	57.5	61.4	66.4	7.2	8.4	9.4	9.2	8.9	9.5
Korea, Rep. of	50.7	52.3	53.8	52.2	50.3	50.4	11.8	11.2	11.3	13.3	14.5	15.1
Mongolia	62.2	63.4	75.1	55.2	55.2	58.2	29.8	13.1	15.3	12.1	12.7	11.6
Taipei,China	53.9	57.2	58.8	60.4	53.1	53.2	17.4	14.6	13.4	12.5	14.9	14.5
South Asia												
Bangladesh	82.9	82.2	77.5	74.4	74.1	72.6	4.2	4.6	4.6	5.5	5.1	5.3
Bhutan	50.4	40.5	47.7	40.4	43.8	...	16.3	18.0	21.9	21.9	20.0	...
India	66.2	63.1	64.6	58.3	56.0	60.1	11.7	10.9	12.6	10.9	11.4	11.4
Maldives	...	36.8	32.9	...	...	...	...	16.8	22.9	...	...	...
Nepal	83.5	75.9	75.9	79.5	78.6	...	8.7	9.2	8.9	8.9	10.0	...
Sri Lanka	74.8	70.7	70.9	69.0	65.2	65.4	13.2	14.7	13.7	13.1	15.6	13.5
Southeast Asia												
Brunei Darussalam	26.5	36.6	24.8	22.5	14.7	15.6	22.0	26.8	25.8	18.4	22.2	21.6
Cambodia	90.4	92.6	86.7	84.3	81.3	77.1	7.2	4.9	5.2	5.8	6.3	5.5
Indonesia	58.9	61.6	61.7	64.4	56.2	57.2	8.8	7.8	6.5	8.1	9.0	9.5
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	51.8	47.9	43.8	44.2	48.1	52.4	13.8	12.4	10.2	11.5	12.6	13.3
Myanmar	88.3	86.6	87.7	86.9	67.3	67.2	...	...	...	...	...	...
Philippines	71.2	74.1	72.2	75.0	71.6	72.4	10.1	11.4	11.4	9.0	9.7	10.4
Singapore	44.8	41.0	41.5	39.1	35.5	36.8	9.5	8.1	10.7	10.2	10.2	10.0
Thailand	53.3	51.2	54.1	55.8	52.1	52.3	10.0	11.3	13.6	13.7	15.8	17.1
Viet Nam	89.6	73.6	66.5	65.5	66.6	65.8	7.5	8.2	6.4	5.5	6.0	6.3
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	60.9	70.4	72.2	...	...	...	16.1	17.2	16.1	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	88.0	...	...	...	...	...	41.5	...	...	...	...
Papua New Guinea	59.0	42.7	44.6	48.0	...	...	24.8	17.1	16.6	16.1	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[b]	...	...	72.0	22.9	15.7	...	...	...	109.6	13.4	22.5	...
Tonga	93.7	93.8	91.9	100.9	98.1	101.9	18.7	16.5	18.2	15.5	18.1	19.4
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	63.3	56.0	62.4	65.8	60.6	...	30.9	27.1	16.4	14.6	18.9	...
Developed Member Economies												
Australia	55.1	58.1	58.1	57.8	55.4	55.5	17.1	17.9	17.7	17.4	18.0	17.7
Japan	53.0	55.4	56.5	57.8	59.2	60.6	13.3	15.2	16.9	18.4	19.7	20.7
New Zealand	61.1	58.1	58.0	58.3	57.6	57.0	18.9	17.2	17.0	17.8	19.8	18.9

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Computed as a share of GDP at current prices.
b The treatment of oil production from 2000 on reflects the 2008 System of National Accounts concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.6: Gross Domestic Capital Formation and Change in Inventories
(% of GDP)[a]

Regional Member	Change in Inventories						Gross Domestic Capital Formation					
	1990	1995	2000	2005	2010	2014	1990	1995	2000	2005	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	21.8	17.5	17.7
Armenia	...	...	0.2	0.7	−0.6	1.1	...	18.4	18.6	30.5	32.9	20.8
Azerbaijan	...	8.1	−2.5	0.2	−0.1	−0.1	26.5	23.8	20.7	41.5	18.1	25.8
Georgia	...	...	1.1	5.4	2.3	4.0	...	...	26.6	33.5	21.6	29.8
Kazakhstan	...	0.3	0.8	3.0	1.0	4.3	...	23.3	18.1	31.0	25.4	24.4
Kyrgyz Republic	0.9	−2.3	1.7	0.2	−0.7	2.7	24.1	18.3	20.0	16.4	27.4	34.8
Pakistan	1.6	1.5	1.4	1.6	1.6	1.6	18.9	18.5	17.2	19.1	15.8	15.0
Tajikistan	5.5	7.3	2.0	0.5	−0.6	...	12.3	28.7	9.4	11.6	23.8	...
Turkmenistan	9.9	10.3	...	...	...	...	40.1	33.6	34.7	22.9	52.9	...
Uzbekistan	1.5	−8.8	−4.4	4.5	−0.8	3.9	32.1	24.2	19.6	26.5	26.6	29.5
East Asia												
China, People's Rep. of	10.3	7.5	1.0	2.0	2.6	1.9	36.1	41.9	35.1	42.1	47.0	46.4
Hong Kong, China	1.0	4.1	1.1	−0.3	2.1	0.3	27.0	34.1	27.6	21.1	23.9	24.0
Korea, Rep. of	1.8	0.5	1.3	1.3	1.5	0.1	38.1	36.9	32.9	32.2	32.0	29.2
Mongolia	...	4.6	3.8	9.6	7.6	7.9	34.3	31.7	29.0	37.5	42.1	31.9
Taipei,China	0.7	0.6	0.9	0.3	1.3	0.3	24.4	26.7	25.7	22.7	25.0	21.9
South Asia												
Bangladesh	...	...	...	...	...	...	17.1	19.1	23.0	24.5	26.2	28.6
Bhutan	4.1	2.3	−1.8	0.0	0.5	...	32.4	45.4	48.2	53.4	61.7	...
India	1.1	2.2	0.7	2.8	3.5	1.5	26.0	26.2	24.3	34.7	36.5	30.8
Maldives	...	−0.2	...	...	...	...	...	31.3	26.3	...	...	...
Nepal	1.9	3.1	5.0	6.5	16.1	...	17.2	23.5	24.3	26.5	38.3	...
Sri Lanka	0.3	0.1	0.6	2.8	1.3	1.2	20.7	25.6	25.4	26.1	27.2	29.4
Southeast Asia												
Brunei Darussalam	...	...	0.1	0.0	0.2	0.2	...	...	13.1	11.4	23.7	27.5
Cambodia	...	...	−1.4	−0.4	1.2	1.1	8.3	14.3	16.9	18.5	17.4	22.0
Indonesia	2.4	3.5	2.4	1.4	1.9	2.1	30.7	31.9	22.2	25.1	32.9	34.7
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	−0.7	0.1	1.6	0.1	1.0	−1.0	32.4	43.6	26.9	22.4	23.4	25.0
Myanmar	−1.3	0.6	0.7	0.5	0.3	0.2	13.4	14.2	12.4	13.2	23.2	35.3
Philippines	1.0	0.2	−3.7	1.6	0.0	0.1	24.2	22.5	18.4	21.6	20.5	20.9
Singapore	3.9	0.7	2.9	−1.7	1.7	2.3	35.6	33.8	34.9	21.4	27.9	27.6
Thailand	1.1	1.5	0.7	2.7	1.4	−0.5	41.6	42.9	22.3	30.4	25.4	24.1
Viet Nam	1.3	1.7	2.0	2.5	3.0	3.0	14.4	27.1	29.6	33.8	35.7	26.8
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	1.1	2.3	2.0	...	...	...	22.6	21.3	24.0	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	2.4	...	...	...	...	...	19.4	...	...	...	...
Papua New Guinea	−0.7	2.4	1.5	1.0	...	...	24.4	21.9	21.9	17.5	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[b]	...	...	−3.9	0.0	0.0	...	...	...	31.3	5.1	13.5	...
Tonga	0.5	0.6	0.5	0.3	0.5	0.3	18.1	26.5	20.7	22.3	30.1	22.8
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	−0.6	0.5	0.7	0.8	...	34.9	23.2	22.9	24.1	34.6	...
Developed Member Economies												
Australia	1.2	0.8	0.3	0.4	−0.2	−0.2	28.7	26.0	26.0	27.0	27.8	27.4
Japan	0.6	0.3	−0.1	0.1	−0.2	−0.5	32.7	28.1	25.1	22.5	19.8	21.9
New Zealand	−0.2	1.2	1.2	0.7	0.4	0.4	19.8	22.8	20.9	24.7	19.9	23.4

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Computed as a share of GDP at current prices.
b The treatment of oil production from 2000 on reflects the 2008 System of National Accounts concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.7: Exports and Imports of Goods and Services
(% of GDP)[a]

Regional Member	Exports of Goods and Services						Imports of Goods and Services					
	1990	1995	2000	2005	2010	2014	1990	1995	2000	2005	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	26.0	9.8	6.5	...	...	...	73.6	43.9	45.0
Armenia	...	23.9	23.4	28.8	20.8	31.2	...	62.2	50.5	43.2	45.3	51.1
Azerbaijan	43.9	32.5	40.2	62.9	54.3	43.3	39.2	53.4	38.4	52.9	20.7	26.2
Georgia	...	...	23.0	33.7	35.0	42.9	...	...	39.7	51.6	52.8	60.4
Kazakhstan	...	39.0	56.6	53.5	44.2	39.5	...	43.5	49.1	44.7	29.9	26.1
Kyrgyz Republic	29.2	29.5	41.8	38.3	51.6	36.9	49.5	42.4	47.6	56.8	81.7	88.1
Pakistan	14.8	16.7	13.4	15.7	13.5	12.3	20.2	19.4	14.7	19.6	19.4	18.7
Tajikistan	0.0	112.0	92.4	54.3	26.8	...	0.0	121.2	100.2	72.8	59.0	...
Turkmenistan	111.2	142.5	95.5	65.0	77.8	...	123.7	145.0	80.9	47.8	45.3	...
Uzbekistan	29.0	31.6	26.5	37.9	33.1	22.5	47.8	28.7	26.7	28.7	24.5	22.2
East Asia												
China, People's Rep. of	19.0	20.2	23.3	37.1	28.8	24.6	15.6	18.6	20.9	31.5	25.2	19.4
Hong Kong, China	130.6	143.2	141.8	194.7	219.4	219.6	122.0	147.6	137.4	182.4	213.5	219.6
Korea, Rep. of	27.6	28.5	35.0	36.8	49.4	50.6	28.3	29.0	32.9	34.4	46.2	45.3
Mongolia	...	-1.0	54.0	58.8	46.7	53.3	...	...	67.9	63.6	56.7	55.7
Taipei,China	45.7	47.0	52.9	62.5	70.9	70.1	41.4	45.5	50.8	58.1	63.9	59.7
South Asia												
Bangladesh	6.1	10.9	14.0	16.6	16.0	19.0	13.5	17.3	19.2	23.0	21.8	25.5
Bhutan	26.8	37.8	29.4	38.2	42.5	...	31.9	42.6	48.3	58.7	70.7	...
India	7.1	11.0	12.8	19.3	22.0	23.2	8.5	12.2	13.7	22.0	26.3	25.5
Maldives	...	92.7	89.5	...	...	...	...	77.2	71.6	...	...	...
Nepal	10.5	24.2	23.3	14.6	9.6	...	21.1	34.6	32.4	29.5	36.4	...
Sri Lanka	30.5	35.9	38.2	32.3	22.4	22.3	38.5	45.5	48.4	41.3	30.7	30.9
Southeast Asia												
Brunei Darussalam	61.8	59.7	67.4	70.2	67.4	68.2	37.3	55.8	35.8	27.3	28.0	34.3
Cambodia	2.4	31.2	49.9	64.1	54.1	62.3	8.4	47.4	61.7	72.7	59.5	66.6
Indonesia	25.3	26.3	41.0	34.1	24.3	23.7	23.7	27.6	30.5	29.9	22.4	24.5
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	74.5	94.1	119.8	112.9	86.9	73.8	72.4	98.0	100.6	91.0	71.0	64.6
Myanmar	1.9	0.8	0.5	0.2	19.6	17.6	3.6	1.7	0.6	0.1	15.1	25.4
Philippines	27.5	36.4	51.4	46.1	34.8	28.7	33.3	44.2	53.4	51.7	36.6	32.4
Singapore	177.2	181.2	189.2	226.1	199.3	187.6	167.1	164.5	176.9	196.3	172.8	163.2
Thailand	33.1	41.6	64.8	68.4	66.1	69.2	40.6	48.3	56.5	69.5	60.6	62.6
Viet Nam	26.4	32.8	55.0	63.7	72.0	86.4	35.7	41.9	57.5	67.0	80.2	83.1
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	59.3	56.8	53.0	...	...	...	58.8	65.7	65.3	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	14.6	...	...	...	...	...	63.5	...	...	...	...
Papua New Guinea	40.6	59.3	66.2	74.5	...	...	48.9	41.1	49.2	56.1	...	...
Samoa	39.3	...	...	...	...	...	84.7	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[b]	...	...	28.4	81.5	98.6	...	...	...	141.4	22.8	50.2	...
Tonga	33.2	17.1	15.4	17.7	13.2	18.5	63.8	54.7	46.8	57.8	57.9	56.5
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	49.5	45.8	34.7	45.4	46.6	...	76.7	54.8	43.7	54.8	52.7	...
Developed Member Economies												
Australia	15.1	17.8	19.4	18.1	19.5	20.9	17.1	19.8	21.5	20.8	20.4	21.3
Japan	10.4	9.1	10.9	14.3	15.2	17.7	9.4	7.7	9.4	12.9	14.0	20.8
New Zealand	26.5	29.6	35.7	28.2	30.5	28.2	26.3	27.7	32.8	29.6	28.2	27.5

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Computed as a share of GDP at current prices.
b The treatment of oil production from 2000 on reflects the 2008 System of National Accounts concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.8: Gross Domestic Saving
(% of GDP)[a]

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	−25.8	−19.5	−23.3	−9.9	−11.4	−3.7	3.8	7.8	7.1
Armenia	...	−17.5	−8.9	14.0	18.2	18.2	6.3	4.9	3.4	−1.2	−2.4	−1.5
Azerbaijan	31.8	2.9	20.4	47.5	56.9	58.1	46.1	49.8	49.4	50.0	46.2	42.8
Georgia	...	...	0.9	15.7	7.4	−2.7	−6.1	4.1	7.8	10.2	12.3	13.7
Kazakhstan	...	15.3	26.0	38.9	43.8	45.7	41.0	43.8	46.6	42.5	39.0	41.2
Kyrgyz Republic	3.7	5.5	14.3	−2.1	−4.6	−10.1	3.3	−2.7	−1.6	−15.9	−15.6	−16.7
Pakistan	13.5	15.8	16.0	15.2	12.2	8.4	10.3	10.0	9.1	7.1	8.2	8.5
Tajikistan	0.3	28.7	0.6	4.3	6.9	3.1	1.2	4.0	−10.8	−13.5	−13.9	...
Turkmenistan	27.6	31.0	49.3	40.2	54.9	55.4	76.0	85.4	83.1	76.1	81.5	...
Uzbekistan	13.2	27.1	19.4	32.7	36.5	36.7	35.8	35.2	34.3	32.6	31.0	29.8
East Asia												
China, People's Rep. of	35.2	39.6	38.0	46.3	50.3	51.1	50.3	51.2	50.1	49.1	48.8	48.4
Hong Kong, China	35.7	29.6	32.0	33.3	32.1	31.2	29.7	29.8	28.0	26.4	24.6	24.0
Korea, Rep. of	37.6	36.5	34.9	34.5	33.7	32.9	33.2	35.2	34.5	33.8	34.1	34.5
Mongolia	8.0	19.8	9.6	32.7	38.3	29.1	27.5	32.1	36.3	33.5	30.7	29.4
Taipei,China	28.8	28.6	27.8	27.3	30.7	28.6	27.6	31.7	30.4	28.8	30.0	30.3
South Asia												
Bangladesh	12.9	13.1	17.9	20.0	20.7	19.2	20.3	20.8	20.6	21.2	22.0	22.1
Bhutan	33.4	41.5	30.3	37.7	41.4	41.3	34.2	36.2	38.8	37.0	31.4	...
India	22.8	24.4	23.7	33.4	36.8	32.0	33.7	33.7	33.9	...	...	...
Maldives	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	7.3	13.8	14.1	11.6	9.8	9.8	9.4	11.5	14.0	11.0	...	...
Sri Lanka	12.0	14.6	15.4	17.9	17.6	13.9	17.9	19.3	15.4	16.9	20.0	21.1
Southeast Asia												
Brunei Darussalam	51.5	36.6	49.4	59.1	57.2	65.2	52.4	63.1	68.5	67.8	64.6	62.7
Cambodia	2.3	2.5	8.1	9.9	16.1	14.9	15.9	12.4	11.1	12.3	17.2	17.3
Indonesia	32.3	30.6	31.8	27.5	28.1	31.0	31.7	35.8	36.5	35.4	34.3	34.4
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	34.4	39.7	46.1	44.3	43.3	43.8	38.1	39.3	38.8	36.5	34.5	34.3
Myanmar	11.7	13.4	12.3	13.1	14.9	17.4	15.8	32.7	37.0	36.6	33.7	32.8
Philippines	18.7	14.5	16.4	15.9	17.2	16.8	15.5	18.7	16.8	14.9	15.8	17.2
Singapore	45.7	50.5	47.2	51.2	53.9	51.3	51.2	54.3	53.7	52.6	52.2	52.1
Thailand	34.1	36.2	30.7	29.4	33.4	30.6	30.0	30.9	28.5	28.9	30.1	30.7
Viet Nam	2.9	18.2	27.1	29.0	26.3	23.5	25.7	27.4	27.7	29.6	28.4	27.9
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	23.0	12.4	11.7	4.2	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	16.1	40.2	38.8	35.9	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[b]	...	...	−81.7	63.8	64.1	72.0	57.3	61.9	70.7	70.0	64.8	...
Tonga	−12.5	−10.3	−10.0	−16.3	−20.0	−21.8	−24.2	−16.1	−9.6	−12.8	−19.8	−21.3
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	5.7	17.0	21.2	19.6	24.2	28.2	25.4	20.5	23.5	23.2	23.3	...
Developed Member Economies												
Australia	28.4	24.0	24.3	24.7	26.2	26.5	28.1	26.6	28.2	28.4	27.3	26.8
Japan	32.9	28.4	26.3	23.6	24.3	22.8	19.6	20.7	19.4	19.0	18.3	...
New Zealand	20.0	24.7	25.0	23.9	24.9	22.5	22.3	22.6	22.3	22.1	24.4	24.1

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Computed as a share of GDP at current prices.
b The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

National Accounts

Table 2.9: Growth Rates of Real GDP

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	9.9	16.1	2.3	17.2	3.2	8.7	10.9	6.4	2.2
Armenia	...	...	5.9	13.9	13.7	7.0	−14.2	2.2	4.7	7.2	3.5	3.4
Azerbaijan	...	−12.0	11.1	26.4	25.1	10.8	9.3	5.0	0.1	2.2	5.8	2.8
Georgia	...	...	1.8	9.6	12.6	2.6	−3.7	6.2	7.2	6.4	3.3	4.8
Kazakhstan	...	−8.2	9.8	9.7	8.9	3.3	1.2	7.3	7.3	5.0	6.0	4.3
Kyrgyz Republic	...	−5.4	5.4	−0.2	8.5	8.4	2.9	−0.5	6.0	−0.9	12.8	3.6
Pakistan	4.6	5.1	3.9	9.0	5.5	5.0	0.4	2.6	3.6	3.8	3.7	4.0
Tajikistan	...	6.0	8.3	6.7	7.6	7.6	4.0	6.5	2.4	7.5	7.4	6.7
Turkmenistan	...	−7.2	5.5	13.0	11.0	14.7	6.1	9.2	14.1	11.1	10.2	10.3
Uzbekistan	...	−0.9	3.8	7.0	9.5	9.0	8.1	8.5	8.3	8.2	8.0	7.1
East Asia												
China, People's Rep. of	3.8	10.9	8.4	11.3	14.2	9.6	9.2	10.4	9.5	7.7	7.7	7.4
Hong Kong, China	3.9	...	7.7	7.4	6.5	2.1	−2.5	6.8	4.8	1.7	3.1	2.5
Korea, Rep. of	9.3	8.9	8.9	3.9	5.5	2.8	0.7	6.5	3.7	2.3	2.9	3.3
Mongolia	−2.5	6.4	1.1	7.3	10.2	8.9	−1.3	...	17.3	12.3	11.6	7.8
Taipei,China	6.9	6.4	5.8	4.7	6.5	0.7	−1.6	10.6	3.8	2.1	2.2	3.8
South Asia												
Bangladesh	5.9	4.9	6.0	6.0	7.1	6.0	5.0	5.6	6.5	6.5	6.0	6.1
Bhutan	2.4	7.1	5.8	7.1	17.9	4.7	6.7	11.7	7.9	5.1	2.0	...
India	5.3	7.3	3.8	9.3	9.8	3.9	8.5	10.3	6.7	5.1	6.9	7.3
Maldives	16.9	7.4	4.4	−8.7	10.6	12.2	−3.6	7.1	6.5	1.3	4.7	6.8
Nepal	4.7	3.4	6.0	3.5	3.4	6.1	4.5	4.8	3.4	4.8	4.1	5.4
Sri Lanka	6.2	5.5	6.0	6.2	6.8	6.0	3.5	8.0	8.2	6.3	7.2	7.4
Southeast Asia												
Brunei Darussalam	1.1	4.5	2.8	0.4	0.2	−1.9	−1.8	2.6	3.7	0.9	−2.1	−2.3
Cambodia	1.2	6.5	8.4	13.3	10.2	6.7	0.1	6.0	7.1	7.3	7.4	7.1
Indonesia	9.0	8.2	4.9	5.7	6.3	6.0	4.6	6.2	6.2	6.0	5.6	5.0
Lao PDR	6.7	7.1	6.3	6.8	7.8	7.8	7.5	8.1	8.0	7.9	8.0	7.6
Malaysia	9.0	9.8	8.9	5.3	6.3	4.8	−1.5	7.4	5.3	5.5	4.7	6.0
Myanmar	2.8	6.9	13.7	13.6	12.0	10.3	10.6	9.6	5.6	7.3	8.4	8.7
Philippines	3.0	4.7	4.4	4.8	6.6	4.2	1.1	7.6	3.7	6.7	7.1	6.1
Singapore	10.0	7.0	8.9	7.5	9.1	1.8	−0.6	15.2	6.2	3.4	4.4	2.9
Thailand	11.2	8.1	4.5	4.2	5.4	1.7	−0.7	7.5	0.8	7.3	2.8	0.9
Viet Nam	5.1	9.5	6.8	7.5	7.1	5.7	5.4	6.4	6.2	5.2	5.4	6.0
The Pacific												
Cook Islands	7.9	−4.4	13.9	−1.1	−0.2	−3.5	1.0	−3.0	1.0	4.7	1.4	6.2
Fiji	3.6	...	−1.7	−1.3	−0.9	1.0	−1.4	3.0	2.7	1.8	4.6	...
Kiribati	2.1	−0.6	5.3	−0.2	7.5	2.8	4.3	−2.2	−1.2	3.8	...	...
Marshall Islands	9.8	−0.3	5.9	2.6	3.8	−2.0	−1.7	6.1	0.0	4.7	3.0	...
Micronesia, Fed. States of	4.0	4.6	4.6	2.2	−2.2	−2.5	1.0	3.2	1.8	0.1	−4.0	−1.5
Nauru	...	...	...	−9.8	−10.8	95.6	−20.3	20.1	14.2	20.2	...	...
Palau	...	10.9	...	1.5	0.1	−4.8	−10.5	3.7	4.7	3.2	−1.8	4.9
Papua New Guinea	−0.4	−3.4	−2.5	3.9	7.2	6.6	6.1	7.6	11.3	7.7	4.9	8.4
Samoa	−7.5	6.6	8.6	4.7	6.1	−1.0	−4.0	4.4	3.5	−2.3	0.5	1.6
Solomon Islands	2.9	10.0	−14.2	5.0	10.7	7.3	−1.8	7.9	10.6	3.3	3.1	2.0
Timor-Leste[a]	...	9.5	...	52.7	3.9	10.4	−7.8	−3.3	12.6	5.3	−13.9	...
Tonga	2.0	3.8	−0.8	1.6	−4.5	1.9	3.2	3.3	2.9	0.8	−3.1	2.0
Tuvalu	15.4	−5.0	...	−3.9	6.4	8.0	−4.4	−2.7	8.5	0.2	1.3	2.2
Vanuatu	0.0	0.0	5.9	5.3	5.2	6.4	3.3	1.6	1.2	1.8	2.0	...
Developed Member Economies												
Australia	3.6	3.7	3.9	3.2	3.8	3.7	1.7	2.0	2.3	3.7	2.5	2.5
Japan	5.6	1.9	2.3	1.3	2.2	−1.0	−5.5	4.7	−0.5	1.7	1.6	−0.1
New Zealand	0.0	4.5	2.7	3.3	2.9	−1.6	−0.3	1.4	2.2	2.1	2.5	3.1

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.10: Growth Rates of Real GDP Per Capita

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	8.2	14.2	0.3	14.9	1.3	6.6	8.9	4.5	0.0
Armenia	...	...	6.2	13.7	13.6	6.7	−14.4	1.9	5.2	7.3	3.5	3.7
Azerbaijan	...	−13.0	9.9	24.9	23.5	9.3	7.9	3.8	−1.2	0.9	4.5	1.5
Georgia	...	...	2.6	9.4	12.7	2.9	−3.8	5.0	6.4	5.7	3.6	4.6
Kazakhstan	...	−6.3	10.2	8.7	7.7	2.0	−1.4	5.7	5.8	3.5	4.5	2.8
Kyrgyz Republic	...	−6.0	4.0	−1.4	7.3	7.7	0.8	−0.8	4.8	−2.2	10.5	1.6
Pakistan	1.9	2.5	1.6	6.9	3.7	2.8	−1.7	0.5	1.5	1.8	1.7	2.0
Tajikistan	...	4.9	6.1	4.5	5.4	5.3	1.8	4.2	−0.0	5.0	5.2	4.3
Turkmenistan	...	−9.2	4.3	11.8	9.7	13.3	4.8	7.8	12.7	9.7	8.8	8.9
Uzbekistan	...	−2.7	2.4	5.8	8.0	7.3	6.3	5.4	5.4	6.6	6.3	5.5
East Asia												
China, People's Rep. of	2.3	9.7	7.6	10.6	13.6	9.0	8.7	9.9	9.0	7.2	7.2	6.8
Hong Kong, China	3.6	...	6.7	6.9	5.6	1.5	−2.7	6.0	4.1	0.5	2.6	1.7
Korea, Rep. of	8.2	7.8	8.0	3.7	5.0	2.1	0.2	6.0	2.9	1.8	2.5	2.9
Mongolia	−4.8	5.0	−0.5	6.0	9.7	7.2	−3.0	...	15.3	10.2	9.4	5.4
Taipei,China	5.6	5.5	5.0	4.3	6.1	0.3	−1.9	10.3	3.6	1.7	1.9	3.5
South Asia												
Bangladesh	3.6	3.0	4.5	4.4	5.5	4.5	3.6	4.2	5.7	5.2	4.6	4.6
Bhutan	1.1	5.7	5.6	5.7	15.8	2.8	4.8	9.7	6.0	3.3	0.3	...
India	3.1	5.1	2.0	7.7	8.2	2.4	7.0	8.8	5.3	3.7	5.6	6.0
Maldives	14.1	5.3	2.8	−11.6	4.5	7.8	−2.2	4.7	3.1	−2.0	1.2	3.2
Nepal	2.6	0.8	3.4	2.1	2.0	4.6	3.1	3.4	2.0	3.3	2.7	3.9
Sri Lanka	4.7	4.4	4.6	5.3	6.0	5.0	2.4	7.0	7.1	8.7	6.4	6.4
Southeast Asia												
Brunei Darussalam	−1.7	0.4	0.3	−1.3	−1.3	−3.2	−3.1	0.8	2.0	−0.7	−3.6	−3.6
Cambodia	−2.4	1.3	7.0	11.7	8.7	5.3	−1.5	4.4	5.5	5.5	5.9	5.6
Indonesia	6.9	6.5	3.7	4.3	5.0	4.7	3.3	3.4	4.6	4.5	4.1	3.6
Lao PDR	4.5	4.8	4.2	4.7	5.6	5.4	5.4	5.8	5.9	5.7	5.3	5.6
Malaysia	6.4	7.0	6.2	3.2	4.2	2.8	−3.3	5.5	3.6	3.9	3.3	4.7
Myanmar	0.9	5.0	...	...	...	...	...	...	4.5	6.2	7.3	8.0
Philippines	0.7	2.3	2.0	2.8	4.7	2.3	−0.6	5.8	1.9	4.9	5.3	4.3
Singapore	6.9	3.8	7.0	5.0	4.6	−3.5	−3.6	13.2	4.0	0.9	2.7	1.6
Thailand	9.9	6.9	3.3	3.6	4.8	1.1	−1.3	6.9	0.4	6.9	2.4	0.5
Viet Nam	3.1	7.7	5.3	6.3	6.0	4.5	4.3	5.3	5.1	4.1	4.3	4.9
The Pacific												
Cook Islands	4.8	−3.9	4.4	−6.7	13.1	−7.5	−2.1	−7.5	24.0	3.6	3.4	6.2
Fiji	2.9	...	−2.3	−2.0	−1.3	0.2	−1.9	2.3	2.3	1.4	4.1	...
Kiribati	−1.3	−2.1	3.9	−2.5	5.2	0.6	2.1	−4.3	−3.4	1.6	...	...
Marshall Islands	8.3	−1.7	5.1	1.2	3.1	−3.3	−1.3	4.9	−0.4	4.3	2.6	...
Micronesia, Fed. States of	2.0	4.4	4.4	2.5	−1.6	−1.9	1.5	3.8	1.1	−0.1	−3.9	−1.4
Nauru	...	...	...	−7.8	−12.1	92.5	−21.8	17.9	10.1	19.3	...	...
Palau	...	8.0	...	0.7	2.0	−3.0	−8.8	5.7	6.7	5.2	−1.3	3.9
Papua New Guinea	−2.5	−6.4	−5.4	1.1	4.2	3.7	3.2	4.6	8.2	4.7	2.1	5.5
Samoa	−7.9	5.6	7.6	4.4	5.3	−1.7	−4.7	3.6	2.7	−3.0	−0.2	0.8
Solomon Islands	0.1	7.0	−16.2	2.6	8.2	4.9	−4.1	5.5	8.1	1.0	0.8	−0.3
Timor-Leste[a]	...	7.6	...	50.0	1.7	7.9	−10.1	−5.9	9.6	2.5	−16.1	...
Tonga	1.7	3.5	−1.2	1.1	−4.9	1.7	3.0	3.1	2.6	0.6	−3.3	1.8
Tuvalu	12.9	−5.5	...	−6.7	−0.3	8.9	−4.9	−3.2	14.3	−1.4	−0.3	0.6
Vanuatu	−2.5	−2.5	3.1	2.6	2.5	3.7	1.8	−1.0	−1.4	−0.8	−0.5	...
Developed Member Economies												
Australia	2.1	2.6	2.7	2.0	1.9	1.6	−0.3	0.4	0.9	2.0	0.7	1.0
Japan	5.3	1.7	2.1	1.3	2.1	−1.1	−5.5	4.7	−0.3	1.9	1.8	0.1
New Zealand	−0.9	3.0	2.1	2.1	1.8	−2.6	−1.3	0.3	1.3	1.5	3.2	0.8

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Asian Development Bank estimates using economy sources.

National Accounts

Table 2.11: Growth Rates of Agriculture Real Value Added

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	12.2	21.2	−11.7	23.3	−18.0	4.7	3.3	8.1	3.9
Armenia	...	...	−1.0	11.2	10.4	3.3	6.0	−16.0	14.0	9.5	7.6	7.8
Azerbaijan	...	−7.8	12.1	7.5	4.0	6.1	3.5	−4.7	5.8	6.6	4.9	−2.6
Georgia	...	...	−12.0	12.0	3.3	−4.5	−6.5	−4.1	8.5	−3.7	11.3	1.5
Kazakhstan	...	−24.4	−3.2	7.1	8.9	−7.6	13.2	−11.6	22.5	−17.4	11.2	0.8
Kyrgyz Republic	...	−2.0	2.6	−4.2	1.6	0.9	6.7	−2.6	1.8	1.2	0.0	−0.6
Pakistan	3.0	6.6	6.1	6.5	3.4	1.8	3.5	0.2	2.0	3.6	2.9	...
Tajikistan	...	...	...	2.8	6.5	7.8	10.5	6.8	0.4	9.5	7.7	...
Turkmenistan	...	−54.0	−2.6	14.1	21.7	−26.4	5.8	29.8	9.5	13.7	10.0	...
Uzbekistan	...	2.0	3.2	5.9	6.5	4.7	5.8	6.6	6.8	7.0	...	6.3
East Asia												
China, People's Rep. of	7.3	5.0	2.4	5.2	3.7	5.4	4.2	4.3	4.2	4.5	4.0	4.2
Hong Kong, China	...	...	...	−1.1	−6.3	−18.7	−3.2	5.1	0.3	−5.0	5.1	−3.4
Korea, Rep. of	−5.9	6.7	1.1	1.4	4.1	5.6	3.2	−4.3	−2.0	−0.9	3.1	2.6
Mongolia	−1.0	0.2	−16.3	11.3	14.4	4.7	3.6	...	−0.3	21.1	19.2	14.5
Taipei,China	0.6	2.9	1.7	−4.2	...	0.0	−2.6	2.2	4.5	−3.2	3.5	3.4
South Asia												
Bangladesh	9.4	−0.3	7.4	2.2	6.7	4.5	3.5	6.2	4.5	3.0	2.5	4.4
Bhutan	5.1	1.5	5.4	1.1	0.8	0.7	2.7	0.9	2.4	2.3	2.9	...
India	4.0	−0.7	0.0	5.1	5.8	0.1	0.8	8.6	5.0	1.2	3.7	0.2
Maldives	9.7	1.0	−0.2	5.9	−11.9	−3.4	−2.5	−0.9	1.1	0.0	5.1	−2.1
Nepal	5.8	−0.9	4.9	3.5	1.0	5.8	3.0	2.0	4.5	4.6	1.1	...
Sri Lanka	8.8	3.4	2.3	1.8	3.4	7.5	3.2	7.0	1.4	5.2	4.7	0.3
Southeast Asia												
Brunei Darussalam	2.6	2.9	6.6	1.3	−4.5	3.7	5.7	−5.9	−2.6	8.1	−1.2	4.7
Cambodia	1.2	3.5	−1.2	15.7	5.0	5.7	5.4	4.0	3.1	4.3	1.6	0.3
Indonesia	3.1	4.4	1.9	2.7	3.5	4.8	4.0	3.0	3.9	4.6	4.2	4.2
Lao PDR	8.7	3.1	4.2	0.7	8.6	3.7	2.8	3.2	2.7	3.3	3.5	3.6
Malaysia	−0.6	−2.5	6.1	2.6	1.4	3.8	0.1	2.4	6.8	1.0	1.9	2.1
Myanmar	1.8	4.8	11.0	12.1	7.9	5.6	5.6	4.7	−0.7	1.7	3.6	3.3
Philippines	0.5	0.9	3.4	2.2	4.7	3.2	−0.7	−0.2	2.6	2.8	1.1	1.6
Singapore	−8.2	−3.7	−4.8	7.1	−0.1	−5.8	3.9	2.4	2.1	3.8	−1.0	1.6
Thailand	−4.7	1.3	6.8	−0.1	1.9	2.9	−0.2	−0.5	6.3	3.4	0.4	0.3
Viet Nam	1.0	4.8	4.6	4.2	4.0	4.7	1.9	3.3	4.0	2.7	2.6	3.5
The Pacific												
Cook Islands	13.2	−2.5	0.1	−3.5	5.2	−9.9	7.2	1.9	−6.7	14.9	3.9	8.7
Fiji	−4.6	...	−1.3	0.9	−4.9	4.9	−8.1	−2.6	8.2	3.5	2.6	...
Kiribati	−20.7	−3.0	−7.2	−7.4	2.6	15.0	−13.5	−3.9	9.7	3.4	...	...
Marshall Islands	...	...	22.7	−9.3	8.2	−2.3	14.2	26.0	−0.4	23.6	6.2	...
Micronesia, Fed. States of	...	...	7.0	4.2	4.4	−0.1	−1.0	1.1	4.2	5.9	−6.2	1.7
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	−21.3	...	7.0	−8.4	3.9	−11.4	−4.3	9.0	1.4	−8.1	−1.5
Papua New Guinea	2.2	−0.7	2.1	5.6	4.2	4.3	0.7	2.9	8.6	−2.7	1.6	3.9
Samoa	...	12.7	8.1	2.4	3.6	−11.4	−0.9	−6.1	10.1	−12.6	8.9	−0.5
Solomon Islands	−1.0	11.8	−17.1	5.2	12.0	6.7	−7.3	10.7	12.1	0.1	2.4	5.6
Timor-Leste[a]	...	−4.3	...	4.1	−3.2	0.0	8.3	−2.6	−19.9	23.5	0.5	...
Tonga	3.9	0.7	−2.5	−2.1	1.0	−5.3	−1.4	0.5	2.0	0.5	3.7	3.1
Tuvalu	13.1	0.6	...	0.9	1.1	0.7	3.4	14.4	0.4	−6.3	...	...
Vanuatu	15.5	2.9	4.3	2.3	3.5	2.6	0.7	4.8	6.1	2.2	4.8	...
Developed Member Economies												
Australia	...	−14.7	6.5	4.2	−15.1	6.8	17.6	−0.9	3.5	1.4	−0.6	2.1
Japan	−0.3	−6.7	2.0	1.0	6.3	7.2	−9.4	−1.0	2.0	0.6	2.7	...
New Zealand	16.7	7.1	3.1	4.3	0.4	6.1	0.7	−5.6	6.1	2.6	−1.4	2.4

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.12: Growth Rates of Industry Real Value Added

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	13.0	7.6	5.7	6.1	6.3	9.8	7.8	4.9	2.0
Armenia	...	...	12.8	14.8	11.7	7.8	−29.6	5.7	−0.0	5.7	0.8	−2.4
Azerbaijan	...	−13.3	5.7	43.4	32.9	9.7	10.3	3.9	−4.7	−1.0	4.3	0.5
Georgia	...	...	3.9	12.0	15.1	−3.4	−3.9	8.1	8.5	10.5	2.3	5.1
Kazakhstan	...	−15.9	15.3	10.7	8.0	4.3	1.9	7.6	2.9	1.8	3.1	0.9
Kyrgyz Republic	...	−12.3	8.8	−9.8	10.3	14.0	−0.3	2.5	7.5	−11.2	31.7	6.3
Pakistan	6.5	4.1	1.3	12.1	7.7	8.5	−5.2	3.4	4.5	2.5	0.6	4.5
Tajikistan	...	...	...	7.7	−4.5	0.3	−10.3	5.6	−15.1	−2.6	4.0	...
Turkmenistan	...	22.3	1.0	10.6	17.0	60.8	5.8	−1.0	9.5	13.7	10.0	...
Uzbekistan	...	−5.2	1.8	5.3	8.4	6.5	9.9	4.4	4.5	6.5	8.8	6.6
East Asia												
China, People's Rep. of	3.2	13.9	9.4	12.1	15.1	9.9	9.9	12.3	10.7	8.2	7.9	7.3
Hong Kong, China	...	...	...	−2.9	−0.4	2.1	−5.1	7.9	9.3	4.6	1.6	5.1
Korea, Rep. of	14.2	8.7	11.0	4.7	7.1	2.7	0.2	10.4	4.5	1.9	3.3	3.5
Mongolia	−4.9	28.4	1.5	4.2	7.0	−0.8	−0.4	...	8.8	14.8	14.6	16.2
Taipei,China	−1.0	4.4	5.4	6.9	...	−0.2	−3.6	20.3	6.1	3.3	1.6	5.6
South Asia												
Bangladesh	7.1	9.9	6.2	8.3	9.0	7.0	6.9	7.0	9.0	9.4	9.6	8.2
Bhutan	−1.7	16.0	15.1	3.8	40.7	6.1	3.6	12.5	4.1	6.8	3.5	...
India	7.1	11.6	6.0	9.7	9.7	4.4	9.2	7.6	7.8	2.4	4.5	6.1
Maldives	16.4	4.7	1.2	10.4	22.5	9.5	−26.1	4.3	12.1	0.8	−1.5	13.2
Nepal	4.8	4.3	8.6	3.0	3.9	1.7	−0.6	4.0	4.3	3.0	2.7	6.2
Sri Lanka	8.0	8.3	9.0	8.0	7.6	5.9	4.2	8.4	10.3	10.3	9.9	11.4
Southeast Asia												
Brunei Darussalam	−0.3	5.4	3.0	−1.8	−5.6	−5.4	−5.0	1.7	3.2	−1.4	−5.6	−4.4
Cambodia	−2.1	18.9	31.2	12.7	8.4	4.0	−9.5	13.0	13.4	10.4	11.5	9.8
Indonesia	11.5	10.4	5.9	4.7	4.7	3.7	3.6	4.9	6.3	5.3	4.2	4.2
Lao PDR	16.2	13.3	9.3	10.6	4.4	10.4	18.5	17.5	14.6	11.4	9.7	7.3
Malaysia	11.0	14.9	13.6	3.6	3.2	0.3	−6.7	8.4	2.4	4.9	3.6	6.1
Myanmar	5.5	12.7	21.3	19.9	19.6	18.0	17.6	18.6	10.2	8.0	11.4	12.4
Philippines	2.6	6.7	6.5	4.2	5.8	4.8	−1.9	11.6	1.9	7.3	9.2	7.9
Singapore	9.1	9.5	11.3	8.0	7.4	−0.1	0.3	25.3	7.1	2.2	2.5	2.7
Thailand	16.1	10.5	2.6	5.3	6.6	2.3	−1.9	10.4	−4.1	7.3	1.4	−0.7
Viet Nam	2.3	13.6	10.1	8.4	7.4	4.1	6.0	7.2	6.7	5.7	5.4	7.1
The Pacific												
Cook Islands	20.2	−15.9	18.2	−6.3	4.6	2.5	−2.2	−8.4	11.6	11.0	−6.3	−23.8
Fiji	3.0	...	−5.5	−6.7	−5.2	−1.4	1.0	6.5	2.0	1.1	5.1	...
Kiribati	1.3	2.6	−6.4	6.7	38.6	−25.2	19.2	1.7	−2.3	1.1	...	...
Marshall Islands	...	...	−14.5	4.6	−2.5	3.2	−7.5	−5.9	−6.1	−1.2	8.4	...
Micronesia, Fed. States of	...	...	6.5	−3.0	−7.9	10.0	35.8	18.0	11.7	−1.6	−19.5	−23.9
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	30.8	...	9.0	−7.8	−24.4	−30.6	3.2	5.4	−4.4	−15.4	0.9
Papua New Guinea	−2.5	−10.0	−0.8	4.1	7.3	7.0	8.1	10.8	13.0	14.7	9.2	15.6
Samoa	...	1.8	14.4	4.7	13.3	−4.9	−19.7	10.1	2.4	−1.1	0.1	−1.9
Solomon Islands	22.7	31.6	−29.7	6.7	11.4	3.5	1.7	1.7	27.3	23.3	4.6	−20.4
Timor-Leste[a]	...	16.6	...	73.4	3.1	11.1	−10.4	−6.1	15.4	4.3	−18.1	...
Tonga	0.3	9.7	−0.4	−2.8	−4.7	0.7	12.9	11.6	5.5	1.2	−14.3	1.3
Tuvalu	−32.1	−13.0	...	−18.7	44.7	44.2	−13.6	−41.5	42.8	−26.1	...	...
Vanuatu	−1.1	−2.2	46.4	5.3	−10.1	27.5	27.6	12.6	−19.4	−22.1	9.8	...
Developed Member Economies												
Australia	...	4.4	3.1	−0.2	2.4	2.7	−2.6	−0.2	0.9	0.1	0.1	−0.3
Japan	7.9	0.4	2.8	2.1	3.5	−0.2	−15.0	14.4	−2.7	0.6	0.9	...
New Zealand	−4.4	2.0	0.2	1.8	3.0	−8.1	−2.3	0.2	0.5	3.2	3.8	4.3

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.13: Growth Rates of Services Real Value Added

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	5.4	19.3	13.8	17.2	18.1	10.3	16.0	6.3	2.4
Armenia	...	...	3.0	14.7	13.8	5.0	−3.7	4.7	6.1	6.9	3.8	5.6
Azerbaijan	...	−13.1	9.6	9.4	11.6	12.8	7.8	2.9	7.2	7.6	8.6	7.4
Georgia	...	...	7.4	10.6	12.2	5.5	−4.9	10.1	7.0	7.0	3.8	5.5
Kazakhstan	...	0.3	8.4	10.4	13.2	3.1	−1.4	0.1	4.8	4.3	6.9	6.1
Kyrgyz Republic	...	−4.6	5.8	8.4	12.4	10.7	2.6	−1.3	7.4	5.9	10.1	3.4
Pakistan	4.5	4.8	4.8	8.5	5.6	4.9	1.3	3.2	3.9	4.4	5.1	4.4
Tajikistan	...	...	...	8.5	16.4	11.9	9.4	7.1	11.4	11.9	9.4	...
Turkmenistan	...	−15.7	18.0	27.1	2.9	−9.1	6.6	18.4	9.5	13.7	10.0	...
Uzbekistan	...	−0.9	5.4	7.6	12.5	12.3	6.8	11.2	11.7	9.7	7.9	7.6
East Asia												
China, People's Rep. of	2.3	9.8	9.7	12.2	16.0	10.4	9.6	9.8	9.4	8.0	8.2	8.1
Hong Kong, China	...	...	...	7.0	6.7	2.5	−1.7	6.6	5.1	1.8	2.7	2.4
Korea, Rep. of	8.4	7.9	6.6	3.8	5.2	3.2	1.5	4.4	3.1	2.8	2.9	3.2
Mongolia	−2.2	−7.4	10.5	9.7	11.9	16.6	0.8	...	17.8	10.3	7.8	4.6
Taipei,China	10.5	8.2	5.9	4.0	...	0.8	−0.7	5.8	3.0	1.3	2.2	2.3
South Asia												
Bangladesh	−1.9	4.9	5.5	6.4	6.5	5.8	5.1	5.5	6.2	6.6	5.5	5.6
Bhutan	2.8	5.0	7.2	14.8	6.1	4.7	13.3	12.1	13.3	0.7	1.7	...
India	5.2	10.1	5.1	10.9	10.3	10.0	10.5	9.7	6.6	8.0	9.1	10.2
Maldives	18.7	14.8	6.0	−13.8	9.2	13.5	1.7	8.0	5.8	1.5	5.9	6.2
Nepal	4.2	5.9	5.9	3.3	4.5	7.3	6.0	5.8	3.4	5.0	5.7	6.3
Sri Lanka	4.3	5.2	6.1	6.4	7.1	5.6	3.3	8.0	8.6	4.6	6.4	6.5
Southeast Asia												
Brunei Darussalam	3.6	2.9	2.5	4.1	9.2	2.6	2.1	3.8	5.0	5.8	5.1	1.2
Cambodia	2.7	8.3	8.9	13.1	10.1	9.0	2.3	3.3	5.7	7.4	8.7	8.7
Indonesia	9.8	7.6	5.2	7.9	9.0	8.7	5.8	8.4	8.4	6.8	6.5	6.1
Lao PDR	−0.4	10.2	6.9	9.9	9.1	9.7	6.0	7.0	8.1	9.2	9.7	9.4
Malaysia	11.3	9.6	6.0	7.3	10.4	8.9	2.9	7.4	7.0	6.5	6.0	6.5
Myanmar	3.2	7.3	13.4	13.1	13.2	11.6	12.1	9.5	8.5	12.0	10.3	10.4
Philippines	4.9	5.0	3.3	5.8	7.6	4.0	3.4	7.2	4.9	7.1	7.0	5.9
Singapore	9.2	6.0	7.7	7.4	9.2	4.4	−0.6	11.3	6.6	4.0	6.0	3.2
Thailand	12.7	7.6	5.3	4.1	5.2	1.0	0.1	6.8	3.7	8.2	4.4	2.1
Viet Nam	10.2	9.8	5.3	8.6	8.5	7.6	6.5	7.2	6.8	5.9	6.6	6.0
The Pacific												
Cook Islands	5.2	−3.4	15.4	−0.3	−1.1	−2.9	2.4	−2.6	0.1	2.3	−0.6	8.8
Fiji	8.4	...	0.8	−17.0	1.3	0.9	−0.8	2.9	2.0	1.7	4.9	...
Kiribati	7.2	0.2	1.7	4.6	4.0	5.4	−1.0	−0.1	−2.4	3.5	...	...
Marshall Islands	...	...	6.2	2.7	5.5	−2.5	−0.9	3.6	1.3	1.8	1.8	...
Micronesia, Fed. States of	...	...	3.2	0.8	−3.3	−3.6	−1.7	2.2	−0.1	−1.3	−0.8	1.0
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	12.7	...	−1.0	2.1	−2.2	−7.1	4.1	4.2	2.8	−0.3	5.9
Papua New Guinea	−6.3	−1.0	−12.7	3.6	9.4	9.1	10.6	9.8	12.9	11.2	4.7	4.3
Samoa	...	6.4	6.2	5.2	3.1	3.1	3.2	4.0	2.5	−0.9	−0.2	3.2
Solomon Islands	4.1	3.2	−5.7	4.3	8.7	9.0	5.5	5.5	5.6	3.8	3.8	3.1
Timor-Leste[a]	...	13.3	...	7.0	12.3	9.1	16.3	10.6	9.9	6.9	1.1	...
Tonga	1.8	3.2	0.0	3.6	−5.6	4.1	0.8	1.0	1.8	0.5	−0.5	1.6
Tuvalu	36.1	−4.8	...	−4.8	2.1	4.4	−2.1	2.3	6.4	8.3	...	...
Vanuatu	−4.8	−0.4	2.2	6.6	4.4	5.0	3.3	3.0	3.2	4.4	0.1	...
Developed Member Economies												
Australia	...	6.1	4.1	4.0	4.4	3.7	1.4	1.4	2.9	3.5	2.0	1.8
Japan	4.0	1.5	1.7	1.5	1.6	−1.5	−3.1	1.2	0.6	1.8	1.3	...
New Zealand	0.1	5.4	3.6	3.7	2.8	−0.6	0.3	2.6	2.2	1.7	2.4	2.7

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.14: Growth Rates of Real Household Consumption Expenditure

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	8.3	8.8	13.2	5.4	−4.4	3.9	2.7	9.1	0.9	0.6
Azerbaijan	...	−2.9	10.0	13.2	17.0	17.4	8.5	10.8	8.4	8.4	8.6	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	−20.6	2.7	13.9	13.8	9.8	2.3	11.8	10.9	11.0	21.4	−2.3
Kyrgyz Republic	...	−16.7	−5.0	8.3	2.7	12.6	−14.4	2.7	9.3	14.2	5.9	5.3
Pakistan	4.5	7.1	0.4	12.9	4.3	3.6	−0.5	2.2	4.6	5.0	2.1	5.4
Tajikistan	...	...	...	20.6	16.9	8.2	7.8	10.5	24.2	15.0	9.3	...
Turkmenistan	...	11.0	−49.2	−15.2	24.1	18.6	−59.5	−60.6	72.9	114.9	−31.7	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong, China	6.3	1.6	4.5	3.5	8.6	1.9	0.2	6.1	8.4	4.1	4.6	3.2
Korea, Rep. of	9.7	10.3	9.1	4.4	5.1	1.4	0.2	4.4	2.9	1.9	1.9	1.8
Mongolia	...	...	...	...	18.1	21.3	−2.5	...	15.8	13.0	15.4	9.1
Taipei,China	8.4	5.9	4.7	2.9	...	−1.7	0.0	3.8	3.1	1.8	2.4	3.0
South Asia												
Bangladesh	7.6	3.5	4.1	3.9	7.4	4.0	2.3	4.6	6.5	4.1	5.1	4.0
Bhutan	...	1.9	−3.9	1.3	18.7	1.9	19.5	10.3	2.0	5.0	12.7	...
India	4.5	6.1	3.4	8.6	9.4	7.2	7.4	8.7	9.3	5.5	6.2	6.3
Maldives	...	...	3.2	...	...	...	...	...	...	...	...	...
Nepal	...	...	...	4.7	3.2	1.3	5.7	6.2	0.6	15.9	...	...
Sri Lanka	6.4	4.0	4.0	1.7	3.9	7.5	0.9	9.2	14.7	6.8	0.0	10.5
Southeast Asia												
Brunei Darussalam	4.8	−4.8	−7.0	−0.6	2.0	1.8	5.0	1.8	5.4	8.7	6.0	−3.0
Cambodia	2.5	8.6	4.9	12.3	6.2	12.7	−1.0	9.7	10.4	6.4	4.0	4.5
Indonesia	17.2	12.6	1.6	4.0	5.0	5.3	4.9	4.7	5.1	5.5	5.4	5.1
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	11.9	11.7	13.0	9.1	10.4	8.7	0.6	6.9	6.9	8.3	7.2	7.0
Myanmar[a]	0.9	6.4	4.3	14.6	12.4	7.0	12.7	2.6	6.1	8.1	12.0	6.7
Philippines	5.4	3.8	5.2	4.4	4.6	3.7	2.3	3.4	5.6	6.6	5.6	5.4
Singapore	7.5	3.7	14.7	3.4	6.1	3.5	−1.1	5.9	4.0	3.4	3.6	2.5
Thailand	12.9	8.3	7.0	4.2	1.2	2.8	−1.3	5.0	1.8	6.3	0.8	0.6
Viet Nam	...	7.2	3.1	5.8	9.8	7.7	2.3	8.2	4.1	4.9	5.2	6.1
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	8.3	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	−13.4	−5.1	−28.5	9.8	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[b]	...	...	...	−2.5	8.9	1.1	11.3	7.6	7.5	16.4	3.6	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	...	4.6	4.1	4.5	4.8	4.7	0.1	2.3	3.7	2.5	1.9	2.2
Japan	5.2	1.7	0.4	1.5	0.9	−0.9	−0.7	2.8	0.3	2.3	2.1	−1.3
New Zealand	0.2	4.1	1.4	5.1	3.6	−1.7	1.6	2.3	2.7	2.5	2.9	3.5

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Includes government consumption expenditure.

b The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.15: Growth Rates of Real Government Consumption Expenditure

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	2.9	19.1	5.2	−1.9	−1.2	3.9	1.9	−1.4	8.7	5.3
Azerbaijan	...	−2.4	2.3	3.4	3.9	4.9	4.6	3.4	3.4	3.1	3.6	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	−5.4	8.2	−1.9	2.0	−7.4	−5.7	3.3	11.1	12.9	2.5	10.7
Kyrgyz Republic	...	−13.4	5.9	−2.7	1.8	1.4	1.5	−1.1	2.2	2.9	3.1	−0.5
Pakistan	−3.2	5.5	7.5	1.7	−1.1	−0.9	12.7	−0.6	0.0	7.3	10.1	1.5
Tajikistan	...	...	...	0.4	2.1	7.7	6.9	0.9	7.8	2.1	2.3	...
Turkmenistan	...	11.5	25.7	17.9	−0.2	−7.3	42.0	5.8	9.5	8.0	13.9	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong, China	5.5	3.3	2.4	−2.6	3.2	2.0	2.3	3.4	2.5	3.6	3.0	3.0
Korea, Rep. of	10.5	3.8	0.9	4.5	6.1	5.1	5.2	3.8	2.2	3.4	3.3	2.8
Mongolia	...	...	...	...	14.5	3.7	−5.5	...	15.3	19.9	15.8	1.1
Taipei,China	13.1	4.2	1.2	0.2	...	1.5	3.2	1.1	2.0	2.2	−1.2	3.7
South Asia												
Bangladesh	0.4	2.3	0.9	7.7	3.1	3.2	6.1	6.8	6.7	3.1	5.8	7.9
Bhutan	...	27.5	0.0	13.0	4.0	10.3	11.1	7.5	3.6	−0.8	−9.6	...
India	3.5	7.8	1.4	8.9	9.6	10.4	13.9	5.8	6.9	1.7	8.2	6.6
Maldives	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	...	...	...	1.2	7.2	3.3	9.7	1.3	13.1	15.9	...	...
Sri Lanka	4.4	8.9	5.3	12.0	7.4	9.8	16.0	1.6	5.5	−0.6	3.6	10.1
Southeast Asia												
Brunei Darussalam	2.3	2.3	7.7	−1.0	15.8	−0.8	5.0	3.7	5.3	0.4	3.6	2.9
Cambodia	−4.6	−23.2	12.4	3.9	82.1	5.0	45.9	−6.2	7.8	4.7	6.3	2.4
Indonesia	4.8	1.3	−0.9	6.6	3.9	10.4	15.7	0.3	5.5	4.5	6.9	2.0
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	5.9	6.1	1.6	6.5	6.6	6.9	4.9	3.4	14.2	5.4	5.9	4.4
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	6.8	5.6	−1.0	2.1	6.9	0.3	10.9	4.0	2.1	15.5	5.0	1.7
Singapore	10.8	11.1	20.9	5.0	2.7	5.9	4.2	10.7	−1.8	−0.9	11.5	0.1
Thailand	6.9	6.9	2.8	8.0	8.6	4.9	10.3	9.3	3.4	7.5	4.7	1.7
Viet Nam	...	8.4	5.0	8.2	8.9	7.5	7.6	12.3	7.1	7.2	7.3	7.0
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	16.3	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	−2.8	−5.4	3.7	1.1	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[a]	...	...	...	−30.2	42.6	11.9	18.9	1.1	−6.3	7.9	−24.0	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	...	3.4	3.2	3.2	3.2	3.2	4.3	1.8	3.4	3.9	−0.0	2.4
Japan	3.3	4.3	4.6	0.8	1.1	−0.1	2.3	1.9	1.2	1.7	1.9	0.2
New Zealand	1.0	5.0	1.0	7.2	4.7	4.0	−0.5	1.9	1.6	−0.6	2.7	2.9

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.16: Growth Rates of Real Gross Domestic Capital Formation

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	5.2	26.9	19.7	12.7	-30.9	0.5	-5.2	0.5	-10.5	-2.6
Azerbaijan	...	55.2	2.6	5.8	6.0	20.7	9.5	2.0	1.0	4.0	4.5	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	-42.4	10.7	35.0	23.4	-12.8	2.3	2.0	5.9	12.2	6.2	7.1
Kyrgyz Republic	...	96.3	22.1	13.7	14.6	13.9	-4.9	-5.2	6.3	42.4	5.1	8.3
Pakistan	5.2	3.8	4.9	12.9	2.6	4.3	-4.3	-6.5	-6.7	2.5	2.8	4.3
Tajikistan	...	...	...	2.6	11.3	10.2	-23.2	7.5	13.3	-21.9	15.1	...
Turkmenistan	...	-29.0	-7.6	12.4	5.9	95.5	56.0	24.0	12.0	1.0	18.3	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong, China	...	15.4	19.5	-0.7	8.0	-0.3	1.1	11.1	2.3	3.3	2.8	1.8
Korea, Rep. of	15.7	8.5	15.0	1.9	5.4	-0.5	-12.3	18.1	3.5	-0.8	-2.4	3.1
Mongolia	...	...	...	...	18.2	18.1	-29.8	...	62.8	17.4	1.4	-33.9
Taipei,China	6.7	5.8	8.3	0.0	...	-6.5	-19.5	35.8	-5.7	-3.1	3.3	4.6
South Asia												
Bangladesh	6.3	9.1	7.3	10.7	7.1	9.8	7.4	8.6	9.6	10.6	5.4	9.9
Bhutan	...	-5.1	30.2	-13.1	-11.5	33.5	17.4	46.1	11.8	3.6	-34.6	...
India	16.8	7.6	-5.5	16.2	18.1	-5.2	17.3	14.1	3.9	5.1	-5.2	7.6
Maldives	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	...	...	...	9.5	5.0	29.6	8.6	34.4	0.3	-21.6	...	...
Sri Lanka	5.5	-0.3	8.7	9.4	8.2	4.4	2.0	13.5	9.0	7.3	9.7	9.7
Southeast Asia												
Brunei Darussalam	...	...	...	0.5	26.5	13.2	-0.3	-3.5	37.0	28.8	14.3	-34.6
Cambodia	-23.5	39.4	8.6	29.9	5.1	16.0	17.5	-18.6	9.8	6.2	25.0	8.8
Indonesia	10.9	13.1	12.9	12.4	1.9	12.4	2.4	8.8	7.9	11.0	4.0	4.4
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	21.4	20.3	29.2	-2.5	9.1	1.8	-9.4	25.3	4.5	18.3	4.9	2.6
Myanmar	29.2	28.5	11.3	29.8	28.2	16.9	34.7	34.6	33.1	13.6	11.9	20.0
Philippines	15.8	3.5	1.1	3.0	-0.5	23.4	-8.7	31.6	2.8	-4.3	27.7	5.4
Singapore	17.9	14.5	25.5	-0.5	12.1	29.6	-11.3	24.4	5.0	14.0	-0.7	-2.4
Thailand	31.2	12.3	8.0	21.7	1.3	9.2	-24.8	32.0	2.6	11.9	2.4	-12.1
Viet Nam	...	17.1	10.1	11.2	26.8	6.3	4.3	10.4	-6.8	2.4	5.5	8.9
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	0.6	12.8	36.8	-9.8	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[a]	...	...	...	-2.5	63.8	87.6	138.2	8.9	38.0	-9.7	-30.5	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	...	11.6	8.0	6.3	5.1	9.5	2.1	2.1	3.8	11.5	2.0	-1.5
Japan	7.3	2.5	3.6	-0.3	1.7	-3.0	-17.2	4.4	0.2	4.5	1.3	5.3
New Zealand	-8.5	10.2	-3.9	4.1	11.2	-8.5	-12.4	6.7	7.0	5.4	11.4	6.2

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 onward reflects 2008 SNA concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.17: Growth Rates of Real Exports of Goods and Services

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	19.0	15.9	−7.3	−3.5	−13.1	−10.4	26.5	14.7	8.4	16.3	22.6
Azerbaijan	...	−4.2	15.4	52.8	48.3	36.1	7.4	14.3	9.1	2.0	−4.9	2.1	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	5.0	27.9	1.1	6.5	9.0	0.8	−11.8	3.1	0.4	4.2	2.1	−4.6
Kyrgyz Republic	...	−17.4	10.5	−11.0	8.9	25.8	9.1	−1.1	−11.7	15.7	−11.3	9.9	−7.4
Pakistan	1.1	−3.1	16.0	9.6	9.9	1.5	−4.6	−3.4	15.7	2.4	−15.0	13.6	−1.6
Tajikistan	...	...	...	2.9	31.2	27.9	−14.0	−2.0	23.0	1.0	1.0	−10.0	...
Turkmenistan	...	−8.9	79.4	19.2	24.7	14.5	−2.5	23.6	13.9	9.5	9.0	13.2	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...	...
East Asia													
China, People's Rep. of	...	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong, China	8.5	10.0	16.2	10.6	9.4	8.4	2.6	−9.9	16.8	3.9	1.9	6.2	0.8
Korea, Rep. of	4.9	24.7	17.2	7.8	12.1	12.7	7.5	−0.3	12.7	15.1	5.1	4.3	2.8
Mongolia	...	...	...	...	6.1	9.2	7.3	19.7	...	18.2	8.3	12.8	52.5
Taipei,China	0.8	12.8	18.3	7.8	11.4	...	0.6	−8.4	25.7	4.2	0.4	3.5	5.9
South Asia													
Bangladesh	17.8	30.7	14.4	15.6	25.5	13.0	7.1	0.0	0.9	29.3	12.5	2.5	3.2
Bhutan	...	34.3	−1.2	34.3	51.7	15.8	−9.3	−3.0	7.5	3.2	−2.4	3.9	...
India	11.1	31.4	18.2	26.1	20.4	5.9	14.6	−4.7	19.6	15.6	6.7	7.3	−0.8
Maldives	...	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	...	...	...	−3.0	−1.3	−0.9	0.7	3.9	−10.4	−2.1	1.9	...	...
Sri Lanka	...	7.7	17.1	6.6	3.8	7.3	0.4	−12.3	8.8	11.0	0.2	5.9	4.9
Southeast Asia													
Brunei Darussalam	1.3	16.8	11.9	−1.3	3.7	−9.6	−6.2	−5.3	−7.8	−3.0	1.2	−5.7	4.3
Cambodia	−23.5	35.1	39.4	16.4	19.2	10.1	15.7	−6.3	16.0	18.9	7.9	20.9	11.3
Indonesia	0.4	7.7	26.5	16.6	9.4	8.5	9.5	−9.7	15.3	14.8	1.6	4.2	1.0
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	17.8	19.0	16.1	8.3	6.7	3.8	1.6	−10.9	11.1	4.2	−1.7	0.3	5.1
Myanmar	14.5	−22.0	79.3	3.6	25.3	−3.1	−15.5	−2.0	10.9	−13.7	6.5	12.9	18.7
Philippines	1.9	12.0	13.7	5.0	12.6	6.7	−2.7	−7.8	21.0	−2.5	8.6	−1.0	11.3
Singapore	12.9	22.2	14.4	12.5	11.2	8.6	4.6	−7.5	17.4	5.9	1.7	4.5	2.1
Thailand	13.4	15.4	15.8	7.8	10.8	8.9	6.3	−12.5	14.1	9.2	5.1	2.8	0.0
Viet Nam	...	...	...	7.8	14.2	11.3	5.1	11.1	14.6	10.8	15.7	17.4	11.6
The Pacific													
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	7.1	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	−4.6	3.3	7.1	6.8	0.4	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[a]	...	...	...	76.4	82.7	0.7	10.3	−3.5	−7.0	7.4	10.6	−13.4	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies													
Australia	...	4.4	9.7	3.3	2.6	3.9	3.6	1.8	5.1	0.9	5.0	6.0	5.8
Japan	7.2	4.2	12.6	6.2	9.9	8.7	1.4	−24.2	24.8	−0.4	−0.2	1.2	8.4
New Zealand	7.3	2.9	6.1	−0.4	3.5	3.9	−2.7	4.0	2.8	2.3	3.0	0.3	3.8

... = data not available at cutoff date, 0.0 = Magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 on reflects the 2008 System of National Accounts concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Table 2.18: Growth Rates of Real Imports of Goods and Services

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	7.2	14.3	3.8	13.0	7.3	−19.2	12.8	−1.4	−2.8	−4.2	7.7
Azerbaijan	...	17.8	17.3	19.8	20.1	20.1	16.5	0.5	12.4	1.5	−3.1	1.1	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	−19.9	28.0	12.5	12.2	25.8	−11.3	−15.7	2.9	2.8	22.6	6.6	−15.5
Kyrgyz Republic	...	−18.4	0.4	6.5	45.0	11.0	13.6	−19.4	−6.9	14.9	18.5	4.0	−2.6
Pakistan	−3.5	4.0	−2.3	40.5	18.7	−4.1	5.9	−15.9	4.3	−0.1	−3.1	1.8	0.2
Tajikistan	...	...	...	16.5	39.6	27.3	1.4	−4.0	8.0	1.2	1.2	1.1	...
Turkmenistan	...	−6.4	2.2	−9.3	−18.9	23.0	19.7	18.9	9.5	9.5	13.3	10.3	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...	...
East Asia													
China, People's Rep. of	...	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong, China	11.4	12.4	16.4	8.0	9.1	9.1	2.2	−9.0	17.4	4.6	2.9	6.6	1.0
Korea, Rep. of	13.3	22.5	21.8	7.8	12.4	11.6	3.2	−6.8	17.3	14.3	2.4	1.7	2.1
Mongolia	...	...	...	...	6.7	27.7	23.0	−4.7	...	49.5	15.4	7.6	3.7
Taipei,China	5.5	10.1	15.3	3.2	4.6	...	−4.1	−13.2	28.0	−0.5	−1.8	3.3	5.8
South Asia													
Bangladesh	9.3	48.4	10.2	19.1	18.2	16.0	−1.9	−2.6	0.7	29.2	10.5	1.2	1.2
Bhutan	...	13.6	−4.8	16.7	0.5	13.7	7.2	14.4	28.7	6.0	−7.1	−1.8	...
India	3.4	28.1	4.6	32.6	21.5	10.2	22.7	−2.1	15.6	21.1	6.0	−8.4	−2.1
Maldives	...	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	...	...	...	6.9	6.5	2.9	8.2	12.6	28.3	−4.7	3.4	...	...
Sri Lanka	...	0.8	14.8	2.7	6.9	3.7	4.0	−9.6	12.6	20.0	0.5	−0.3	9.5
Southeast Asia													
Brunei Darussalam	17.9	15.9	−6.2	10.2	4.1	13.2	11.0	−0.8	−0.3	33.7	20.6	14.5	−19.7
Cambodia	−25.1	33.1	30.6	17.3	16.0	12.1	22.6	−4.9	10.3	16.3	8.1	24.5	10.1
Indonesia	21.4	20.9	25.9	17.8	8.6	9.1	10.0	−15.0	17.3	15.0	8.0	1.9	2.2
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	26.3	23.7	24.4	8.9	8.2	5.9	2.3	−12.7	15.6	6.3	2.9	1.7	4.2
Myanmar	48.0	19.8	−8.0	2.2	42.4	7.4	31.3	−18.9	51.9	1.2	3.7	54.4	22.3
Philippines	10.0	16.0	11.8	3.3	3.5	1.7	1.6	−8.1	22.5	−0.6	5.6	4.4	8.7
Singapore	14.5	22.6	20.1	11.5	11.2	7.4	10.0	−10.4	16.2	4.6	3.1	3.8	1.4
Thailand	23.7	23.0	26.0	16.2	2.9	4.2	11.4	−21.0	22.8	12.4	6.0	1.4	−5.4
Viet Nam	...	...	...	5.9	15.2	27.6	7.6	6.7	13.7	4.1	9.1	17.3	12.8
The Pacific													
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	33.0	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	−16.7	14.6	−4.7	4.7	3.6	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[a]	...	...	...	−14.2	80.3	15.2	13.9	49.9	−3.0	−0.9	15.9	−15.8	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies													
Australia	...	16.3	12.1	12.4	7.9	10.2	14.5	−3.7	6.4	10.3	11.6	0.7	−2.1
Japan	8.1	11.4	10.7	4.2	4.5	2.3	0.3	−15.7	11.1	5.9	5.3	3.1	7.4
New Zealand	0.7	6.8	1.0	5.6	−2.8	13.4	−2.3	−5.0	8.8	6.1	−0.9	6.3	7.0

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a The treatment of oil production from 2000 on reflects the 2008 System of National Accounts concepts on resident units. Prior to 2000, oil production was based on proportion of revenues between Timor-Leste and the licensee or lessee.

Source: Economy sources.

Production

Table 2.19: Growth Rates of Agriculture Production Index

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Developing Member Economies												
Central and West Asia												
Afghanistan	7.4	5.2	−16.2	8.7	−8.4	11.8	−7.3	16.0	−0.6	−4.4	10.7	−2.2
Armenia	...	1.1	−2.3	14.3	6.1	11.1	−0.5	−0.2	−12.5	10.6	6.7	4.6
Azerbaijan	...	−4.8	8.8	13.7	0.5	−0.6	5.0	8.4	−1.2	6.3	4.8	3.2
Georgia	...	9.1	−13.6	16.5	−35.4	14.3	−14.7	0.1	−6.7	7.5	−5.9	19.7
Kazakhstan	...	−18.2	−7.6	7.5	7.9	9.2	−5.9	11.7	−12.5	31.5	−22.5	15.1
Kyrgyz Republic	...	−6.1	4.8	−3.8	0.9	−0.9	2.0	1.3	3.7	2.3	−0.3	1.8
Pakistan	4.0	9.1	1.3	3.1	2.0	3.5	4.2	2.4	−2.0	5.0	−0.4	−18.7
Tajikistan	...	−10.4	12.8	−5.7	−0.4	2.4	1.7	3.9	3.8	8.0	11.3	6.4
Turkmenistan	...	0.0	7.9	12.1	−4.7	16.8	−3.2	−4.5	0.7	−2.0	4.7	1.6
Uzbekistan	...	1.1	3.3	5.8	7.4	0.5	6.9	3.5	5.7	6.0	5.8	5.8
East Asia												
China, People's Rep. of	9.2	8.3	5.0	3.7	3.0	4.9	5.3	2.2	2.5	3.0	3.5	1.3
Hong Kong, China	−14.0	0.0	2.4	13.5	−9.5	−21.1	−40.0	−16.7	0.0	6.7	17.0	17.0
Korea, Rep. of	−1.0	4.9	1.0	0.6	1.1	0.5	4.1	3.1	−6.4	−2.6	1.7	3.0
Mongolia	−0.8	7.3	−2.9	−8.3	0.2	9.0	12.7	21.2	−22.0	9.4	5.3	10.1
Taipei,China	...	7.6	2.2	−5.7	0.7	−2.4	−5.1	−1.8	2.1	3.7	−1.7	...
South Asia												
Bangladesh	1.1	3.7	6.2	12.9	3.3	5.3	7.3	1.2	6.6	2.8	0.5	1.8
Bhutan	15.5	4.1	−23.1	26.7	4.9	0.7	−17.3	−3.4	6.0	16.5	−8.9	−3.2
India	1.5	2.6	−1.1	5.8	5.6	8.9	1.7	−2.0	8.8	6.4	2.0	3.4
Maldives	−27.3	−0.9	5.3	−22.0	10.8	−14.4	−1.9	−5.7	−8.0	−1.9	−6.0	−3.6
Nepal	5.1	7.8	5.1	2.0	0.5	−0.6	6.7	4.7	1.1	7.2	15.3	−7.0
Sri Lanka	9.6	2.6	2.1	8.7	1.8	−0.7	10.3	−2.0	10.7	−3.7	2.9	11.1
Southeast Asia												
Brunei Darussalam	−15.7	2.4	14.8	−25.7	62.9	4.5	2.7	−0.1	5.5	6.4	3.5	8.7
Cambodia	−3.3	28.5	2.2	26.9	9.3	4.8	9.1	4.2	8.6	15.3	2.4	4.0
Indonesia	4.1	9.4	3.4	2.7	8.6	2.6	4.2	5.2	2.6	3.3	6.7	1.0
Lao PDR	9.1	−6.0	15.1	4.1	1.3	7.4	3.9	5.8	4.8	6.3	15.6	1.0
Malaysia	1.5	3.3	3.6	4.6	5.4	−0.6	6.9	−1.7	0.9	8.1	−0.4	1.8
Myanmar	−1.5	3.9	9.4	6.0	12.9	5.4	8.0	3.5	2.2	0.3	−3.4	1.9
Philippines	9.4	0.7	3.6	2.8	1.9	7.3	2.8	−0.2	−0.2	2.6	3.7	1.2
Singapore	−3.2	−1.0	−59.0	−22.7	3.6	2.8	−6.9	2.8	0.5	9.5	3.9	6.6
Thailand	−3.7	0.6	7.8	−2.0	3.8	8.2	−0.7	2.9	−1.1	7.4	7.0	0.1
Viet Nam	2.4	5.4	3.8	3.8	3.9	5.2	4.2	2.5	3.1	4.5	7.4	1.0
The Pacific												
Cook Islands	−14.1	−5.8	0.6	2.5	3.7	4.3	−0.5	−6.4	3.2	−6.9	0.8	−0.5
Fiji	3.1	2.2	0.1	1.5	5.3	−8.6	−1.6	−7.2	−5.4	12.7	−8.5	1.5
Kiribati	−15.6	−1.8	−5.3	0.9	15.8	3.8	1.1	0.4	1.1	−1.1	3.1	0.9
Marshall Islands	...	58.5	−74.9	15.2	23.4	30.6	29.4	−8.7	−5.0	−44.5	0.8	5.0
Micronesia, Fed. States of	...	0.0	1.4	2.1	−0.6	−3.0	−1.4	−0.3	2.5	−4.7	5.8	2.7
Nauru	2.9	2.3	1.6	1.4	−0.1	−5.1	6.0	3.6	−0.7	−1.3	0.6	2.7
Palau	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	0.7	0.3	3.0	1.9	3.3	6.0	2.6	1.5	−1.7	5.7	−1.0	0.8
Samoa	−10.3	8.0	4.5	3.4	−1.9	−2.7	3.6	5.5	−0.7	0.2	7.7	−3.1
Solomon Islands	0.6	7.2	5.0	12.2	2.4	7.1	3.2	−7.9	2.8	1.2	2.7	2.7
Timor-Leste	8.0	−2.4	6.7	−1.6	4.5	−1.6	9.8	12.6	−3.1	−11.9	16.2	−7.7
Tonga	−0.9	−8.9	−1.9	0.7	10.5	28.1	2.6	0.2	−2.9	−3.7	−0.5	0.9
Tuvalu	−10.9	1.1	2.5	1.9	−2.2	0.2	6.3	4.2	0.6	−5.6	1.1	2.1
Vanuatu	29.2	2.9	−4.6	0.9	0.9	3.2	3.0	−3.0	27.2	−3.7	2.0	6.1
Developed Member Economies												
Australia	5.5	7.9	−1.9	8.7	−14.3	3.4	4.8	2.1	−2.3	9.2	9.8	−0.4
Japan	−0.7	−2.9	−0.6	0.9	−1.9	1.5	0.5	−1.5	−2.7	−1.4	2.6	−0.3
New Zealand	−3.7	2.0	7.1	−2.2	1.1	2.5	−1.0	1.1	1.4	0.4	5.0	−1.4

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

Sources: Food and Agricultural Organization of the United Nations. FAOSTAT. http://faostat3.fao.org (accessed 22 June 2015); and economy sources.

Table 2.20: Growth Rates of Manufacturing Production Index

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	...	...	...	...	...	...	...	...	...	...	...
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	−0.4	−16.3	17.3	15.9	22.9	10.9	6.4	6.3	15.1	7.3	3.4	−2.5	...
Kyrgyz Republic	...	...	...	...	...	...	...	...	...	...	...	...	...
Pakistan	4.9	1.5	...	18.2	9.2	8.7	4.0	−8.0	4.7	...	1.2	4.1	4.0
Tajikistan	0.2	−16.3	12.0	10.5	6.1	9.3	−3.7	−6.2	...	...	...	...	...
Turkmenistan	−0.9	−4.9	13.4	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	−1.7	–	...	...	...	...	...	...	...	...	...	...
East Asia													
China, People's Rep. of	...	...	...	...	18.2	20.1	13.3	11.6	16.6	14.3	10.5	10.5	...
Hong Kong, China	−0.7	0.9	−0.5	3.0	2.2	−1.4	−6.7	−8.3	3.6	0.7	−0.8	0.1	−0.4
Korea, Rep. of	8.9	−20.1	17.2	6.3	8.7	7.1	3.3	−0.2	16.7	6.0	1.4	0.7	0.1
Mongolia	...	...	...	...	...	...	...	...	...	...	...	...	...
Taipei,China	...	5.4	−17.4	3.2	4.6	8.3	−0.9	−7.8	26.5	4.7	−0.3	0.6	6.6
South Asia													
Bangladesh	12.8	5.8	4.9	8.5	10.8	10.1	7.2	7.8	6.3	16.9	10.8	11.6	9.2
Bhutan	...	...	...	...	...	...	...	...	...	...	...	...	...
India	9.0	14.1	5.3	10.3	15.0	18.4	2.5	4.8	9.0	3.0	1.3	−0.8	2.3
Maldives	...	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	−1.0	9.3	6.5	−100.0	2.0	2.4	−0.9	−5.9	4.0	4.4	4.2	4.0	7.0
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...	...
Southeast Asia													
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	48.8	...	...	...	...	...	...	...	...	...	...
Indonesia	13.7	11.0	3.6	1.3	−1.6	5.6	3.0	1.3	4.8	4.1	4.1	6.0	4.8
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	14.9	14.2	24.9	5.1	8.9	2.2	0.7	−10.1	11.0	5.7	5.3	4.2	6.0
Myanmar	0.5	7.7	...	...	...	...	...	...	...	10.1	6.8	8.8	9.4
Philippines	10.2	15.0	...	2.1	−9.9	−4.2	...	−11.9	23.3	1.0	7.7	14.0	7.4
Singapore	9.3	10.3	15.3	9.5	11.9	5.9	−4.0	−4.2	29.8	7.8	0.3	1.7	2.6
Thailand	14.2	6.2	6.9	5.0	6.4	8.1	3.9	−5.0	14.2	−8.5	2.2	−3.2	−4.6
Viet Nam	...	...	...	...	...	...	...	...	...	...	...	...	...
The Pacific													
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	7.3	3.1	−5.6	...	2.3	−1.3	−4.0	−3.4	7.6	4.0	1.5	5.5	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...	...	...	...	...	...
Samoa[a]	−9.1	19.3	2.8	–	−1.0	−3.0	−15.5	−11.3	15.2	3.6	7.7	3.2	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies													
Australia	−1.2	...	1.2	−0.9	−0.4	2.1	3.9	−5.2	0.4	−0.2	0.8	−2.5	−1.9
Japan	...	3.3	5.7	1.3	4.5	2.8	−3.2	−21.9	15.6	−2.8	0.6	−0.8	2.1
New Zealand	−17.8	3.3	2.7	3.9	0.5	−2.5	0.5	−4.6	−9.7	4.1	−0.6	0.8	1.1

... = data not available at cutoff date, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic.

a Refers to volume indices of industrial production.

Source: Economy sources.

Money, Finance, and Prices

Snapshots

- Inflation generally remained low across Asia and the Pacific in 2014 as declining oil prices took pressure off of consumer prices.
- The exchange rates of 35 out of 44 regional currencies depreciated against the US dollar in 2014.
- Growth in the money supply slowed in most of the region's economies.
- The ratio of nonperforming loans to total gross loans declined in about half of the reporting economies in the region between 2013 and 2014.
- Stock market performances were largely positive across the region in 2014.

Key trends

Inflation generally remained low across Asia and the Pacific in 2014 as declining oil prices took pressure off of consumer prices. The simple average of inflation rates for 44 regional economies fell from 4.4% in 2013 to 4.0% in 2014 (Table 3.1). Consumer inflation decelerated in almost 60% of the region's developing member economies between 2013 and 2014, with particularly sharp declines in Sri Lanka (from 6.9% to 3.2%), India (from 9.7% to 6.3%), and Nepal (from 12.6% to 9.6%) (Figure 3.1). Inflation accelerated most rapidly over the same period in developing members Tonga (from 0.8% to 2.5%), Tuvalu (from 2.0% to 3.3%), and Pakistan (from 7.4% to 8.6%). In 2014, the only economy in the region with double-digit inflation was Mongolia (10.5%). In developed member Japan, inflation jumped from 0.3% in 2013 to 2.8% in 2014, driven by the implementation of a consumption tax increase in April 2014.[1] Meanwhile, Samoa (–0.5%) and Brunei Darussalam (–0.2%) were the only two regional economies to experience deflation in 2014.

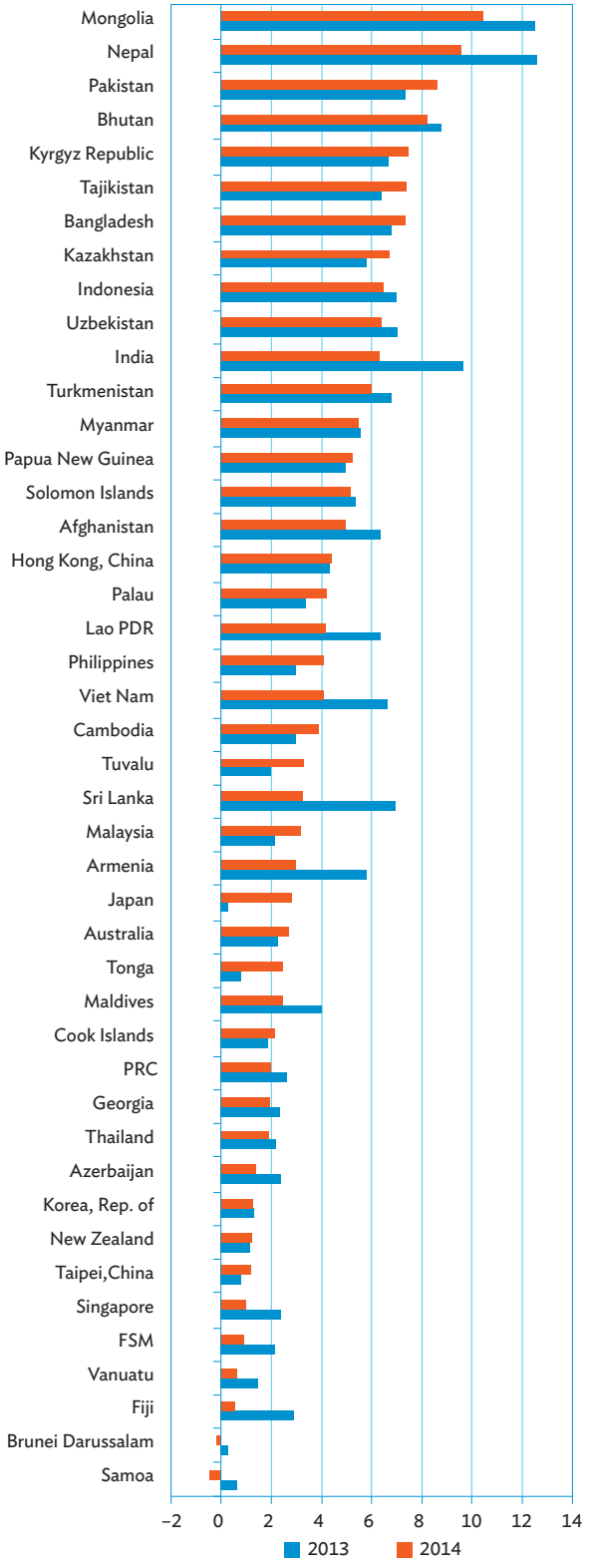
While there was a slight uptick in the simple average of food inflation for 37 regional economies from 3.9% in 2013 to 4.3% in 2014, declining oil prices have generally restrained input price pressures (Table 3.2).[2] At the subregional level, food inflation was 9.0% or higher in four economies in Central and West Asia (Afghanistan, the Kyrgyz Republic, Pakistan, and Tajikistan); in South Asia, food inflation topped 10.0% in two economies (Bhutan and Nepal) (Figure 3.2a). There were only three regional economies that experienced food deflation in 2014: Brunei Darussalam (–0.3%), the People's Republic of China (–1.5%), and Samoa (–3.4%).

The simple average of nonfood inflation for 31 regional economies increased from 3.3% in 2013 to 3.5% in 2014. Fiji experienced nonfood deflation of –0.3% in 2014, while nonfood inflation was flat in Brunei Darussalam (Figure 3.2b). All other reporting economies experienced an increase in nonfood prices in 2014.

[1] *Japan Times*. 2014. Consumption Tax Hike Lifts Inflation to 23-Year High. 30 May. http://www.japantimes.co.jp/news/2014/05/30/business/economy-business/consumption-tax-hike-lifts-inflation-to-a-23-year-high/#.VebF7pf3i49

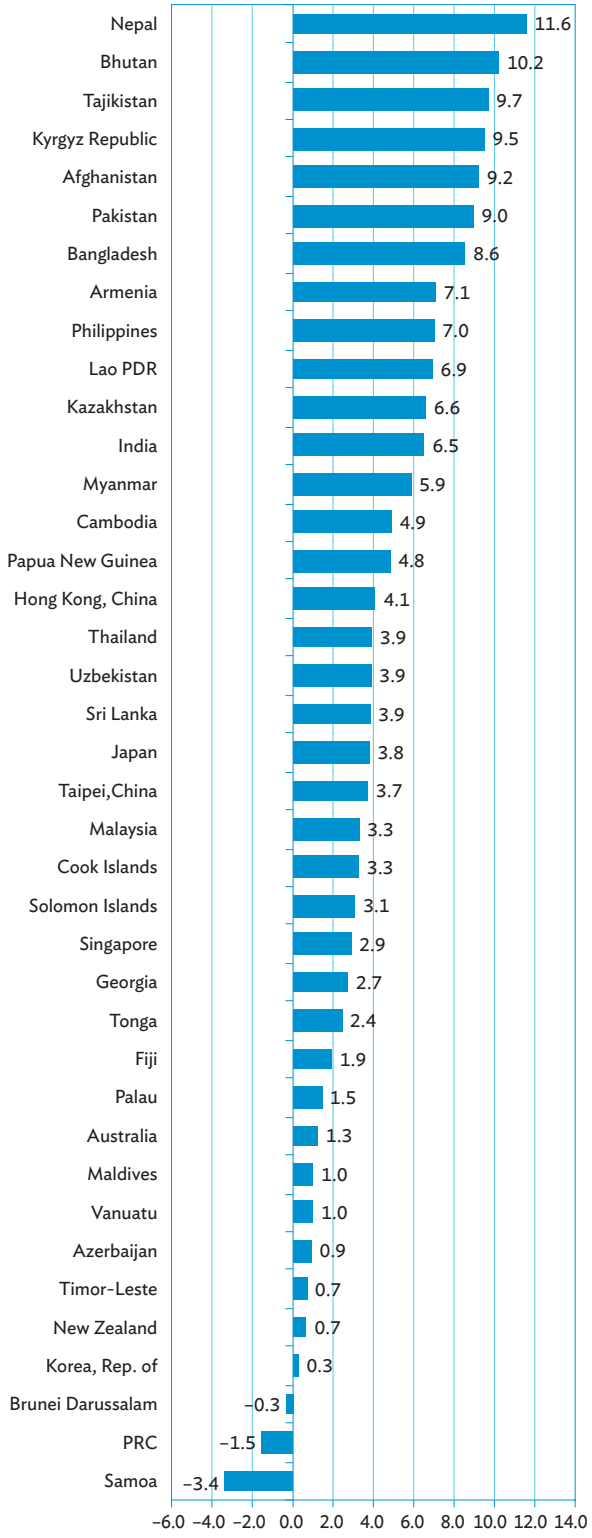
[2] Asian Development Bank. 2015. *Asian Development Outlook 2015*. Manila. http://www.adb.org/sites/default/files/publication/154508/ado-2015.pdf

Figure 3.1: Inflation Rate, 2013 and 2014
(annual % change)



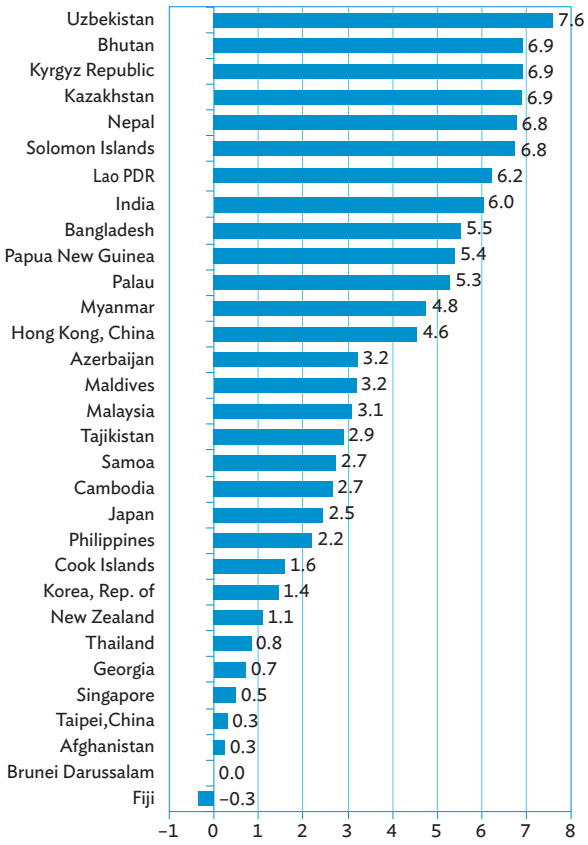
FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 3.1.

Figure 3.2a: Food Inflation Rates, 2014
(annual % change)



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 3.2.

Figure 3.2b: Nonfood Inflation Rates, 2014
(annual % change)

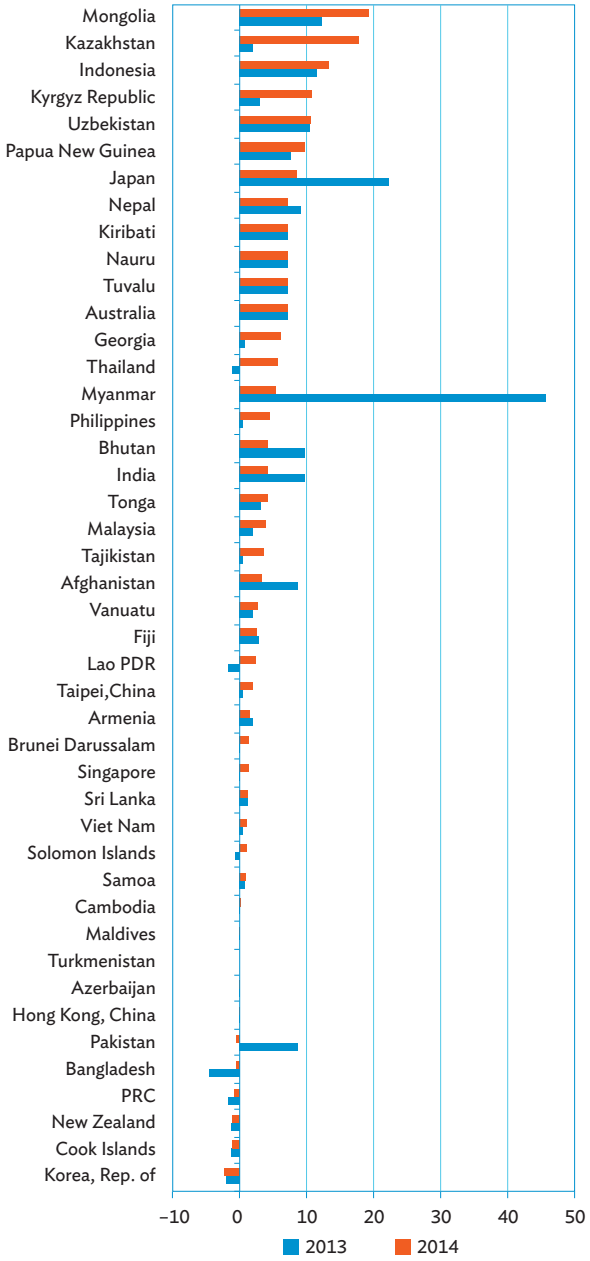


Lao PDR = Lao People's Democratic Republic.
Source: Table 3.3.

The exchange rates of 35 out of 44 member economies depreciated against the US dollar in 2014. The exchange rates of 35 out of 44 member economies depreciated in 2014 as the US dollar strengthened amid continued improvement in the United States economy and the winding down of the Federal Reserve's quantitative easing program (Figure 3.3).[3] The US dollar's sharpest appreciation in 2014 came against the currencies of Mongolia (19.3%), Kazakhstan (17.8%), Indonesia (13.4%), the Kyrgyz Republic (10.8%), and Uzbekistan (10.6%). In 2013, the Myanmar kyat fell 45.7% against the US dollar following the adoption of a managed float in April 2012, and the Japanese yen depreciated 22.3% as the Bank of Japan engaged in quantitative easing.

[3] Economies in Asia and the Pacific that use the US dollar were not included in this analysis (the Marshall Islands, the Federated States of Micronesia, Palau, and Timor-Leste).

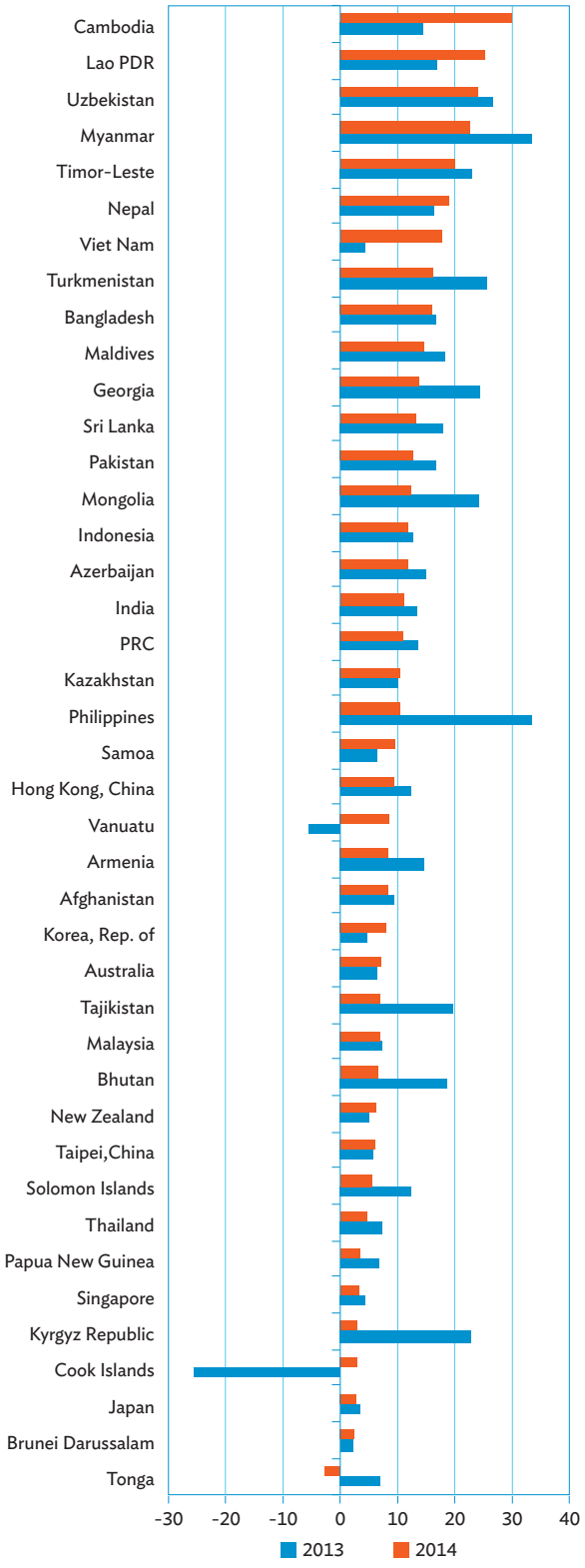
Figure 3.3: Dollar Exchange Rates, 2013-2014
(annual % change)



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 3.13.

Growth in the money supply slowed in most of the region's economies. The simple average of money supply (M2) growth rates from 41 economies decelerated from 12.8% in 2013 to 10.8% in 2014. Among the reporting economies, money supply growth eased in 28 economies and accelerated in 13 economies (Figure 3.4). In only one economy,

Figure 3.4: Growth of Money Supply, 2013 and 2014
(annual % change)



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 3.5.

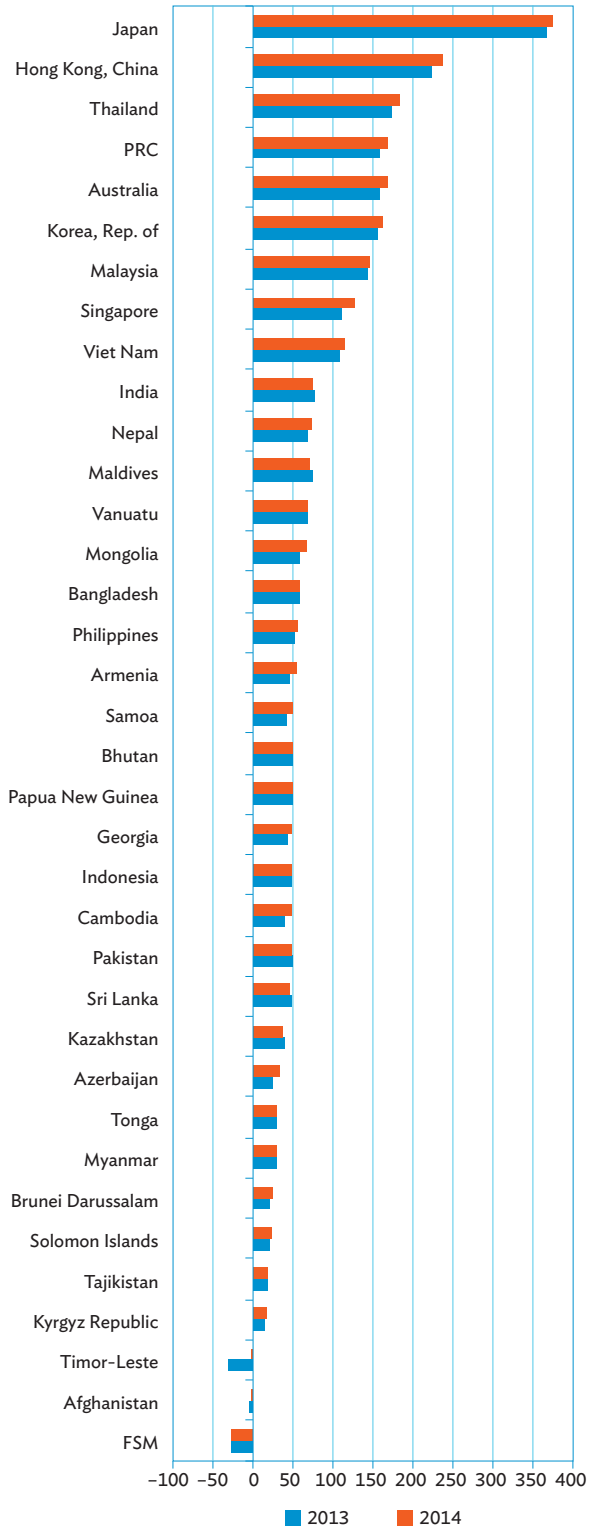
Tonga, did the money supply contract in 2014. The most significant expansions of the money supply occurred in Cambodia (29.9%), the Lao People's Democratic Republic (25.2%), and Uzbekistan (24.0%). In Uzbekistan, the increase in money supply as a percentage of gross domestic product (GDP) was relatively small (0.9 percentage points), while in Cambodia (9.4 percentage points) and Lao People's Democratic Republic (5.9 percentage points), the increases in this ratio were among the region's highest (Table 3.7). Rapid growth in the ratio of money supply to GDP is a potential sign of excessive reliance on bank lending.

Among the 36 regional economies for which 2014 data are available, Japan had the highest domestic credit-to-GDP ratio at 374.2% (Figure 3.5). Among reporting developing member economies, Hong Kong, China had the highest ratio at 236.3%, followed by Thailand (182.5%) and the People's Republic of China (169.2%).

Yields on short-term Treasury bills increased in eight economies in Asia and the Pacific, decreased in eight, and were unchanged in two in 2014 (Figure 3.6). The majority of short-term Treasury bill yield movements in 2014 were small, with only four out of 18 reporting economies (Armenia, Georgia, Papua New Guinea, and Sri Lanka) experiencing more than a 1-percentage-point shift in either direction. Sri Lanka's short-term Treasury bill yield fell more than 4 percentage points from 10.7% to 6.6% as GDP growth topped 7.0%, inflation fell significantly, and the current account deficit narrowed.

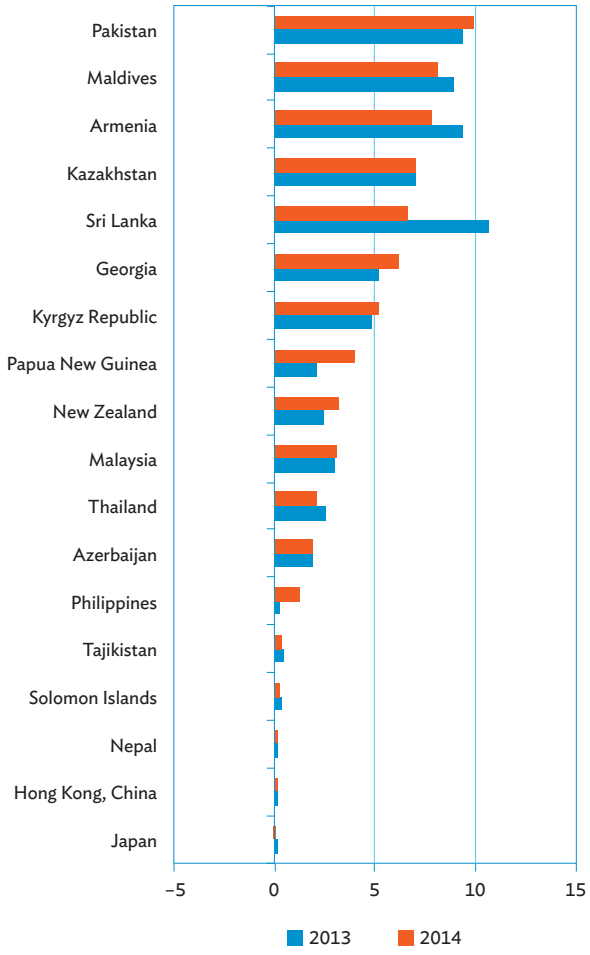
Interest rates offered on time deposits of 12 months declined in slightly more than half of the region's developing member economies (Table 3.8). Subdued inflation in many economies led to the continuation of policy interest rates at low levels and, in some cases such as Azerbaijan, even allowed room for a rate cut in support of economic growth. Conversely, the economy with the highest inflation rate in the region, Mongolia, experienced a policy rate hike.

Figure 3.5: Domestic Credit Provided by the Banking Sector, 2013 and 2014
(% of GDP)



FSM = Federated States of Micronesia, GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 3.10.

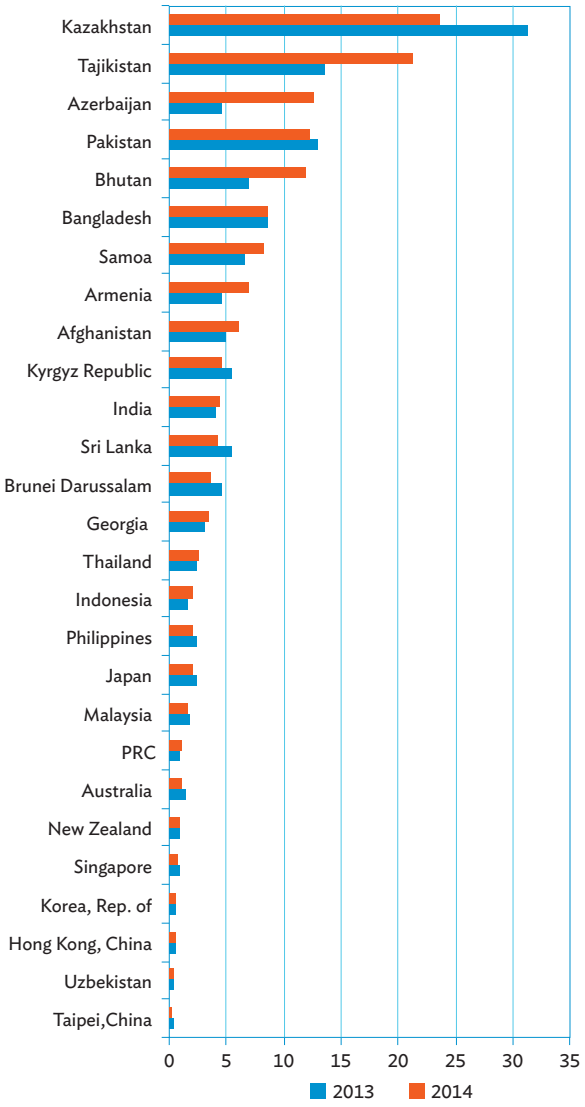
Figure 3.6: Yield on Short-Term Treasury Bills, 2013 and 2014
(%)



Source: Table 3.9.

The ratio of nonperforming loans (NPLs) to total gross loans declined in about half of the reporting economies in the region in 2014. Of the 27 economies for which data are available, NPLs as a percentage of total loans declined in 14 economies, increased in 12, and remained unchanged in 1 between 2013 and 2014 (Figure 3.7). The largest increases in the NPLs-to-total gross loans ratio occurred in Azerbaijan (from 4.5% to 12.7%) and Tajikistan (from 13.6% to 21.2%). Kazakhstan recorded the most significant decline in NPLs as a share of total gross loans (from 31.4% to 23.6%), yet still had the highest ratio in the region.

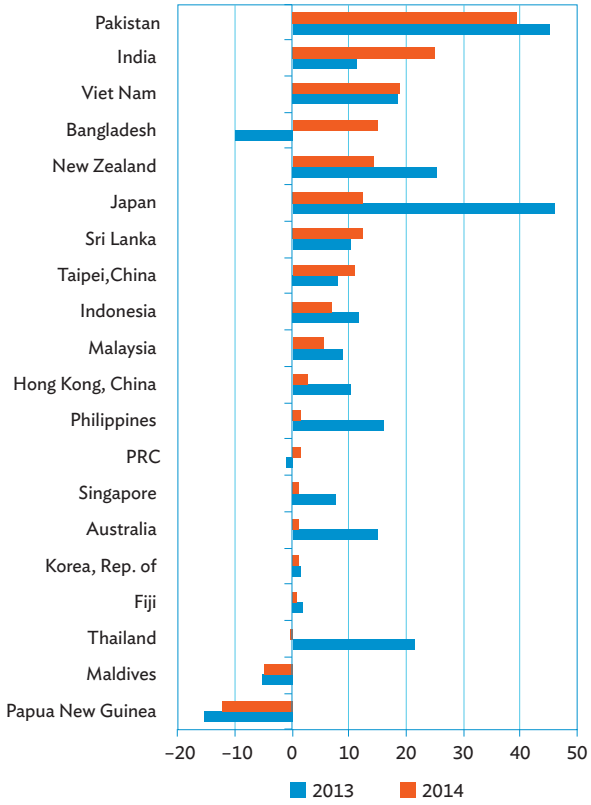
Figure 3.7: Nonperforming Bank Loans, 2013 and 2014
(% of total gross loans)



PRC = People's Republic of China.
Source: Table 3.10.

Stock market performances were largely positive across the region in 2014. Stock market indexes rose in 17 out of 20 reporting economies in 2014 (Figure 3.8). Pakistan's stock market soared for a second consecutive year, leading the region with growth of 37.4% in 2014 after rising 45.8% in 2013. Increased foreign capital inflows, a strengthening rupee, record foreign exchange reserves, and business-friendly reforms all contributed to rising share prices.[4] India's stock market saw the second largest gains in 2014 at 25.2%, boosted by foreign capital inflows and rapid economic growth. The only economies in the region to experience stock market declines in 2014 were Papua New Guinea (–12.3%), the Maldives (–4.8%), and Thailand (–0.2%).

Figure 3.8: Stock Market Index, 2013 and 2014
(annual % change)



PRC = People's Republic of China.
Source: Table 3.11.

[4] M. Z. Khan. 2015. 2014: *A Year of Growth for the Pakistani Capital Market*. Dawn. 1 January. http://www.dawn.com/news/1154454.

Data issues and comparability

Some economies need to meet international reporting standards and classifications on the compilation of monetary and financial statistics, as detailed by the International Monetary Fund on its Dissemination Standards Bulletin Board.[5]

The consumer price index coverage differs from country to country. Sometimes the basket of goods and services in the index is outdated or represents only urban areas or the capital city. Other price measurements, such as the wholesale price index and the producer price index, are not available in the Pacific countries.

Broad money supply in most economies relates to M2. However, 9 of the 43 reporting economies report M3, which is broader than M2 as it also includes less liquid financial assets, thereby posing limits to comparability.

The methodology in compiling or measuring banks' average deposit and lending rates also varies for each economy. Some countries use the central bank policy rate while others use the commercial bank rates.

[5] International Monetary Fund. Dissemination Standards Bulletin Board. http://dsbb.imf.org/Pages/SDDS/StatMethod.aspx.

Table 3.1: Growth Rates of Consumer Price Index[a]

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	11.9	9.0	4.4	22.5	4.9	−4.5	13.7	8.4	6.4	4.9
Armenia	...	176.0	−0.8	0.6	2.9	4.4	9.0	3.4	8.2	7.7	2.6	5.8	3.0
Azerbaijan	...	...	1.8	9.6	8.3	16.7	20.8	1.5	5.7	7.8	1.1	2.4	1.4
Georgia	...	...	4.6	6.2	8.8	11.0	5.5	3.0	11.2	2.0	−1.4	2.4	2.0
Kazakhstan	...	176.2	13.2	7.6	8.6	10.8	17.0	7.3	7.1	8.3	5.1	5.8	6.7
Kyrgyz Republic	...	43.5	18.7	4.3	5.5	10.2	24.5	6.8	8.0	16.6	2.8	6.7	7.5
Pakistan	6.0	13.0	3.6	9.2	7.9	7.8	12.0	17.0	10.1	13.7	11.0	7.4	8.6
Tajikistan	...	2,383.7	60.6	7.1	12.5	19.7	11.8	5.0	9.8	9.3	6.4	6.4	7.4
Turkmenistan	...	...	8.3	10.7	8.2	6.3	14.5	−2.7	5.0	5.3	5.3	6.8	6.0
Uzbekistan	...	...	24.9	7.8	8.7	6.1	7.2	7.8	7.6	7.3	7.2	7.0	6.4
East Asia													
China, People's Rep. of	3.1	17.1	0.4	1.8	1.5	4.8	5.9	−0.7	3.3	5.4	2.6	2.6	2.0
Hong Kong, China	10.2	9.1	−3.7	0.9	2.1	2.0	4.3	0.6	2.3	5.3	4.1	4.4	4.4
Korea, Rep. of	8.6	4.5	2.3	2.8	2.2	2.5	4.7	2.8	2.9	4.0	2.2	1.3	1.3
Mongolia	...	56.8	...	...	4.8	9.6	28.0	7.6	...	8.9	14.0	12.5	10.5
Taipei,China	4.1	3.7	1.3	2.3	0.6	1.8	3.5	−0.9	1.0	1.4	1.9	0.8	1.2
South Asia													
Bangladesh	3.9	8.9	2.8	6.5	7.2	7.2	9.9	6.7	7.3	10.9	8.7	6.8	7.3
Bhutan	10.0	9.5	4.0	5.3	5.0	5.2	8.3	4.4	7.0	8.8	10.9	8.8	8.2
India	11.6	10.2	3.7	4.2	6.2	6.2	9.1	12.4	10.4	8.4	10.4	9.7	6.3
Maldives	3.6	5.5	−1.2	1.3	2.7	6.8	12.0	4.5	6.2	11.3	10.8	4.0	2.4
Nepal	9.7	7.7	3.3	2.5	2.9	4.7	4.0	4.5	8.0	5.9	6.7	12.6	9.6
Sri Lanka[b]	21.5	7.7	6.2	11.0	10.0	15.8	29.2	3.5	6.2	6.7	7.5	6.9	3.2
Southeast Asia													
Brunei Darussalam	2.1	6.0	1.2	1.1	0.2	1.0	2.1	1.1	0.4	0.1	0.2	0.3	−0.2
Cambodia[b]	141.8	7.8	−0.8	5.8	4.7	5.9	19.7	−0.7	4.0	5.4	2.9	3.0	3.9
Indonesia	7.8	9.5	9.3	10.5	13.1	6.4	9.8	4.8	5.1	5.3	4.4	7.0	6.5
Lao PDR	35.9	19.6	...	7.2	6.8	4.5	...	0.0	6.0	7.6	4.3	6.4	4.1
Malaysia	3.1	3.4	1.5	2.9	3.6	2.0	5.4	0.6	1.7	3.2	1.6	2.1	3.2
Myanmar	...	...	−0.2	9.4	20.0	20.9	17.9	1.5	7.7	5.0	1.5	5.5	5.5
Philippines	12.4	6.7	6.7	6.5	5.5	2.9	8.3	4.2	3.8	4.6	3.2	3.0	4.1
Singapore	3.5	1.7	1.3	0.5	1.0	2.1	6.6	0.6	2.8	5.2	4.6	2.4	1.0
Thailand	6.0	5.8	1.6	4.5	4.7	2.3	5.5	−0.9	3.3	3.8	3.0	2.2	1.9
Viet Nam	...	...	−1.6	8.3	7.4	8.4	23.1	6.7	9.2	18.6	9.2	6.6	4.1
The Pacific													
Cook Islands	5.3	0.9	3.2	2.5	3.4	2.5	7.8	6.7	−0.3	2.2	3.0	1.9	2.1
Fiji	8.1	2.2	1.1	2.3	2.5	4.8	7.8	3.2	3.7	7.3	3.4	2.9	0.6
Kiribati[b]	10.2	4.1	0.4	−0.3	−1.5	3.6	13.7	9.8	−3.9	1.5	−3.0	−1.5	...
Marshall Islands[b]	1.2	6.8	0.9	3.5	5.3	2.6	14.7	0.5	1.8	5.4	4.3	...	...
Micronesia, Fed. States of	...	...	1.8	4.1	4.4	3.6	6.6	7.7	3.7	4.3	6.3	2.1	0.9
Nauru	12.6	1.8	2.3	9.8	14.2	0.9	13.9	9.8	−4.6	−0.8	−0.8	−2.1	...
Palau	...	...	...	3.9	4.5	3.2	11.9	1.5	1.4	4.7	3.6	3.4	4.2
Papua New Guinea	6.9	17.3	15.6	1.8	2.4	0.9	10.8	6.9	6.0	4.4	4.6	5.0	5.2
Samoa	15.3	−2.9	0.9	1.9	3.8	5.7	11.5	6.3	0.8	5.2	2.1	0.6	−0.5
Solomon Islands[b]	8.8	9.6	7.1	7.2	11.2	7.6	17.3	7.1	1.0	7.4	5.9	5.4	5.2
Timor-Leste	...	...	...	1.5	4.2	8.9	7.6	0.4	9.2	15.4	4.4	...	0.7
Tonga	10.9	0.4	5.9	8.0	5.8	5.5	9.5	1.4	3.4	5.9	1.1	0.8	2.5
Tuvalu[c]	2.0	5.6	...	3.2	4.2	2.3	10.4	−0.3	−1.9	0.5	1.4	2.0	3.3
Vanuatu[b]	5.1	1.8	2.5	0.8	2.1	3.9	4.6	4.3	2.9	1.0	1.4	1.4	0.6
Developed Member Economies													
Australia	7.3	3.2	2.4	2.4	3.2	3.0	3.4	3.1	2.3	3.1	2.3	2.3	2.7
Japan	3.1	−0.1	−0.7	−0.3	0.3	0.0	1.4	−1.4	−0.7	−0.3	0.0	0.3	2.8
New Zealand	6.1	3.8	2.6	3.0	3.4	2.4	4.0	2.1	2.3	4.0	1.1	1.1	1.2

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Unless otherwise indicated, data refer to the whole economy.
b Data refer to capital city.
c Data prior to 1999 cover Funafuti only.

Source: Economy sources.

Prices

Table 3.2: Growth Rates of Food Consumer Price Index[a]

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	9.1	7.7	6.0	31.9	4.3	−9.1	13.9	7.0	5.3	9.2
Armenia	...	190.5	−2.2	0.7	3.0	6.0	10.0	−0.7	8.6	11.2	2.3	5.8	7.1
Azerbaijan	...	...	2.3	10.9	11.9	16.2	28.6	−1.5	7.2	10.4	0.9	2.2	0.9
Georgia	...	...	7.5	8.3	9.3	13.2	5.4	3.9	23.1	0.6	−4.1	6.3	2.7
Kazakhstan	...	163.8	16.0	8.1	8.7	12.2	23.4	6.0	6.2	11.9	4.5	4.3	6.6
Kyrgyz Republic	...	40.1	18.5	5.4	7.5	12.6	29.1	2.1	6.8	21.9	−2.0	5.3	9.5
Pakistan	4.5	16.5	2.2	12.5	6.9	10.3	17.7	23.1	12.9	18.0	11.0	7.1	9.0
Tajikistan	...	3,008.1	66.3	8.3	13.9	25.5	13.0	2.3	13.4	10.3	5.6	3.2	9.7
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	18.9	6.7	7.4	2.0	3.3	4.4	4.8	3.5	5.1	...	3.9
East Asia													
China, People's Rep. of	...	−6.8	1.7	−6.4	−0.6	9.8	1.8	−11.9	6.5	4.3	−6.2	−0.2	−1.5
Hong Kong, China	10.0	7.1	−2.2	1.8	1.7	4.3	10.2	1.3	2.3	7.0	5.7	4.5	4.1
Korea, Rep. of	10.1	2.8	1.1	3.1	0.4	2.4	4.7	7.5	6.6	8.1	4.0	0.9	0.3
Mongolia	...	...	...	...	...	12.8	40.2	1.7	12.3	7.7	...	...	...
Taipei,China	3.5	4.3	0.4	7.3	−0.7	2.9	8.6	−0.4	0.6	2.3	4.2	1.3	3.7
South Asia													
Bangladesh	2.5	9.3	2.6	7.9	7.7	8.2	12.3	7.2	8.5	14.1	7.7	5.2	8.6
Bhutan	...	...	...	5.7	5.0	8.1	11.9	9.0	8.8	10.2	13.9	8.7	10.2
India	12.4	10.9	1.6	4.2	7.6	8.4	12.3	15.2	10.0	6.3	11.9	12.3	6.5
Maldives	...	...	−4.7	8.0	3.8	16.3	19.0	0.5	7.5	19.9	17.6	7.6	1.0
Nepal	10.9	...	0.5	4.0	7.8	7.0	9.3	17.4	15.1	14.7	7.7	9.6	11.6
Sri Lanka[b]	23.3	6.9	4.5	11.4	8.9	20.3	44.0	3.1	6.9	8.8	4.7	7.8	3.9
Southeast Asia													
Brunei Darussalam	−0.4	2.6	–	0.5	−0.3	2.5	4.1	2.3	1.0	0.0	0.0	0.1	−0.3
Cambodia[b]	...	...	−3.4	8.4	6.5	12.6	29.9	−0.5	4.4	6.6	3.2	3.0	4.9
Indonesia[c]	...	13.2	2.7	10.0	14.8	11.4	16.9	7.0	9.4	8.5	5.9	12.0	...
Lao PDR	...	...	...	7.7	9.4	8.1	...	2.3	7.7	10.2	5.5	12.0	6.9
Malaysia	4.2	4.9	2.1	3.7	3.3	3.1	8.8	4.1	2.5	4.8	2.7	3.6	3.3
Myanmar	...	...	−2.6	9.3	20.6	21.3	18.5	−0.3	7.2	3.9	−1.5	6.0	5.9
Philippines	10.9	8.0	3.0	6.4	5.2	3.7	13.0	6.9	4.1	5.7	2.4	2.8	7.0
Singapore	0.8	2.3	0.5	1.3	1.6	3.0	7.7	2.3	1.4	3.0	2.3	2.1	2.9
Thailand	8.0	...	−1.1	5.0	4.6	4.0	11.6	4.4	5.3	8.0	4.9	3.4	3.9
Viet Nam	...	...	...	...	...	...	...	...	...	...	...	...	...
The Pacific													
Cook Islands	3.8	−0.3	3.4	1.1	2.4	0.2	5.9	10.8	2.9	2.3	3.1	2.6	3.3
Fiji	8.2	0.7	−3.2	1.7	1.8	9.7	11.5	3.4	4.1	10.6	4.3	3.5	1.9
Kiribati[b]	...	...	0.7	−4.8	−2.6	6.2	23.8	15.6	−11.1	−2.6	−2.4	−0.6	...
Marshall Islands[b]	3.7	1.4	−0.8	0.3	2.3	1.6	11.9	10.1	−1.5	4.7	4.9	...	...
Micronesia, Fed. States of	...	...	1.1	3.4	2.0	2.4	8.5	17.9	2.2	3.4	5.0	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	−1.5	−1.3	5.5	17.3	9.2	1.8	4.8	4.4	3.2	1.5
Papua New Guinea	9.6	18.0	13.6	3.5	5.3	0.6	16.6	7.2	5.4	−1.0	−1.4	−0.9	4.8
Samoa	20.2	−6.9	−0.1	0.3	4.0	7.8	14.1	7.7	−6.6	5.3	1.9	0.7	−3.4
Solomon Islands[b]	8.4	7.6	6.6	5.6	9.8	5.9	24.1	11.9	−2.6	4.8	4.4	2.6	3.1
Timor-Leste	...	...	...	0.4	3.7	12.6	9.2	−0.1	12.0	18.7	4.7	...	0.7
Tonga	...	...	0.4	5.7	2.9	6.9	7.1	7.3	2.9	6.2	1.5	1.8	3.5
Tuvalu[d]	−1.4	5.6	...	5.5	4.4	3.4	14.4	4.7	−5.9	0.8	0.2	...	...
Vanuatu[b]	5.1	3.8	2.0	0.5	3.5	3.8	11.4	2.8	5.2	1.0	2.7	1.4	1.0
Developed Member Economies													
Australia	4.4	2.4	2.4	1.7	4.3	6.6	2.9	4.7	2.2	3.2	1.8	−0.3	1.3
Japan	4.0	−1.3	−1.9	−0.9	0.5	0.3	2.6	0.2	−0.3	−0.4	0.1	−0.1	3.8
New Zealand	7.4	1.3	1.4	1.5	2.7	3.8	9.0	5.7	1.3	4.9	−0.3	0.6	0.7

... not available at cutoff date, – = magnitude equals zero, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Coverage of food varies by economy. Unless otherwise indicated, data refer to the whole economy.
b Refers to capital city.
c For 1990 and 1995, data refer to Consumer Price Index for 27 cities; for 2000, 43 cities; for 2005–2007, 45 cities; and for 2008 on, 66 cities.
d Data prior to 1999 cover Funafuti only.

Sources: Economy sources; and for the People's Republic of China: CEIC Data Company (accessed 8 August 2015).

Table 3.3: Growth Rates of Nonfood Consumer Price Index[a]

(%)

Regional Member	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	16.3	11.0	2.3	8.4	5.9	3.8	13.3	10.4	7.8	0.3
Armenia	...	...	...	...	...	...	...	...	...	...	...	...
Azerbaijan	...	−16.0	−4.8	5.3	10.5	11.5	3.4	2.3	2.6	1.0	0.8	3.2
Georgia	...	−0.8	3.6	8.7	6.4	4.0	−0.4	5.0	1.0	−1.7	−1.6	0.7
Kazakhstan	...	11.5	6.3	6.8	7.8	10.4	6.7	6.4	5.4	4.3	3.1	6.9
Kyrgyz Republic	32.1	18.1	10.2	−4.4	6.3	14.8	13.4	11.4	10.8	10.1	7.4	6.9
Pakistan	...	4.3	7.5	8.4	6.5	...	13.8	8.5	11.0	11.0	7.6	...
Tajikistan	1,539.6	44.2	2.7	5.3	7.5	5.0	6.7	5.5	7.2	6.7	6.1	2.9
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	36.6	6.9	8.0	8.5	8.7	5.0	5.3	8.3	4.9	5.5	7.6
East Asia												
China, People's Rep. of	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong, China	...	−4.2	0.6	2.3	1.2	2.2	0.3	2.3	4.6	3.4	4.3	4.6
Korea, Rep. of	...	2.4	2.7	2.5	2.6	4.7	2.1	2.4	3.4	1.9	1.4	1.4
Mongolia	...	...	...	...	7.4	19.3	12.5	8.4	10.3	...	...	...
Taipei,China	3.4	1.6	0.5	1.1	1.4	1.7	−1.0	1.1	1.1	1.1	0.6	0.3
South Asia												
Bangladesh	...	3.0	4.3	6.5	5.9	6.3	5.9	5.4	4.2	10.2	9.2	5.5
Bhutan	...	...	5.1	5.0	3.8	6.6	2.1	6.1	8.1	9.3	8.7	6.9
India	...	6.9	4.3	1.9	4.2	6.1	9.5	11.2	10.4	9.0	7.1	6.0
Maldives	...	−0.2	−0.8	2.4	3.5	9.3	6.3	3.8	8.5	9.4	1.9	3.2
Nepal	...	6.9	5.1	8.1	4.9	4.1	9.0	4.9	5.4	9.0	10.0	6.8
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	0.1	0.3	0.3	0.0
Cambodia[b]	...	1.2	3.9	3.3	−5.9	8.2	−0.8	3.8	4.5	2.7	2.0	2.7
Indonesia[c]	...	7.3	9.8	11.8	...	8.1	4.2	4.0	4.5	3.8	5.5	...
Lao PDR	...	...	6.7	4.7	1.5	...	−2.2	4.2	6.1	2.8	2.0	6.2
Malaysia	...	1.3	2.7	3.7	1.5	4.1	−0.8	1.4	2.5	1.2	1.5	3.1
Myanmar	...	...	9.4	9.4	20.0	16.3	5.5	8.8	7.3	7.4	4.6	4.8
Philippines	...	9.3	6.8	5.7	2.4	5.1	2.7	3.7	4.1	3.7	2.1	2.2
Singapore	1.5	1.7	0.2	0.8	1.8	6.2	0.1	3.2	5.9	5.2	2.4	0.5
Thailand	...	3.2	4.3	4.7	1.1	1.7	−4.8	2.1	1.3	1.9	1.5	0.8
Viet Nam	...	...	...	...	...	...	...	...	...	...	...	...
The Pacific												
Cook Islands	...	3.1	3.0	3.8	3.5	8.6	5.0	−1.6	2.1	2.9	1.5	1.6
Fiji	3.0	3.7	2.7	3.4	2.1	5.7	3.2	3.5	6.0	3.0	2.7	−0.3
Kiribati[b]	...	1.6	−1.9	5.7	1.8	6.3	4.9	2.8	4.8	−3.6	−2.3	...
Marshall Islands[b]	...	3.1	5.4	6.9	3.2	16.1	−4.5	3.7	5.7	4.0	1.4	...
Micronesia, Fed. States of	...	2.5	4.7	6.5	4.7	5.2	1.9	5.2	5.5	6.3	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	5.9	6.4	2.6	10.1	−1.3	1.2	4.7	3.3	3.5	5.3
Papua New Guinea	16.8	17.0	0.6	0.4	1.1	6.6	6.7	6.5	7.8	8.0	8.0	5.4
Samoa	2.1	1.6	3.3	3.6	...	9.2	2.4	3.4	3.4	2.1	0.6	2.7
Solomon Islands[b]	11.4	8.1	8.4	12.3	8.9	12.4	3.3	4.1	9.6	6.2	6.3	6.8
Timor-Leste	...	...	3.4	5.1	2.4	4.7	1.4	3.5	8.2	3.6	...	...
Tonga	...	11.5	10.9	8.8	4.6	12.7	−3.5	4.0	6.0	0.9	−0.1	2.4
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	3.4	2.5	2.6	2.9	2.3	3.4	2.8	2.5	3.0	2.6	2.6	...
Japan	0.3	−0.3	−0.1	0.2	−0.1	1.0	−1.9	−0.8	−0.3	0.0	0.4	2.5
New Zealand	4.3	2.8	3.3	3.4	2.0	2.7	1.2	2.5	3.7	1.4	1.2	1.1

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Coverage of food varies by economy. Unless otherwise indicated, data refer to the whole economy.
b Refers to capital city.
c For 1990 and 1995, data refer to Consumer Price Index for 27 cities; for 2000, 43 cities; for 2005–2007, 45 cities; and for 2008 on, 66 cities.

Sources: Economy sources; and Asian Development Bank estimates based on Consumer Price Index weights from official sources.

Prices

Table 3.4: Growth Rates of Wholesale/Producer Price Index

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	275.4	0.8	7.7	0.9	0.6	2.2	7.1	22.6	9.1	7.0	4.7	8.5
Azerbaijan	...	...	...	17.3	10.1	17.6	23.4	−19.4	30.5	33.5	4.5	−3.9	−5.1
Georgia	...	...	5.7	7.4	10.8	11.6	9.8	−5.5	11.3	12.8	1.6	−2.0	6.4
Kazakhstan	...	139.8	38.0	23.7	18.4	12.4	36.8	−22.0	25.2	27.2	3.5	−0.3	9.5
Kyrgyz Republic	...	21.8	32.0	4.9	15.3	11.8	26.4	12.0	22.9	21.8	5.2	−2.7	...
Pakistan	7.3	16.0	1.8	6.7	10.2	6.9	16.4	19.0	13.8	21.2	10.4	7.3	8.2
Tajikistan	...	...	39.2	10.4	42.7	21.2	20.3	−3.4	27.2	15.5	6.1	2.1	4.7
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	60.9	25.6	30.2	14.1	9.1	24.7	15.6	19.6	14.5	11.7	13.6
East Asia													
China, People's Rep. of	4.1	14.9	2.8	4.9	3.0	3.1	6.9	−5.4	5.5	6.0	−1.7	−1.9	−1.9
Hong Kong, China	...	2.8	0.2	0.8	2.2	3.0	5.6	−1.7	6.0	8.3	0.1	−3.1	−1.7
Korea, Rep. of	4.2	4.7	2.1	2.1	0.9	1.4	8.5	−0.2	3.8	6.7	0.7	−1.6	−0.5
Mongolia	...	...	...	...	...	...	...	...	...	...	...	...	...
Taipei,China	−0.6	7.4	1.8	0.6	5.6	6.5	5.1	−8.7	5.5	4.3	−1.2	−2.4	−0.6
South Asia													
Bangladesh[a]	8.5	4.6	−0.4	3.4	8.9	...	...	...	...	...	...	...	...
Bhutan	...	...	...	...	...	...	...	...	...	...	...	...	...
India	10.3	8.0	7.2	4.5	6.6	4.7	8.1	3.8	9.6	8.9	7.4	6.0	2.0
Maldives	...	...	...	...	...	11.5	13.2	−0.1	2.6	...	...	...	...
Nepal	...	...	...	7.3	8.9	9.0	9.1	12.8	12.6	9.9	6.4	9.0	8.3
Sri Lanka	22.2	8.8	1.7	11.5	11.7	24.4	24.9	−4.2	2.6	10.6	3.5	9.2	3.2
Southeast Asia													
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	10.0	11.4	12.5	15.3	13.6	13.8	25.8	−0.1	4.9	7.4	5.1	6.2	10.7
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	0.7	3.8	3.1	5.8	3.1	5.5	10.2	−7.3	5.6	9.6	0.1	−1.7	1.4
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	...	...	5.8	11.4	8.3	3.2	11.9	−4.2	5.9	8.7	1.1	1.6	2.7
Singapore	1.7	0.1	10.1	9.6	5.0	0.3	7.5	−13.9	4.7	8.4	0.5	−2.7	−3.3
Thailand	...	...	3.8	9.2	7.0	3.3	12.4	−3.8	9.4	5.5	1.0	0.3	0.1
Viet Nam	...	...	...	4.4	4.2	6.8	21.8	7.4	12.6	18.4	3.4	5.3	3.3
The Pacific													
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies													
Australia	...	...	2.6	3.6	3.7	3.2	3.7	4.5	−0.1	2.8	2.0	1.2	2.1
Japan	1.1	−0.8	0.0	1.6	2.2	1.8	4.6	−5.3	−0.1	1.5	−0.9	1.3	1.1
New Zealand	3.6	1.3	5.2	3.4	4.6	2.6	10.0	−1.5	2.7	4.7	1.0	0.9	1.1

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a For agricultural and industrial products only.

Source: Economy sources.

Table 3.5: Growth Rates of GDP Deflator

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	11.6	4.9	19.1	2.0	−0.3	14.3	10.4	9.3	3.5	−1.2
Armenia	...	...	−1.4	3.2	4.6	4.2	5.9	2.6	7.8	4.3	−1.2	3.3	2.4
Azerbaijan	...	545.8	12.5	16.1	11.3	21.0	27.8	−18.8	13.6	22.5	2.9	−0.4	0.0
Georgia	...	...	4.7	7.9	8.5	9.7	9.7	−2.0	8.5	9.5	1.2	−0.7	3.8
Kazakhstan	...	161.0	17.4	17.9	21.5	15.5	21.0	4.7	19.6	17.8	4.9	9.7	5.2
Kyrgyz Republic	...	42.0	27.2	7.1	9.4	14.9	22.2	4.0	10.0	22.5	8.7	3.2	7.9
Pakistan	6.5	13.9	2.7	7.0	10.6	7.3	13.2	20.7	10.9	19.6	6.0	7.4	6.9
Tajikistan	...	−96.3	22.7	9.5	21.5	27.5	28.5	12.0	12.4	18.8	11.8	4.3	5.5
Turkmenistan	...	706.4	21.3	7.0	12.3	9.3	59.7	9.8	0.3	15.7	8.3	8.0	4.7
Uzbekistan	...	362.5	47.1	21.4	23.4	21.9	26.8	17.2	16.5	16.6	15.0	14.3	12.0
East Asia													
China, People's Rep. of	5.8	13.7	2.0	3.8	3.8	7.6	7.8	−0.6	6.7	8.1	2.4	2.2	0.8
Hong Kong, China	7.5	2.1	−3.4	−0.2	−0.5	3.1	1.3	−0.4	0.3	3.9	3.5	1.9	2.9
Korea, Rep. of	10.4	7.5	1.1	1.0	−0.1	2.4	3.0	3.5	3.2	1.6	1.0	0.9	0.6
Mongolia	...	...	12.0	20.1	22.0	11.6	21.4	1.8	...	15.1	12.8	2.9	6.2
Taipei,China	3.6	2.3	−0.2	−1.3	−1.1	...	−2.6	0.1	−1.5	−2.3	0.5	1.4	1.8
South Asia													
Bangladesh	6.3	7.4	1.9	5.1	5.2	6.5	7.9	6.8	7.1	7.9	8.2	7.2	5.7
Bhutan	12.0	8.0	3.7	5.9	5.4	3.1	5.7	4.8	6.0	8.6	9.2	5.0	...
India	10.7	9.1	3.5	4.2	6.4	5.8	8.7	6.1	9.0	8.5	7.6	6.3	3.0
Maldives	...	...	1.5	1.0	9.8	7.0	9.3	8.9	0.4	8.6	6.8	−0.9	4.3
Nepal	10.9	6.0	4.2	5.8	7.0	7.3	5.6	16.0	14.4	11.0	6.6	6.1	8.3
Sri Lanka	22.2	8.4	6.7	10.4	11.3	14.0	16.3	5.9	7.3	7.9	8.9	6.7	5.1
Southeast Asia													
Brunei Darussalam	8.4	2.9	29.0	18.8	10.0	1.1	12.7	−22.1	5.3	20.2	1.2	−2.8	−2.1
Cambodia	145.6	11.7	−3.1	6.1	4.6	6.5	12.3	2.5	3.1	3.4	1.4	0.9	3.2
Indonesia	7.7	9.9	9.6	14.3	14.1	11.3	18.1	8.3	8.2	7.5	3.8	4.7	5.4
Lao PDR	33.1	20.6	21.8	7.8	14.4	4.3	6.0	−4.3	8.3	7.6	4.1	7.7	4.0
Malaysia	3.8	3.6	4.9	4.6	4.0	4.8	10.4	−6.0	4.1	5.4	1.0	0.2	2.5
Myanmar	18.5	19.6	2.5	19.2	21.3	23.6	13.6	4.9	7.0	10.3	3.1	4.4	3.8
Philippines	13.0	7.6	5.7	5.8	4.9	3.1	7.5	2.8	4.2	4.0	2.0	2.1	3.2
Singapore	4.4	2.8	3.6	2.1	2.0	6.3	−1.1	2.7	0.0	1.2	1.2	−0.1	0.2
Thailand	...	5.7	1.3	4.8	5.1	2.5	5.0	0.0	4.7	3.7	1.9	1.6	1.0
Viet Nam	42.1	17.0	3.4	9.0	8.6	9.6	22.7	6.2	12.1	21.3	10.9	4.8	3.7
The Pacific													
Cook Islands	3.8	0.6	2.2	−2.6	6.4	7.3	11.0	2.4	6.2	1.4	−1.7	0.0	1.9
Fiji	8.1	...	−2.4	7.1	3.1	3.2	4.3	2.6	2.5	3.8	2.5	2.2	...
Kiribati	−4.7	1.4	3.2	0.6	4.6	−1.3	6.0	−0.5	2.5	2.8	−0.8	...	...
Marshall Islands	−2.0	11.6	−3.0	2.3	2.3	0.7	3.9	1.2	1.5	5.5	1.8	0.6	...
Micronesia, Fed. States of	5.0	1.4	1.1	2.1	1.4	3.3	4.8	5.1	2.6	3.4	5.3	0.6	−0.6
Nauru	...	...	...	1.6	23.0	−8.3	−8.3	77.6	−18.4	7.0	16.4	...	...
Palau	...	2.8	...	8.7	3.3	0.5	6.0	5.2	−4.8	4.4	4.1	7.8	4.0
Papua New Guinea	7.4	16.0	13.1	7.9	9.4	3.9	7.8	−2.6	9.9	4.3	−2.5	1.8	9.7
Samoa	12.6	−6.9	1.1	5.1	4.8	...	4.9	−4.8	2.0	4.4	2.9	0.8	1.7
Solomon Islands	...	4.2	6.9	7.3	11.2	7.7	17.0	7.1	1.0	6.0	7.0	7.0	5.0
Timor-Leste	...	3.1	3.0	9.6	−5.7	4.2	38.2	−18.8	26.9	26.3	11.7	−4.6	...
Tonga	7.8	−1.3	6.9	6.2	14.7	5.9	6.8	−2.5	3.6	5.5	2.2	0.6	1.1
Tuvalu	...	...	...	1.5	4.1	−0.1	3.5	0.7	2.6	1.3	0.9	1.8	2.7
Vanuatu	8.2	2.7	2.4	0.4	3.9	5.5	7.3	2.3	2.6	3.1	0.4	2.7	...
Developed Member Economies													
Australia	9.7	2.4	2.6	3.7	5.1	5.0	4.5	4.9	1.0	6.2	1.9	−0.3	1.5
Japan	2.4	−0.7	−1.2	−1.3	−1.1	−0.9	−1.3	−0.5	−2.2	−1.9	−0.9	−0.6	1.7
New Zealand	2.5	1.7	3.0	2.1	2.3	5.2	2.5	3.0	3.1	2.0	0.2	4.1	0.9

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

Sources: Economy sources; and United Nations Statistics Division. United Nations National Accounts Main Aggregates Database: http://unstats.un.org/unsd/snaama/selCountry.asp (accessed June 2015).

Table 3.6: Growth Rates of Money Supply (M2)

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	40.6	...	...	44.6	55.5	31.0	35.9	39.3	23.1	14.3	6.4	9.4	8.3
Armenia	...	67.8	36.5	27.7	32.6	42.9	2.3	15.1	11.8	23.7	19.5	14.8	8.3
Azerbaijan	...	24.0	86.7	22.3	86.5	71.7	44.0	−0.3	24.3	32.1	20.7	15.0	11.8
Georgia[a]	...	...	39.6	27.9	42.7	46.4	7.9	7.7	30.1	14.5	11.4	24.5	13.8
Kazakhstan[a]	...	109.0	45.0	25.2	78.1	25.9	35.4	19.5	13.3	15.0	7.9	10.2	10.5
Kyrgyz Republic	...	78.2	12.1	9.9	51.6	33.3	12.6	17.9	21.1	14.9	23.8	22.8	3.0
Pakistan	14.4	13.8	9.4	19.8	14.9	18.9	11.8	9.6	13.0	16.8	13.4	16.6	12.8
Tajikistan[c]	...	...	57.1	36.3	62.8	77.9	...	40.7	18.6	33.1	19.5	19.7	7.0
Turkmenistan[a]	...	448.0	94.6	5.6	10.7	96.4	−7.6	68.6	74.2	52.1	32.8	25.7	16.2
Uzbekistan	...	151.9	37.1	54.2	36.8	46.1	41.6	40.9	52.4	32.3	27.5	26.6	24.0
East Asia													
China, People's Rep. of	34.2	32.3	12.3	16.5	16.7	16.7	17.8	27.6	19.7	17.3	14.4	13.6	11.0
Hong Kong, China	22.4	14.6	7.8	5.1	15.4	20.8	2.6	5.3	8.1	12.9	11.1	12.4	9.5
Korea, Rep. of	25.3	23.3	5.2	7.0	12.5	10.8	12.0	9.9	6.0	5.5	4.8	4.6	8.1
Mongolia	10.8	32.9	17.6	34.6	34.8	56.3	−5.5	26.9	62.5	37.0	18.7	24.2	12.5
Taipei,China	11.0	9.4	6.5	6.6	5.2	0.8	7.2	5.8	5.5	4.8	3.5	5.8	6.1
South Asia													
Bangladesh	16.9	16.0	18.6	16.7	19.3	17.1	17.6	19.2	22.4	21.3	17.4	16.7	16.1
Bhutan	10.5	36.0	16.1	10.7	26.3	8.6	2.3	24.6	30.1	21.2	−1.0	18.6	6.6
India[a]	15.1	13.6	16.8	17.0	21.7	21.4	19.3	16.9	16.1	13.5	13.6	13.4	11.1
Maldives	18.6	15.4	4.2	10.6	18.9	24.1	21.9	14.4	14.6	20.0	4.9	18.4	14.7
Nepal	18.6	16.1	21.8	8.3	15.6	13.8	25.3	27.3	14.1	28.0	22.7	16.4	19.1
Sri Lanka	19.1	19.2	12.9	19.1	17.8	−4.7	11.7	19.9	18.0	20.9	18.3	18.0	13.1
Southeast Asia													
Brunei Darussalam	8.2	6.7	25.9	−4.5	2.1	6.7	9.6	9.7	4.8	10.0	0.9	2.2	2.5
Cambodia	240.9	44.3	26.9	16.1	38.2	62.9	4.8	36.8	20.0	21.4	20.9	14.6	29.9
Indonesia	41.8	28.0	14.3	16.3	14.9	19.3	14.9	13.0	15.4	16.4	15.0	12.8	11.9
Lao PDR	7.8	16.4	45.9	8.2	30.1	38.7	18.3	31.3	39.5	28.7	31.0	17.0	25.2
Malaysia[b]	12.8	14.9	5.1	8.3	13.0	9.5	11.9	9.2	6.8	14.3	9.0	7.3	7.0
Myanmar	41.4	40.5	42.2	27.3	27.3	29.9	14.9	30.6	42.5	30.4	31.6	33.6	22.7
Philippines	18.4	25.2	4.8	16.4	22.4	15.6	6.8	9.6	10.4	7.0	9.4	33.5	10.5
Singapore	20.0	8.5	−2.0	6.2	19.4	13.4	12.0	11.3	8.6	10.0	7.2	4.3	3.3
Thailand	26.7	17.0	3.7	6.1	8.2	6.3	9.2	6.8	10.9	15.1	10.4	7.3	4.6
Viet Nam	53.1	22.6	56.2	29.7	33.6	46.1	20.3	29.0	33.3	12.1	34.9	4.4	17.7
The Pacific													
Cook Islands	21.9	...	4.8	−5.2	22.4	−5.8	4.0	66.8	−2.8	−13.4	19.2	−25.6	3.0
Fiji	24.3	4.7	−2.1	15.2	22.3	8.3	−6.5	7.1	3.5	11.5	5.9	19.4	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	−6.8	18.4	1.4	2.9	12.6	2.9	7.1	9.5	−1.2	−9.9	22.0	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea[a]	4.5	10.7	5.4	29.5	38.9	27.8	7.8	21.9	11.4	16.1	11.0	6.7	3.4
Samoa	19.2	21.8	16.4	19.1	10.4	11.0	5.8	10.6	6.4	−6.1	−1.6	6.4	9.6
Solomon Islands[a]	10.8	9.9	0.4	46.1	26.4	21.7	8.0	16.8	13.3	25.8	17.4	12.4	5.5
Timor-Leste	...	...	...	17.6	28.8	44.2	36.2	29.6	18.2	9.3	26.2	22.9	19.9
Tonga	9.3	17.0	8.3	12.1	14.4	14.0	8.3	−1.9	5.1	2.7	−1.6	7.0	−2.7
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	11.3	11.5	5.5	11.6	7.0	16.1	13.2	0.5	−6.0	1.3	−0.6	−5.6	8.5
Developed Member Economies													
Australia[a]	12.3	7.5	7.3	8.9	10.1	16.3	19.1	13.7	4.5	9.0	9.1	6.4	7.1
Japan[b]	7.4	3.2	1.9	0.4	−0.4	0.8	0.8	2.0	1.9	2.6	2.2	3.4	2.8
New Zealand[a]	0.0	14.5	6.5	7.8	17.3	8.2	5.7	1.0	3.2	6.5	6.0	5.0	6.3

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic.

a Refers to M3.
b Data from 2000 refer to M3, otherwise M2.
c Growth rate is not computed for 2008 as country reclassifed data from then and onward.

Source: Economy sources.

Table 3.7: Money Supply (M2)

(% of GDP)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	216.8	...	...	17.9	24.3	23.1	30.0	35.8	37.3	35.5	31.2	31.0	33.2
Armenia	...	7.9	14.7	16.3	18.2	22.0	19.8	25.9	26.3	29.8	33.7	36.1	37.0
Azerbaijan	...	12.2	16.6	14.7	18.3	20.8	21.2	23.8	24.8	26.7	30.6	33.2	36.6
Georgia[a]	...	4.8	10.1	16.9	20.3	24.1	23.2	26.5	29.9	29.2	30.2	36.7	38.3
Kazakhstan[a]	...	11.4	15.3	27.2	36.0	36.0	39.0	44.0	38.9	35.4	34.7	32.9	33.1
Kyrgyz Republic	...	17.1	11.3	21.1	28.4	30.3	25.8	28.4	31.4	27.8	31.7	34.0	31.3
Pakistan	40.1	43.6	36.6	45.6	41.5	43.9	42.6	37.6	37.7	35.8	37.0	38.7	39.0
Tajikistan	...	20.7	8.2	15.5	19.5	25.3	15.1	18.2	18.0	19.7	19.6	21.0	19.9
Turkmenistan[a]	...	18.8	19.4	10.2	9.4	15.0	7.7	11.1	17.6	20.3	22.4	23.6	23.8
Uzbekistan	...	17.7	12.2	14.4	14.9	16.3	16.7	18.6	22.4	23.5	24.4	24.7	25.5
East Asia													
China, People's Rep. of	81.9	99.9	135.7	160.1	159.8	151.8	151.3	177.8	180.8	175.9	182.4	188.2	193.0
Hong Kong, China	202.0	204.6	272.9	310.1	336.2	369.9	367.1	397.9	401.7	416.5	439.4	470.2	488.2
Korea, Rep. of	76.1	90.5	111.4	111.1	119.0	122.1	129.1	136.0	131.2	131.4	133.3	134.4	139.9
Mongolia	53.8	15.7	21.1	37.5	38.1	48.4	34.6	43.7	48.0	48.7	45.6	49.3	48.5
Taipei,China	140.0	176.0	185.5	207.9	209.6	193.1	211.0	226.5	219.2	226.7	228.6	233.4	234.4
South Asia													
Bangladesh	22.2	27.7	31.5	40.9	37.5	38.5	39.6	42.1	45.5	48.1	49.0	50.3	51.9
Bhutan	20.6	33.1	50.8	50.9	57.1	51.0	47.1	52.5	57.6	59.6	51.4	57.0	...
India[a]	46.7	50.3	62.5	73.6	77.1	80.6	85.2	86.5	83.6	83.6	84.0	83.9	84.3
Maldives	...	31.2	41.1	53.0	48.0	50.4	50.0	54.5	58.1	60.4	58.5	66.8	68.8
Nepal	28.4	34.4	45.7	51.0	53.1	54.3	60.7	63.8	60.3	67.4	74.0	77.6	80.7
Sri Lanka	28.6	34.5	37.6	41.7	41.0	32.1	29.1	31.8	32.4	33.5	34.2	35.3	35.4
Southeast Asia													
Brunei Darussalam	70.8	120.9	93.6	57.8	51.3	54.1	53.6	76.8	67.3	59.4	58.7	63.0	67.6
Cambodia	10.3	7.7	13.0	19.5	23.3	32.3	28.3	37.7	41.4	45.4	50.5	53.3	62.7
Indonesia	39.5	49.1	53.2	43.4	41.4	41.8	38.3	38.2	36.0	36.7	38.4	39.2	39.6
Lao PDR	7.2	13.5	17.4	18.7	19.6	24.2	25.0	31.9	38.0	42.1	49.1	49.4	55.3
Malaysia[a]	96.8	122.2	128.6	123.8	127.4	125.2	121.0	142.7	132.2	136.2	139.3	142.5	140.4
Myanmar	28.8	30.7	32.7	21.6	20.0	18.8	17.2	19.4	23.6	26.4	31.4	37.1	40.3
Philippines	27.6	39.6	39.7	41.2	45.7	48.1	45.8	48.4	47.6	47.2	47.4	58.0	58.5
Singapore	87.9	82.6	103.4	103.6	111.7	109.7	122.6	132.6	125.0	128.0	131.2	131.1	131.4
Thailand	67.7	78.6	99.3	104.1	102.1	100.4	102.4	110.0	109.0	120.0	121.1	124.4	127.8
Viet Nam	27.1	23.0	50.5	75.6	86.9	108.1	100.4	115.7	129.3	112.4	129.9	122.8	131.5
The Pacific													
Cook Islands	47.9	34.2	42.0	44.0	48.2	42.4	41.2	66.4	62.6	53.0	61.4	46.3	45.8
Fiji	50.9	55.0	42.2	58.4	67.6	71.7	65.5	70.1	67.6	69.5	69.8	77.0	78.6
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	44.9	64.8	69.4	68.5	73.8	74.5	80.2	81.5	76.3	64.5	76.0	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea[a]	35.1	29.7	31.2	33.6	41.7	47.8	44.9	52.9	49.9	49.9	52.8	52.8	45.9
Samoa	46.8	34.7	38.2	42.4	44.0	42.6	45.1	50.1	52.1	46.0	44.6	46.8	42.6
Solomon Islands[a]	29.8	30.5	31.7	40.5	43.4	44.3	38.1	42.3	44.0	47.2	50.1	51.0	50.5
Timor-Leste[b]	...	...	4.5	4.1	3.7	4.9	4.3	7.5	7.3	5.6	6.0	8.9	...
Tonga	26.5	24.7	29.2	39.0	38.5	43.3	42.9	41.7	40.9	38.6	36.8	40.4	38.1
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	104.1	111.5	89.7	98.6	93.7	98.1	97.2	92.4	83.3	80.8	78.6	70.9	...
Developed Member Economies													
Australia[a]	52.9	57.7	65.4	73.6	74.9	80.0	87.9	93.6	95.0	95.3	98.4	102.4	105.3
Japan[c]	114.0	111.4	127.5	206.7	204.7	203.8	210.1	228.0	226.9	238.2	241.6	247.4	250.5
New Zealand[a]	32.3	82.8	92.9	103.9	115.5	118.8	115.9	116.0	116.5	118.7	120.6	123.7	123.2

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Refers to M3.
b Gross domestic product (GDP) estimates before 2000 refer to non-oil GDP.
c Data from 2005 refers to M3, otherwise M2.

Sources: Economy sources; and United Nations Statistics Division and United Nations National Accounts Main Aggregates Database: http://unstats.un.org/unsd/snaama/selCountry.asp (accessed June 2015).

Table 3.8: Interest Rate on Savings and Time Deposits

(% per annum, period averages)

Regional Member	Savings Deposits						Time Deposits[a]					
	1990	1995	2000	2005	2010	2014	1990	1995	2000	2005	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	...	...	...	...	...	...	20.72	6.66	10.70	11.85
Azerbaijan[b]	...	...	...	...	...	...	...	...	10.40	9.38	10.70	9.10
Georgia	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	...	...	...	...	...	...	...	7.53	10.29	9.84	6.90
Kyrgyz Republic	...	...	...	...	...	...	...	45.40	28.07	9.78	11.47	8.41
Pakistan	6.94	7.58	5.75	1.24	5.02	...	9.38	10.93	7.37	4.21	7.21	...
Tajikistan[c]	...	...	...	3.63	3.83	0.92	...	...	...	20.16	17.78	15.46
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of	2.58	3.15	0.99	0.72	0.36	0.35	9.80	10.98	2.25	2.25	2.33	2.96
Hong Kong, China	5.90	4.20	4.50	0.97	0.01	0.01	8.20	6.30	5.40	1.73	0.16	0.16
Korea, Rep. of	5.00	3.00	7.08	3.57	3.18	2.42	10.00	8.10	7.94	3.72	3.86	2.54
Mongolia	3.00	4.00	7.20	7.80	3.20	2.80	4.00	56.85	13.80	12.60	10.70	12.50
Taipei,China	4.25	3.50	3.50	0.55	0.24	0.32	9.50	7.00	4.98	1.77	1.03	1.36
South Asia												
Bangladesh	9.50	5.36	5.81	4.19	4.88	4.90	12.13	6.31	8.97	8.31	9.00	11.30
Bhutan[d]	5.00	5.00	6.00	4.50	4.75	...	8.00	9.00	9.50	6.50	6.75	...
India	5.00	4.50	4.00	3.50	3.50	4.00	9.00	12.50	7.10	5.32	7.50	8.88
Maldives	3.25	5.50	5.50	2.25	2.31	2.23	...	6.00	6.50	4.50	4.48	3.46
Nepal	9.00	7.00	5.25	3.38	7.00	3.21	11.50	8.00	6.88	3.63	8.13	6.85
Sri Lanka	14.00	12.00	8.40	5.00	5.00	5.00	16.00	16.00	15.00	9.00	8.50	6.50
Southeast Asia												
Brunei Darussalam	...	...	...	1.01	0.47	...	...	...	...	1.63	0.82	0.75
Cambodia	...	7.25	6.13	2.08	1.18	1.46	...	...	7.20	6.83	6.58	6.83
Indonesia	15.00	...	8.86	4.32	3.92	1.76	18.53	16.28	12.17	10.95	7.88	8.79
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	3.43	3.70	2.72	1.41	0.94	1.03	7.21	6.89	4.24	3.70	2.81	3.23
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...
Philippines[e]	10.90	8.00	7.40	3.80	1.60	0.63	19.70	10.70	10.50	6.00	2.07	1.03
Singapore	3.83	2.72	1.28	0.30	0.13	0.11	5.48	4.01	2.42	0.86	0.45	0.31
Thailand	11.00	5.00	2.50	1.88	0.50	0.83	13.75	10.62	3.50	3.00	1.55	1.73
Viet Nam	2.40	...	0.20	3.00	3.00	0.76	...	12.00	6.24	8.40	11.50	7.62
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	5.25	4.00	3.88	1.80	1.00	...	10.50	8.13	9.38	1.30	4.80	...
Samoa	5.90	3.00	3.00	2.75	0.88	1.00	9.20	7.50	7.35	6.38	2.25	2.90
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste[c]	...	...	...	0.75	0.75	0.75	...	...	...	1.28	1.33	1.05
Tonga[b,f]	6.25	4.38	3.15	3.36	1.51	1.99	7.00	4.60	4.22	5.60	3.60	2.71
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	...	...	...	5.40	4.50	2.50	14.45	7.10	5.90	4.55	6.00	3.30
Japan[c,g]	...	0.91	0.09	0.01	0.04	0.02	...	1.16	0.24	0.03	0.10	0.06
New Zealand[b]	...	...	...	...	...	...	11.50	8.00	6.49	6.90	4.72	4.18

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Refers to interest rate on time deposits of over 12 months, unless otherwise indicated.
b Figures are derived simple averages of monthly rates for time deposits of 6 months.
c For time deposits of 12 months.
d For fixed deposits of 1 year to less than 3 years.
e Refers to rates charged on interest-bearing deposits with maturities of over 1 year.
f Beginning 1996, figures refer to weighted averages.
g Refers to time deposits from 12 months to less than 2 years. It is computed as the arithmetic average of the monthly figures.

Sources: Economy sources; and for the People's Republic of China: CEIC Data Company (accessed 8 August 2015).

Table 3.9: Yield on Short-Term Treasury Bills and Lending Interest Rate

(% per annum, period averages)

Regional Member	Yield on Short-Term Treasury Bills[a]						Lending Interest Rate					
	1990	1995	2000	2005	2010	2014	1990	1995	2000	2005	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	15.7	15.0
Armenia	...	37.8	24.4	4.1	10.6	7.8	...	111.9	31.6	18.0	19.2	16.4
Azerbaijan	...	...	16.7	7.5	1.8	1.9	...	...	19.7	17.0	20.7	17.9
Georgia	...	...	...	11.6	9.6	6.2	...	58.4 (1996)	24.7	17.6	15.8	11.9
Kazakhstan	...	49.0	6.6	3.3	7.0	7.0	...	...	...	...	...	...
Kyrgyz Republic	...	34.9	32.3	4.4	4.6	5.2	...	65.0 (1996)	51.9	26.6	31.5	15.5
Pakistan[b]	...	12.5	8.4	7.2	12.5	9.9	...	...	...	9.1	14.0	11.7
Tajikistan[c]	...	...	...	...	6.7	0.4	...	...	25.6	23.3	23.4	24.5
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of[d]	...	...	2.6	1.9	2.6	...	9.4	12.1	5.9	5.6	5.8	5.6
Hong Kong, China	...	5.6	5.7	3.7	0.3	0.0	10.0	8.8	9.5	7.8	5.0	5.0
Korea, Rep. of[e]	...	14.1	7.1	3.6	2.7	...	10.0	9.0	8.5	5.6	5.5	4.3
Mongolia	...	...	...	13.7	...	...	...	134.4	37.0	30.6	20.1	19.0
Taipei,China[f]	6.5	5.3	...	1.3	0.2	0.4	10.1	7.7	7.7	3.8	2.7	2.9
South Asia												
Bangladesh	...	...	6.3	6.7	2.2	6.9	16.0	14.0	15.5	14.0	13.0	13.0
Bhutan[c]	...	8.0	6.9	3.5	2.0	2.3	15.0	16.0	16.0	14.0	14.0	14.2
India[g]	...	12.7	9.0	5.7	6.2	8.5	16.5	15.5	12.3	10.8	8.3	10.3
Maldives[h]	...	...	...	...	4.9	8.2	...	15.0 (1996)	13.0	13.0	10.4	11.4
Nepal	7.9	9.9	5.3	2.2	6.8	0.1	14.4	12.9 (1996)	9.5	8.1	8.0	...
Sri Lanka	14.1	16.8	14.0	9.0	8.6	6.6	13.0	18.0	16.2	10.8	10.2	7.8
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	5.5	5.5	5.5	5.5
Cambodia	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	...	...	...	...	...	...	20.8	18.9	18.5	14.1	13.3	12.6
Lao PDR[i]	...	20.5	29.9	18.6	8.0	...	26.0 (1991)	25.7	32.0	26.8	22.6	...
Malaysia	6.1	5.5	2.9	2.5	2.6	3.1	8.8	8.7	7.7	6.0	5.0	4.6
Myanmar	...	...	...	...	...	...	8.0	16.5	15.3	15.0	17.0	13.0
Philippines	23.7	11.8	9.9	6.1	3.5	1.2	24.1	14.7	10.9	10.2	7.7	5.5
Singapore	3.3	1.1	2.2	2.1	0.3	...	7.4	6.4	5.8	5.3	5.4	5.4
Thailand[j]	...	...	...	2.7	1.4	2.1	14.4	13.3	7.8	5.8	5.9	6.8
Viet Nam[k]	...	...	5.4	6.1	11.1	...	32.2 (1993)	20.1 (1996)	10.6	11.0	13.1	8.7
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	3.1	3.5	1.9	3.4	1.2	...	11.2	8.4	6.8	7.5	5.8
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	15.0	15.3	16.4	15.1	15.8
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea[l]	11.4	17.4	17.0	3.8	4.6	4.0	15.5	13.1	17.5	11.5	10.4	9.4
Samoa	...	...	...	...	...	...	...	...	...	11.4	10.7	10.0
Solomon Islands	11.0	12.5	7.0	4.5	3.7	0.2	18.0	16.2	14.6	14.1	14.4	10.9
Timor-Leste	...	...	...	...	...	...	...	...	...	16.7	11.0	12.9
Tonga	...	...	...	...	...	...	13.5	10.5	11.3	11.4	11.5	8.9
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	17.3	10.5	9.9	7.5	5.5	4.7
Developed Member Economies												
Australia[m]	14.2	7.6	6.0	...	4.4	4.6	17.9	10.7	9.3	9.1	7.3	6.0
Japan	5.6	0.4	0.7	0.0	0.1	–0.0	6.9	3.5	2.1	1.7	1.6	1.2
New Zealand[n]	13.8	8.8	6.4	6.5	2.8	3.2	...	...	7.8	7.8	6.3	5.8

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Refers to 3-month treasury bills unless otherwise indicated.
b Refers to weighted average yield on 6-month treasury securities.
c Refers to 91-day treasury bills.
d Refers to 3-month treasury bonds trading rate.
e Refers to 91-day certificates of deposit.
f Refers to base lending rates but figures before 2003 are prime lending rates.
g Figures are for fiscal year ending March.
h Refers to rate on 28-day treasury bills.
i Refers to weighted average auction rate for 6-month treasury bills.
j Refers to government securities bills.
k Refers to average monthly yield on 360-day treasury bills sold at auction.
l Refers to rate on 182-day treasury bills.
m Refers to 90-day bank-accepted bills.
n Refers to financing bill rate.

Sources: International Monetary Fund. *International Financial Statistics* CD-ROM (May 2015); World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed 20 July 2015); and economy sources.

Table 3.10: Domestic Credit Provided by Banking Sector and Bank Nonperfoming Loans

Regional Member	Domestic Credit Provided by Banking Sector[a] (% of GDP)						Bank Nonperfoming Loans (% of total gross loans)					
	1990	1995	2000	2005	2010	2014	2000	2005	2010	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	4.2	-2.2	...	...	49.9	5.0	4.9	6.1
Armenia[b,c]	...	9.1	11.5	8.8	27.8	54.9	17.5	1.9	3.0	3.7	4.5	7.0
Azerbaijan	...	12.5	9.6	11.2	23.0	33.8	7.2	4.7	...	5.7	4.5	12.7
Georgia	...	8.1	21.5	21.5	33.2	48.5	...	1.2	5.9	3.7	3.0	3.6
Kazakhstan	...	9.5	12.3	24.7	45.4	37.6	...	3.3	23.8	28.3	31.4	23.6
Kyrgyz Republic	...	25.7	12.2	9.4	10.9	15.9	30.9	8.0	15.8	7.2	5.5	4.5
Pakistan	50.9	51.0	41.6	46.5	46.2	46.8	19.5	9.0	14.7	14.5	13.0	12.3
Tajikistan	...	...	17.9	13.0	7.8	19.6	...	...	7.5	9.5	13.6	21.2
Turkmenistan	...	1.1	26.9	...	...	...	...	...	0.1	0.0	0.0	...
Uzbekistan	...	...	...	...	...	...	...	...	1.0	0.5	0.4	0.4
East Asia												
China, People's Rep. of	88.9	87.2	119.0	133.6	143.6	169.2	22.4	8.6	1.1	1.0	1.0	1.1
Hong Kong, China[d]	151.9	142.0	134.0	139.8	195.4	236.3	7.3	1.4	0.8	0.6	0.5	0.5
Korea, Rep. of[e]	48.1	46.4	70.9	125.5	151.0	162.4	8.9	1.2	0.6	0.6	0.6	0.6
Mongolia	...	-31.0	-42.3	-24.6	25.9	67.2	...	...	...	...	...	...
Taipei,China	1.2	1.7	1.8	1.9	0.9	...	5.3	2.2	0.6	0.4	0.4	0.3
South Asia												
Bangladesh	21.6	26.7	30.2	47.7	57.4	58.3	34.9	13.2	...	9.7	8.6	8.6
Bhutan	-1.0	9.9	2.9	21.8	45.6	48.8	...	...	5.2	5.4	7.0	11.8
India[e]	50.0	42.9	51.2	58.4	71.9	74.8	12.8	5.2	2.4	3.4	4.0	4.3
Maldives	33.0	34.9	34.8	48.8	85.3	71.4	...	...	...	...	...	...
Nepal	28.0	34.0	40.8	42.2	67.4	72.0	...	...	...	...	...	...
Sri Lanka	38.0	40.9	43.7	43.6	40.5	45.3	15.0	9.6	...	3.6	5.6	4.2
Southeast Asia												
Brunei Darussalam	...	...	38.6	10.4	25.1	25.3	...	...	6.9	5.4	4.5	3.7
Cambodia	...	5.3	6.4	7.2	22.7	47.4	...	...	...	...	...	...
Indonesia	46.7	51.8	60.7	46.2	34.2	48.4	34.4	7.3	2.5	1.8	1.7	2.1
Lao PDR	5.0	9.9	9.0	8.1	26.5	...	...	...	...	...	...	...
Malaysia[f]	72.7	126.7	138.4	117.7	127.0	145.3	15.4	9.4	3.4	2.0	1.8	1.6
Myanmar	39.6	32.5	31.2	24.6	24.8	28.3	...	...	...	...	...	...
Philippines[g,h]	23.2	55.7	58.3	47.2	49.2	55.9	24.0	10.0	3.4	2.2	2.4	2.0
Singapore[i]	58.6	59.1	76.7	61.2	80.8	126.3	3.4	3.8	1.4	1.0	0.9	0.8
Thailand	94.1	141.3	138.3	119.2	142.7	182.5	17.7	9.1	3.9	2.4	2.3	2.5
Viet Nam	...	20.1	32.6	65.4	124.7	113.8	...	...	2.1	3.4	3.4	...
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	-31.0	-42.3	-24.6	-14.9	-27.2	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	35.7	29.2	28.2	22.2	34.8	48.8	...	...	...	...	...	...
Samoa	0.0	9.1	18.3	31.8	39.7	49.5	...	...	10.9	5.5	6.5	8.3
Solomon Islands	23.8	24.7	26.5	29.4	27.2	22.2	...	...	...	...	...	...
Timor-Leste	...	...	...	-9.2	-23.7	-1.0	...	...	...	...	...	...
Tonga	30.0	31.4	38.8	48.9	40.3	29.5	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	30.8	33.7	35.6	44.5	63.7	68.7	...	...	...	...	...	...
Developed Member Economies												
Australia[j]	70.4	80.3	93.4	113.3	154.4	169.0	0.5	0.6	2.1	1.8	1.5	1.1
Japan[k]	255.3	283.4	304.7	317.9	328.5	374.2	5.3	1.8	2.5	2.4	2.3	1.9
New Zealand	77.4	89.5	108.0	126.0	152.0	...	...	...	2.1	1.4	1.0	0.9

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Domestic credit provided by the banking sector as a share of GDP is a measure of banking sector depth and finance sector development in terms of size. Since the claims on the central government are a net item (claims on the central government minus central government deposits), this net figure may be negative, resulting in a negative figure of domestic credit provided by the banking sector.
b Loans classified as loss, which are fully provisioned against, are held off-balance sheet.
c Includes loans that are overdue less than 90 days.
d Loans classified as substandard, doubtful, loss, and not necessarily linked to a 90-day criterion.
e Unless otherwise indicated, data refer to the end of the fiscal year, i.e., March of the indicated calendar year.
f Loans with principal and/or interest over 180 days; credit card debt and bankers' acceptances over 90 days; and loans secured by cash and cash substitutes past 365 days.
g Thirty days for loans payable in lump sum or payable in quarterly, semi-annual, or annual installments; 90 days for loans payable in monthly installments; as soon as they are past due for loans payable in daily, weekly, or semi-monthly installments.
h Interbank loans are excluded.
i Nonbank nonperforming loans to total nonbank loans. Other characteristics may be considered beyond the 90-day past-due criterion to classify a loan as non-performing.
j Includes both impaired and past due items.
k For nine major banks only. Unless otherwise indicated, data refer to the end of the fiscal year, i.e., March of the next calendar year.

Sources: World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed 20 July 2015); and economy sources.

Table 3.11: Growth Rates of Stock Market Price Index

(%)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	...	...	...	...	...	...	...	...	...	...
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	...	...	...	...	...	...	...	...	...	...	...
Kyrgyz Republic	...	...	...	...	...	...	...	...	...	...	...	...
Pakistan	6.3	−28.9	42.1	47.3	21.1	−11.5	−32.0	32.3	15.2	23.2	45.8	37.4
Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of	...	−0.5	37.3	−22.1	161.1	−27.7	−10.2	3.4	−5.7	−16.8	−1.1	1.5
Hong Kong, China	...	−5.5	26.5	11.1	37.3	−9.8	−13.8	19.3	−0.3	−4.4	10.4	2.7
Korea, Rep. of	−18.7	−4.8	−8.7	28.5	26.7	−10.6	−7.0	23.6	12.6	−2.6	1.5	1.1
Mongolia	...	...	...	...	...	...	...	...	...	...	...	...
Taipei,China	−21.4	−11.3	5.7	1.0	24.4	−17.5	−8.0	23.1	2.6	−8.3	8.2	11.1
South Asia												
Bangladesh	−25.1	12.8	12.2	23.4	54.8	26.0	6.9	114.4	−10.4	−23.6	−9.8	15.0
Bhutan	...	...	...	...	...	...	...	...	...	...	...	...
India	35.8	−17.4	11.2	32.6	39.6	−4.0	−6.4	29.8	−2.6	−2.5	11.4	25.2
Maldives	...	...	...	51.8	35.5	33.1	−21.7	−20.4	−22.9	−6.9	−5.3	−4.8
Nepal	...	...	...	...	...	...	...	...	...	...	...	...
Sri Lanka	...	−31.0	−10.3	46.8	14.0	−14.8	6.8	113.1	34.0	−22.2	10.3	12.5
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	...	...	−9.1	35.0	53.4	−5.6	−3.7	53.9	21.0	10.0	11.8	7.2
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	21.8	−6.9	21.4	6.4	37.0	−12.4	−5.9	27.1	9.7	6.5	8.7	5.5
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	−12.3	−10.9	−6.3	17.5	47.6	−24.3	−3.6	43.1	32.8	14.7	16.0	1.8
Singapore	3.6	−5.5	5.0	16.2	33.9	−23.5	−12.0	27.4	0.8	0.6	7.6	1.2
Thailand	...	...	−18.7	4.2	6.6	−10.3	−15.4	45.6	21.3	17.3	21.3	−0.2
Viet Nam	...	...	...	8.3	95.5	−52.2	−10.3	12.2	−11.1	−4.2	18.7	18.9
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	13.5	−19.6	0.7	5.1	−11.7	−10.5	0.4	2.0	0.9
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	52.5	15.4	19.8	−8.7	26.2	3.2	−28.0	−15.3	−12.3
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	−22.4	15.2	1.7	17.6	11.8	−41.3	30.8	−2.6	−14.5	14.6	15.1	1.1
Japan	−15.5	−13.7	11.6	13.5	2.3	−28.6	−26.9	2.0	−7.2	−6.5	46.0	12.6
New Zealand	−12.0	5.4	2.3	19.4	15.3	−20.6	−12.3	9.7	6.2	6.9	25.5	14.1

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

Sources: International Monetary Fund. *International Financial Statistics.* 2015. http://elibrary-data.imf.org/ (accessed 20 July 2015); and for Taipei,China: economy source.

Table 3.12: Stock Market Capitalization

Regional Member	Stock Market Capitalization ($ million)						Stock Market Capitalization (% of GDP)					
	1990	1995	2000	2005	2010	2012	1990	1995	2000	2005	2010	2012
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	...	43	145	132	...	...	...	0.9	1.6	1.3
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...
Georgia	...	...	24	355	1,060	943	...	...	0.8	5.5	9.1	6.0
Kazakhstan	...	...	1,342	10,521	60,742	23,496	...	...	7.3	18.4	41.0	11.5
Kyrgyz Republic	...	...	4	42	79	165	...	...	0.3	1.7	1.6	2.5
Pakistan	2,850	9,286	6,581	45,937	38,169	43,676	7.1	15.3	8.9	42.0	21.5	19.4
Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	32	37	...	...	...	...	0.2	0.3	...	...
East Asia												
China, People's Rep. of	...	42,055	580,991	780,763	4,762,837	3,697,376	...	5.7	48.2	34.4	78.9	43.7
Hong Kong, China	83,400	303,705	623,398	693,486	1,079,640	1,108,127	108.4	210.0	363.1	381.9	472.2	421.9
Korea, Rep. of	111,000	181,955	171,587	718,180	1,089,217	1,180,473	39.0	32.5	30.6	80.0	99.5	96.5
Mongolia	...	27	37	46	1,093	1,293	...	1.9	3.2	1.8	15.2	10.5
Taipei,China	99,736	192,944	262,335	486,022	752,526	885,521 (2014)	60.5	70.2	80.4	133.2	169.2	170.7 (2014)
South Asia												
Bangladesh	321	1,338	1,186	3,035	15,683	17,479	1.0	3.5	2.2	4.4	13.6	13.1
Bhutan	...	...	53	101	219	330	...	...	12.0	12.4	13.8	18.1
India	38,600	127,199	148,064	553,074	1,615,860	1,263,335	11.8	34.7	31.1	66.3	94.6	69.0
Maldives	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	...	244	790	1,344	5,235	4,160	...	5.5	14.4	16.5	32.7	22.1
Sri Lanka	917	1,998	1,074	5,720	19,924	17,046	11.4	15.3	6.6	23.4	40.2	28.7
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	8,080	66,585	26,834	81,428	360,388	396,772	7.1	32.9	16.3	28.5	47.7	43.2
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	48,600	222,729	116,935	181,236	410,534	476,340	110.4	250.7	124.7	126.3	165.8	156.2
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	5,930	58,930	25,957	40,153	157,321	264,143	13.4	79.5	32.0	39.0	78.8	105.6
Singapore	34,300	148,004	152,827	316,658	370,091	414,126	88.2	168.4	159.5	248.5	156.5	142.8
Thailand	23,900	141,507	29,489	124,864	277,732	382,999	28.0	84.2	24.0	70.8	87.1	104.7
Viet Nam	...	...	...	461	20,385	32,933	...	...	...	0.8	17.6	21.1
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	67	244	587	419	452	...	3.4	14.5	19.5	44.0	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	3,166	9,742	10,711	...	...	...	65.1	100.3	69.6
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	109,000	245,218	372,794	804,074	1,454,547	1,286,438	35.1	66.6	89.8	116.0	127.5	83.8
Japan	2,920,000	3,667,292	3,157,222	4,736,513	4,099,591	3,680,982	94.1	68.8	66.7	103.6	74.6	61.8
New Zealand	8,840	31,950	18,866	43,409	71,833	79,802	19.4	50.0	35.9	37.7	49.4	45.7

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

Sources: World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed 1 September 2015); and for Bhutan and Taipei,China: economy sources.

Table 3.13: Official Exchange Rate

(local currency units per $, period averages)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	490.58	36.57	47.36	49.49	49.96	50.25	50.33	46.45	46.75	50.92	55.38	57.25
Armenia	...	405.91	539.53	457.69	342.08	305.97	363.28	373.66	372.50	401.76	409.63	415.92
Azerbaijan	...	0.88	0.89	0.95	0.86	0.82	0.80	0.80	0.79	0.79	0.78	0.78
Georgia	...	...	1.98	1.81	1.67	1.49	1.67	1.78	1.69	1.65	1.66	1.77
Kazakhstan	...	60.95	142.13	132.88	122.55	120.30	147.50	147.36	146.62	149.11	152.13	179.19
Kyrgyz Republic	...	10.82	47.70	41.01	37.32	36.57	42.90	45.96	46.14	47.00	48.44	53.65
Pakistan	21.71	31.64	53.65	59.51	60.74	70.41	81.71	85.19	86.34	93.40	101.63	101.10
Tajikistan	...	0.12	2.08	3.12	3.44	3.43	4.14	4.38	4.61	4.74	4.76	4.93
Turkmenistan	0.00	0.02	1.04	1.04	1.04	2.29	2.85	2.85	2.85	2.85	2.85	2.85
Uzbekistan	0.00	29.78	236.61	1,106.10	1,260.83	1,314.17	1,458.75	1,578.42	1,706.61	1,897.56	2,097.20	2,319.55
East Asia												
China, People's Rep. of	4.78	8.35	8.28	8.19	7.61	6.95	6.83	6.77	6.46	6.31	6.20	6.14
Hong Kong, China	7.79	7.74	7.79	7.78	7.80	7.79	7.75	7.77	7.78	7.76	7.76	7.75
Korea, Rep. of	707.76	771.27	1,130.96	1,024.12	929.26	1,102.05	1,276.93	1,156.06	1,108.29	1,126.47	1,094.85	1,052.96
Mongolia	...	448.61	1,076.67	1,205.25	1,170.40	1,165.80	1,437.80	1,357.06	1,265.52	1,357.58	1,523.93	1,817.94
Taipei,China	26.89	26.48	31.23	32.17	32.84	31.53	33.06	31.65	29.47	29.62	29.77	30.37
South Asia												
Bangladesh	34.57	40.28	52.14	64.33	68.87	68.60	69.04	69.65	74.15	81.86	78.10	77.64
Bhutan	17.51	32.43	44.94	44.10	41.35	43.51	48.41	45.73	46.67	53.44	58.60	61.03
India	17.50	32.43	44.94	44.10	41.35	43.51	48.41	45.73	46.67	53.44	58.60	61.03
Maldives	9.55	11.77	11.77	12.80	12.80	12.80	12.80	12.80	14.60	15.36	15.37	15.38
Nepal	29.37	51.89	71.09	71.37	66.42	69.76	77.57	73.26	74.02	85.20	92.99	99.63
Sri Lanka	40.06	51.25	77.01	100.50	110.62	108.33	114.95	113.06	110.57	127.60	129.07	130.57
Southeast Asia												
Brunei Darussalam	1.81	1.42	1.72	1.66	1.51	1.42	1.45	1.36	1.26	1.25	1.25	1.27
Cambodia	426.25	2,450.83	3,840.75	4,092.50	4,056.17	4,054.17	4,139.33	4,184.92	4,058.50	4,033.00	4,027.25	4,037.50
Indonesia	1,842.81	2,248.61	8,421.78	9,704.74	9,141.00	9,698.96	10,389.90	9,090.43	8,770.43	9,386.63	10,461.20	11,865.20
Lao PDR[a]	707.75	804.69	7,887.64	10,655.20	9,603.16	8,744.22	8,516.05	8,258.77	8,030.06	8,007.76	7,860.14	8,048.96
Malaysia	2.70	2.50	3.80	3.79	3.44	3.34	3.52	3.22	3.06	3.09	3.15	3.27
Myanmar[b]	6.34	5.67	6.52	5.82	5.62	5.44	5.58	5.63	5.44	640.65	933.57	984.35
Philippines	24.31	25.71	44.19	55.09	46.15	44.32	47.68	45.11	43.31	42.23	42.45	44.40
Singapore	1.81	1.42	1.72	1.66	1.51	1.41	1.45	1.36	1.26	1.25	1.25	1.27
Thailand	25.59	24.92	40.11	40.22	34.52	33.31	34.29	31.69	30.49	31.08	30.73	32.48
Viet Nam	6,482.80	11,038.30	14,167.70	15,858.90	16,105.10	16,302.30	17,065.10	18,612.90	20,509.80	20,828.00	20,933.40	21,148.00
The Pacific												
Cook Islands	1.68	1.52	2.20	1.42	1.36	1.42	1.60	1.39	1.27	1.23	1.22	1.21
Fiji	1.48	1.41	2.13	1.69	1.61	1.59	1.96	1.92	1.79	1.79	1.84	1.89
Kiribati	1.28	1.35	1.72	1.31	1.20	1.19	1.28	1.09	0.97	0.97	1.04	1.11
Marshall Islands[c]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Micronesia, Fed. States of[c]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Nauru	1.28	1.35	1.72	1.31	1.20	1.19	1.28	1.09	0.97	0.97	1.04	1.11
Palau[c]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Papua New Guinea	0.96	1.28	2.78	3.10	2.97	2.70	2.76	2.72	2.37	2.08	2.24	2.46
Samoa	2.31	2.47	3.29	2.71	2.62	2.64	2.73	2.48	2.32	2.29	2.31	2.33
Solomon Islands	2.53	3.41	5.09	7.53	7.65	7.75	8.06	8.06	7.64	7.36	7.30	7.38
Timor-Leste[c]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tonga	1.28	1.27	1.76	1.94	1.97	1.94	2.03	1.91	1.73	1.72	1.77	1.85
Tuvalu	1.28	1.35	1.72	1.31	1.20	1.19	1.28	1.09	0.97	0.97	1.04	1.11
Vanuatu	117.06	112.11	137.64	109.25	102.44	101.33	106.74	96.91	89.47	92.64	94.54	97.07
Developed Member Economies												
Australia	1.28	1.35	1.72	1.31	1.20	1.19	1.28	1.09	0.97	0.97	1.04	1.11
Japan[d]	144.79	94.06	107.77	110.22	117.75	103.36	93.57	87.78	79.81	79.79	97.60	105.95
New Zealand	1.68	1.52	2.20	1.42	1.36	1.42	1.60	1.39	1.27	1.23	1.22	1.21

... = data not available at cutoff date, 0.00 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic, US = United States.

a A floating exchange rate policy was adopted in September 1995 that allowed commercial banks to set their own rates and hence, figures for 1996 onward are simple averages of midpoint rates reported daily.
b Beginning on 1 April 2012, the Central Bank of Myanmar adopted the managed float exchange rate regime for kyat vis-à-vis the US dollar.
c Unit of currency is the US dollar.
d Figures beginning 1993 are not comparable to those prior to 1993 due to change in appropriation standard.

Sources: International Monetary Fund. *International Financial Statistics* CD-ROM (May 2015); for Turkmenistan and Uzbekistan: United Nations National Accounts Main Aggregates Database and Interstate Statistical Committee of the Commonwealth of Independent States; and for Taipei,China: economy source.

Exchange Rates

Table 3.14: Purchasing Power Parity Conversion Factor[a]

(local currency units per $, period averages)

Regional Member	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies											
Central and West Asia											
Afghanistan	...	12.16	12.37	14.35	14.35	14.20	16.04	17.36	18.63	19.01	18.52
Armenia	144.93	157.74	160.11	162.56	168.98	171.99	183.12	187.10	181.56	184.60	186.39
Azerbaijan	0.17	0.21	0.22	0.26	0.33	0.27	0.30	0.36	0.36	0.36	0.35
Georgia	0.53	0.63	0.67	0.71	0.77	0.75	0.80	0.86	0.85	0.84	0.85
Kazakhstan	22.71	36.03	42.49	47.82	56.72	58.93	69.60	80.17	82.56	89.20	90.88
Kyrgyz Republic	8.11	9.26	9.83	11.00	13.18	13.61	14.80	17.76	18.95	19.27	20.50
Pakistan	10.73	12.72	13.65	14.26	15.84	18.96	20.77	24.35	25.34	26.83	28.28
Tajikistan	0.29	0.66	0.77	0.96	1.21	1.35	1.49	1.74	1.91	1.96	2.04
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	67.42	225.59	265.92	321.22	376.27	451.01	532.69	600.58	678.33	761.31	845.12
East Asia											
China, People's Rep. of	2.71	2.82	2.84	2.99	3.16	3.13	3.31	3.51	3.53	3.55	3.53
Hong Kong, China	7.44	5.69	5.49	5.51	5.48	5.42	5.37	5.46	5.56	5.58	5.65
Korea, Rep. of	746.88	788.92	772.19	770.21	785.72	824.76	840.57	854.59	860.25	860.22	857.26
Mongolia	138.38	223.58	264.61	287.72	342.71	346.34	476.22	537.13	595.11	601.68	628.43
Taipei,China	21.39	18.39	17.65	17.10	16.34	16.24	15.79	15.11	14.93	14.91	14.96
South Asia											
Bangladesh	15.68	17.33	17.80	18.46	19.53	20.69	21.90	23.15	24.59	25.97	27.18
Bhutan	12.27	13.66	13.97	14.03	14.54	15.13	15.84	16.86	18.08	18.70	19.28
India	10.34	11.28	11.65	12.00	12.79	13.46	14.49	15.11	15.97	16.72	17.12
Maldives	6.83	6.28	6.69	6.97	7.47	8.08	8.01	8.53	8.95	8.73	8.98
Nepal	14.38	15.51	16.10	16.82	17.42	20.05	22.65	24.63	25.78	26.95	28.76
Sri Lanka	16.79	24.00	25.91	28.78	32.83	34.50	36.58	38.65	41.36	43.49	45.03
Southeast Asia											
Brunei Darussalam	0.53	0.65	0.69	0.68	0.76	0.58	0.61	0.72	0.70	0.67	0.68
Cambodia	1,062.55	1,106.83	1,123.56	1,165.78	1,283.45	1,305.68	1,330.18	1,347.11	1,342.42	1,333.05	1,350.41
Indonesia	1,427.63	2,013.80	2,229.01	2,415.67	2,799.20	3,007.98	3,425.30	3,606.57	3,675.96	3,792.55	3,939.56
Lao PDR	1,372.34	1,929.15	2,073.88	2,170.38	2,317.30	2,232.40	2,426.42	2,467.75	2,528.62	2,694.32	2,662.31
Malaysia	1.22	1.32	1.33	1.36	1.47	1.37	1.41	1.46	1.44	1.42	1.43
Myanmar[b]	...	...	...	...	...	...	...	234.97	237.89	244.66	250.23
Philippines	13.71	15.47	15.75	15.81	16.68	17.01	17.52	17.85	17.87	17.96	18.25
Singapore	1.00	0.90	0.89	0.92	0.89	0.91	0.90	0.89	0.89	0.87	0.86
Thailand	11.14	11.15	11.38	11.47	11.69	11.83	12.11	12.37	12.32	12.34	12.32
Viet Nam	2,923.18	3,575.10	3,765.75	4,021.38	4,838.26	5,100.25	5,647.10	6,709.19	7,310.99	7,546.59	7,710.48
The Pacific											
Cook Islands	...	...	...	...	...	...	...	...	...	...	...
Fiji	0.86	0.97	0.97	0.98	0.97	0.98	1.01	1.04	1.06	1.04	1.06
Kiribati	0.98	0.96	0.98	0.94	0.98	0.99	0.99	0.96	0.93	0.92	0.93
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	0.86	0.80	0.79	0.79	0.81	0.85	0.87	0.88	0.90	0.90	...
Nauru	...	...	...	...	...	...	...	...	...	...	...
Palau	0.77	0.75	0.74	0.73	0.76	0.79	0.76	0.75	0.75	0.80	0.81
Papua New Guinea	1.23	1.53	1.62	1.64	1.73	1.67	1.82	1.86	1.78	1.79	...
Samoa	1.43	1.48	1.56	1.52	1.62	1.65	1.66	1.66	1.70	1.70	1.68
Solomon Islands	3.91	4.66	4.71	4.86	5.31	5.65	5.87	6.37	6.66	6.54	7.01
Timor-Leste	0.41	0.43	0.42	0.44	0.47	0.49	0.50	0.52	0.53	0.58	0.56
Tonga	0.93	1.12	1.27	1.31	1.41	1.37	1.40	1.45	1.46	1.45	1.46
Tuvalu	1.04	1.11	1.12	1.09	1.10	1.10	1.12	1.11	1.10	1.10	...
Vanuatu	90.41	88.68	89.37	91.82	96.64	98.14	99.49	100.51	99.13	100.27	...
Developed Member Economies											
Australia	1.31	1.39	1.40	1.43	1.48	1.44	1.50	1.51	1.52	1.52	1.54
Japan	154.97	129.55	124.66	120.30	116.85	115.50	111.63	107.45	104.63	104.09	105.27
New Zealand	1.44	1.54	1.48	1.51	1.49	1.47	1.49	1.49	1.48	1.47	1.47

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Purchasing power parity (PPP) figures are extrapolated from the 2011 International Comparison Program (ICP) benchmark estimates or imputed using a statistical model based on the 2011 ICP.

b Gross domestic product (GDP) deflators were smoothened by applying the implied inflation for each reference or base year using the 2005 level as the base. The smoothened series of the GDP deflator was used to extrapolate PPP for the other years.

Sources: World Bank. World Development Indicators Online. http://data.worldbank.org/data-catalog/world-development-indicators (accessed 29 July 2015); Asian Development Bank estimates for Afghanistan; Fiji; Indonesia; Myanmar; Nepal; Pakistan; Papua New Guinea; Taipei,China; and Tajikistan using data from economy sources; CEIC Data Company; and United States Bureau of Economic Analysis.

Table 3.15: Price Level Indexes

(PPPs to official exchange rates, period averages, United States = 100)

Regional Member	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies											
Central and West Asia											
Afghanistan	...	24.57	24.78	28.72	28.55	28.22	34.54	37.13	36.58	34.32	32.35
Armenia	26.86	34.46	38.48	47.52	55.23	47.34	49.01	50.23	45.19	45.07	44.81
Azerbaijan	18.54	22.02	25.16	30.87	40.40	33.22	37.39	45.64	45.71	45.57	45.01
Georgia	26.71	35.00	37.51	42.72	51.50	44.70	44.92	50.92	51.72	50.24	48.40
Kazakhstan	15.98	27.12	33.70	39.02	47.15	39.95	47.23	54.68	55.36	58.64	50.72
Kyrgyz Republic	17.01	22.58	24.48	29.47	36.04	31.73	32.19	38.48	40.32	39.78	38.20
Pakistan	20.01	21.37	22.65	23.48	22.49	23.21	24.38	28.20	27.14	26.40	27.98
Tajikistan	13.96	21.04	23.44	27.88	35.27	32.47	34.12	37.73	40.33	41.22	41.38
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	28.49	20.39	21.88	25.48	28.63	30.92	33.75	35.19	35.75	36.30	36.43
East Asia											
China, People's Rep. of	32.74	34.43	35.67	39.27	45.46	45.84	48.87	54.25	55.86	57.33	57.46
Hong Kong, China	95.53	73.14	70.66	70.69	70.35	69.87	69.06	70.16	71.62	71.89	72.92
Korea, Rep. of	66.04	77.03	80.88	82.88	71.30	64.59	72.71	77.11	76.37	78.57	81.41
Mongolia	12.85	18.55	22.43	24.58	29.40	24.09	35.09	42.44	43.84	39.48	34.57
Taipei,China	68.51	57.17	54.25	52.08	51.81	49.12	49.91	51.28	50.40	50.08	49.27
South Asia											
Bangladesh	30.07	26.94	25.82	26.80	28.47	29.97	31.45	31.21	30.04	33.25	35.01
Bhutan	27.30	30.97	30.83	33.93	33.42	31.25	34.64	36.12	33.83	31.91	31.59
India	23.01	25.58	25.71	29.02	29.40	27.81	31.70	32.37	29.89	28.54	28.04
Maldives	58.00	49.03	52.24	54.46	58.40	63.10	62.61	58.39	58.22	56.84	58.38
Nepal	20.22	21.73	22.13	25.33	24.97	25.85	30.92	33.27	30.26	28.98	28.87
Sri Lanka	21.81	23.88	24.94	26.02	30.31	30.02	32.35	34.96	32.41	33.69	34.49
Southeast Asia											
Brunei Darussalam	30.64	39.10	43.73	45.41	53.37	40.21	44.62	57.04	56.38	53.73	53.87
Cambodia	27.67	27.05	27.38	28.74	31.66	31.54	31.79	33.19	33.29	33.10	33.45
Indonesia	16.95	20.75	24.34	26.43	28.86	28.95	37.68	41.12	39.16	36.25	33.20
Lao PDR	17.40	18.11	20.41	22.60	26.50	26.21	29.38	30.73	31.58	34.28	33.08
Malaysia	32.19	34.79	36.24	39.50	44.07	38.92	43.80	47.69	46.74	45.15	43.82
Myanmar [a]	...	...	...	...	...	...	...	30.44	37.13	26.21	25.42
Philippines	31.03	28.08	30.69	34.27	37.63	35.68	38.83	41.22	42.33	42.31	41.11
Singapore	58.10	54.18	56.00	60.89	62.66	62.62	65.96	70.88	70.89	69.72	68.01
Thailand	27.78	27.71	30.04	33.23	35.09	34.50	38.23	40.57	39.62	40.15	37.93
Viet Nam	20.63	22.54	23.54	24.97	29.68	29.89	30.34	32.71	35.10	36.05	36.46
The Pacific											
Cook Islands	...	...	...	...	...	...	...	...	...	...	...
Fiji	40.62	57.27	56.30	60.70	60.96	49.99	52.48	58.13	59.20	56.46	56.04
Kiribati	57.02	73.54	73.68	78.44	82.20	77.31	90.84	99.19	96.28	88.95	83.99
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	86.48	80.03	78.76	79.23	81.44	85.01	86.81	87.93	90.41	89.97	...
Nauru	...	...	...	...	...	...	...	...	...	...	...
Palau	...	74.56	74.07	72.54	75.90	79.24	75.88	74.92	75.49	80.41	80.50
Papua New Guinea	44.23	49.20	53.01	55.27	64.15	60.78	66.85	78.41	85.20	79.66	...
Samoa	43.43	54.47	56.31	58.18	61.32	60.51	66.67	71.65	73.99	73.56	72.06
Solomon Islands	76.93	61.84	61.90	63.49	68.53	70.16	72.85	83.43	90.55	89.53	95.01
Timor-Leste	41.15	43.14	41.86	44.17	47.10	48.77	50.30	51.68	53.24	57.54	56.22
Tonga	52.75	57.50	62.77	66.66	72.41	67.17	73.33	84.02	85.07	81.54	78.95
Tuvalu	60.07	84.47	84.14	90.96	92.58	86.02	102.59	114.49	113.88	106.45	...
Vanuatu	65.68	81.18	80.78	89.63	95.37	91.94	102.66	112.34	107.01	106.06	...
Developed Member Economies											
Australia	75.96	106.02	105.78	119.47	124.06	112.54	138.02	155.87	157.61	146.94	138.42
Japan	143.80	117.54	107.19	102.16	113.05	123.43	127.17	134.64	131.13	106.65	99.36
New Zealand	65.44	108.08	96.25	110.96	104.78	91.81	107.62	117.39	119.96	120.42	121.85

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic, PPP = purchasing power parity.

a The Central Bank of Myanmar devalued the local currency effective 1 April 2012. To achieve a consistent price series, the exchange rate used for estimating the price level index in prior years was extrapolated using the pre-devaluation exchange rate series.

Sources: Asian Development Bank estimates using economy sources, CEIC Data Company, United States Bureau of Economic Analysis, and World Bank.

Globalization

Snapshots

- The Asia and Pacific region accounted for about one-third of the world's merchandise exports in 2014, up from about one-quarter in 2001. At the same time, merchandise export growth slowed and merchandise import growth was negative in Asia and the Pacific in 2014.
- Intraregional trade comprised the majority of the region's exports and imports in 2014.
- The share of gross domestic product generated by migrant worker remittances has increased in more than three-quarters of the region's economies since 2000.
- More than 60% of the region's economies recorded current account deficits in 2013–2014, or the most recent 2 years for which data are available.
- Pacific economies comprised eight out of the region's top 10 recipients of net official flows as a share of gross domestic product in 2013.
- External debt, as a percentage of gross national income, fell in more than half of the region's economies between 2000 and 2013.

Key trends

The Asia and Pacific region accounted for about one-third of global merchandise exports in 2014, up from about one-quarter in 2001. The People's Republic of China (PRC) was the biggest Asian exporter in 2014, with a 37.0% share of total regional exports, followed by Japan (10.9%) and the Republic of Korea (9.0%) (Figure 4.1).

Merchandise export growth slowed in Asia and the Pacific in 2014. The continued sluggish performance of the major industrial economies and slowing growth in the region's biggest economy, the PRC, reduced growth in total merchandise exports from developing member economies to 3.5% in 2014 from 4.0% in 2013. Merchandise exports rose

Figure 4.1: Shares in Total World Exports, Regions of the World; and Major Exporters in the Asia and Pacific Region, 2014

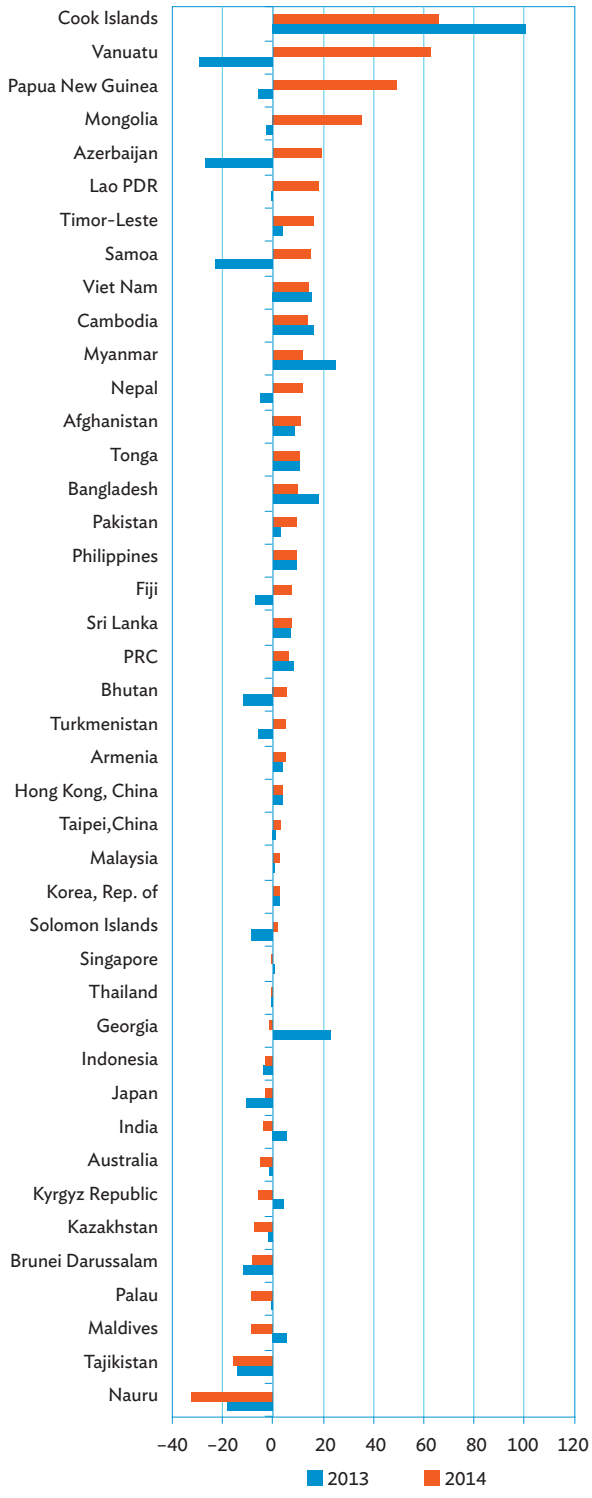
Sources: International Monetary Fund. 2015. *Direction of Trade Statistics* (CD-ROM). Washington, DC; and Table 4.13.

in two-thirds of the region's economies in 2014 (Figure 4.2). In the PRC, growth slowed to 6.1% in 2014 from 7.8% in 2013. Among other major developing economy exporters, merchandise export performances were mixed: the Republic of Korea saw growth increase to 2.3% in 2014 from 2.1% in 2013; growth in Hong Kong, China slowed to 3.2% from 3.7%; and Singapore experienced a contraction of 0.2% in 2014 following an expansion of 0.5% in the previous year. In Japan, the region's second-largest exporter, merchandise exports contracted 3.5% in 2014 following a 10.5% dip in 2013.

The region's merchandise import growth was negative in 2014. Following more than a decade of double-digit growth—interrupted only in 2009 by the global financial crisis—the region's merchandise import growth rates slowed to the low single digits in 2012 and 2013 before contracting 0.8% in 2014 (Table 4.11). Among developing member economies, merchandise imports rose a marginal 0.3% in 2014. Slowing export growth is contributing to declining imports—as many of the region's manufactured exports require imported materials and components—as are declining prices for many global commodities. The region's share of global merchandise imports was 32.9% in 2014 (Table 4.14).

Merchandise trade (exports plus imports) was equivalent to more than 100% of gross domestic product (GDP) in eight regional economies in 2014. The region's two most open economies—Hong Kong, China and Singapore—topped the list in this regard, with the sum of their merchandise exports and imports equal to 349.9% and 251.9% of GDP, respectively (Table 4.12). Other economies in which trade exceeded 100% of GDP were Cambodia; the Kyrgyz Republic; Malaysia; Taipei,China; Thailand; and Viet Nam. The trade-to-GDP ratio for the 34 developing Asian economies for which 2014 data are available was 58.7%.

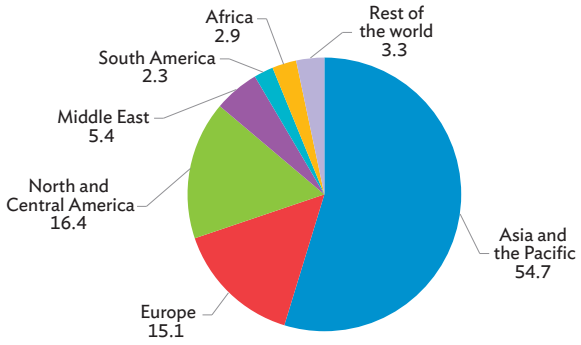
Figure 4.2: Growth Rates of Merchandise Exports, 2013 and 2014



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 4.9.

Intraregional trade comprised the majority of the region's exports and imports in 2014. Figure 4.3 shows the destination of Asia and Pacific exports by region. The share of intraregional exports climbed from 41.2% in 1990 to 54.7% in 2014 due to robust economic growth and expanding regional production networks, many of which have been established to manufacture products for sale in the major industrial economies. However, only 31.5% of the region's exports went to Europe and North and Central America in 2014 compared with 48.6% in 1990. With regard to merchandise imports, the primary source for Asia and Pacific economies in 2014 was the region itself with a 49.7% share of the total, followed by Europe (15.1%), the Middle East (11.5%), and North and Central America (9.0%) (Table 4.14).

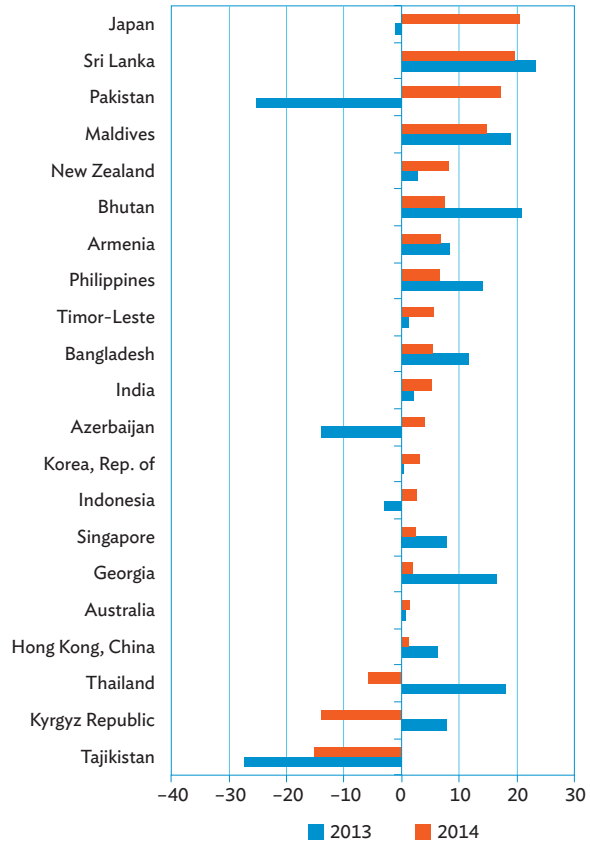
Figure 4.3: Destination of Merchandise Exports from the Asia and Pacific Region, 2014
(%)



Source: Table 4.13.

(–5.7%) after expanding in both economies the previous year. Meanwhile, Tajikistan's services exports contracted in 2014 after also falling in 2013 (–15.2% and –27.5%, respectively).

Figure 4.4: Growth Rates of Services Exports, 2013 and 2014
(%)



Source: International Monetary Fund. International Financial Statistics. http://data.imf.org/?sk=7CB6619C-CF87-48DC-9443-2973E161ABEB.

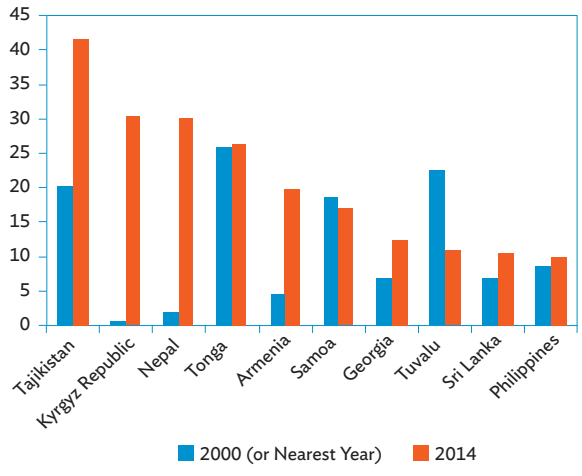
Services are driving export growth in some economies. Hong Kong, China and Singapore are centers of trade and finance, while tourism plays an important role in many of the region's economies. Figure 4.4 shows growth rates for services exports in 21 reporting economies in the region in 2013 and 2014. Among this group, 18 economies experienced growth in services exports in 2014. Both Azerbaijan (4.0%) and Pakistan (17.1%) posted growth in services exports in 2014 after sharp contractions in 2013. Conversely, services exports declined in 2014 in the Kyrgyz Republic (–14.0%) and Thailand

The share of GDP generated by migrant worker remittances has increased in more than three-quarters of the region's economies since 2000. Remittances increased in relation to GDP in more than three-quarters of Asia and Pacific economies—and in all five of the most populous economies—between 2000 and 2014 (Table 4.5). These inflows support family incomes, bolster consumption, and contribute significantly to national current account balances. Remittances were equivalent to at least 10.0% of GDP in 10 out of the 35 developing member economies for which 2014

data are available. Figure 4.5 presents the region's top 10 economies in terms of remittances as a share of GDP. The economy most heavily dependent on remittances was once again Tajikistan, which has topped the list since 2006 as the result of a significant number of its workers seeking employment in the Russian Federation. Several other former Soviet republics—Armenia, Georgia, the Kyrgyz Republic—are also among the top 10. The economy in which remittances as a share of GDP are the third highest in the region is Nepal, which borders economic giant India. A number of island economies round out the top 10, including Tonga, Samoa, Tuvalu, Sri Lanka, and the Philippines.

Among the region's developing economies, growth in remittances in US dollar terms decelerated from 4.4% in 2013 to 5.0% in 2014 (Table 4.4). Among the 10 economies most reliant upon remittances, growth in remittances in 2014 slowed in five (Georgia, Nepal, the Philippines, Tonga, and Tuvalu), accelerated in only one (Sri Lanka), and was negative in four (Armenia, the Kyrgyz Republic, Samoa, and Tajikistan).

Figure 4.5: Top Ten Economies of Asia and the Pacific in Terms of Workers' Remittances as a Percentage of GDP, 2000 (or Nearest Year) and 2014



GDP = gross domestic product.
Sources: Table 4.5; and economy sources.

More than 60% of the region's economies recorded current account deficits in 2013–2014, or the most recent 2 years for which data are available. In Figure 4.6, bars to the right of the center line represent current account surpluses and bars to the left signal deficits. Averaging the current account outcomes for 2013–2014, or the most recent 2 years for which data are available, shows that 29 of 46 economies had current account deficits during the most recent 2-year period. Bhutan reported the biggest deficit relative to the size of its economy at 24.9% of GDP. Seventeen economies reported current account surpluses, with oil and gas exporters Timor-Leste, Brunei Darussalam, and Azerbaijan having the largest current account surpluses at 41.5%, 25.1%, and 24.4% of GDP, respectively.

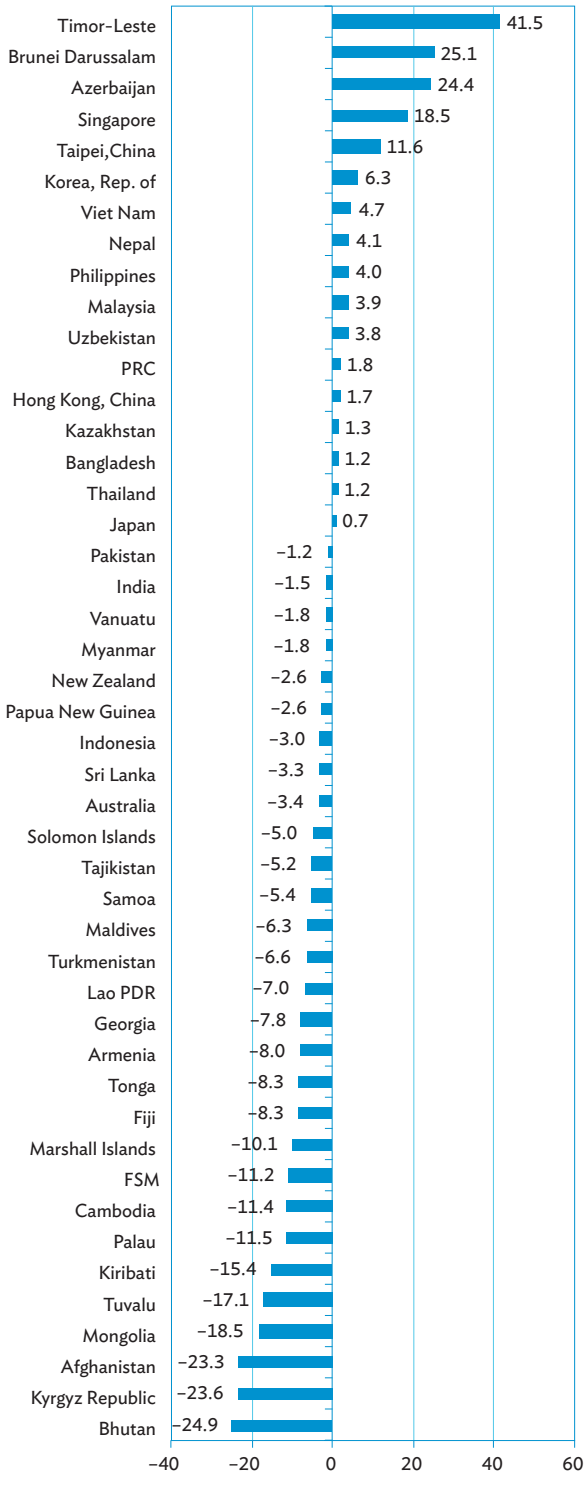
Among the region's largest economies, the PRC's current account surplus declined from 10.1% of GDP in 2007 to 1.8% in 2013–2014, reflecting progress in external rebalancing following the global financial crisis. India's trade balance continued to narrow in 2013–2014, after peaking above 4.0% in 2011–2012, due to declining imports.

Elsewhere in the region, a smaller current account deficit in Papua New Guinea of 2.6% in 2013–2014, down from 18.8% in 2012–2013, resulted from growing surpluses in the goods balance driven by the initiation of liquefied natural gas exports and strengthened agricultural exports.[1]

Six of the region's 10 economies most reliant upon tourism were in the Pacific. Figure 4.7 shows the top 10 economies in terms of tourism receipts as a percentage of GDP. The Maldives and Pacific island economies filled the first six spots. In terms of numbers of inbound tourists in 2014, the top three economies were the PRC (55.6 million); Hong Kong, China (27.8 million); and Malaysia (27.4 million) (Table 4.23).

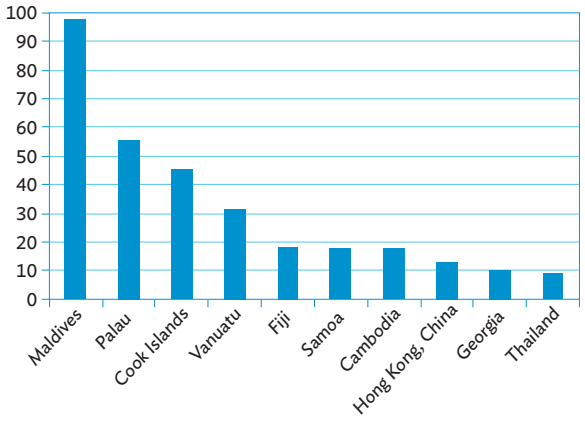
1 Asian Development Bank. 2015. *Asian Development Outlook 2015: Financing Asia's Future Growth*. Manila.

Figure 4.6: Current Account Balance as Percentage of GDP
(Average of last 2 years)



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 4.3.

Figure 4.7: Top 10 Asia and Pacific economies—Tourism Receipts as Share of GDP
(Average of latest 3 years)

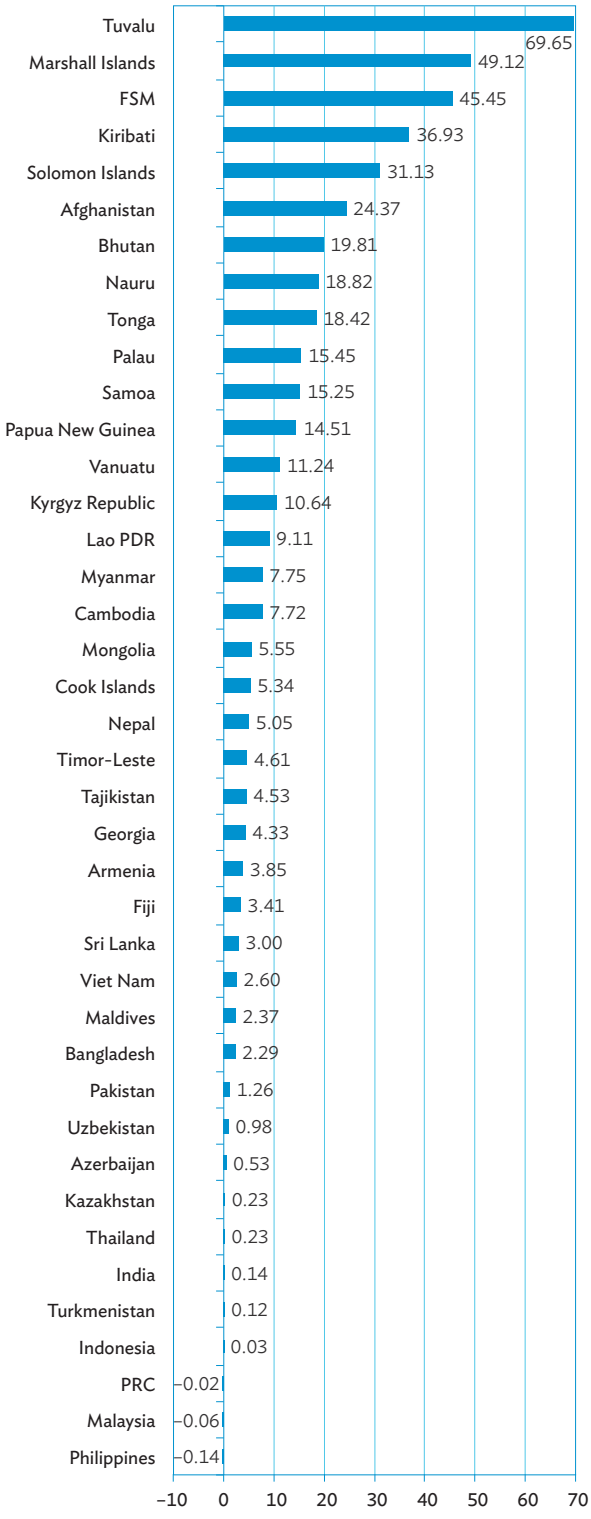


GDP = gross domestic product.
Source: Table 4.24; GDP and exchange rate data from *Key Indicators 2015* country tables.

Pacific economies comprised eight out of the region's top 10 recipients of net official flows as a share of GDP in 2013. Figure 4.8 shows net official flows—long-term public and publicly guaranteed debt from official creditors and grants, including technical cooperation grants—to the region's economies as a share of GDP in 2013. Official flows comprised more than 30% of GDP in five Pacific economies. The PRC, Malaysia, and the Philippines had negative net flows in 2013, signifying that the repayment of loans exceeded new inflows.

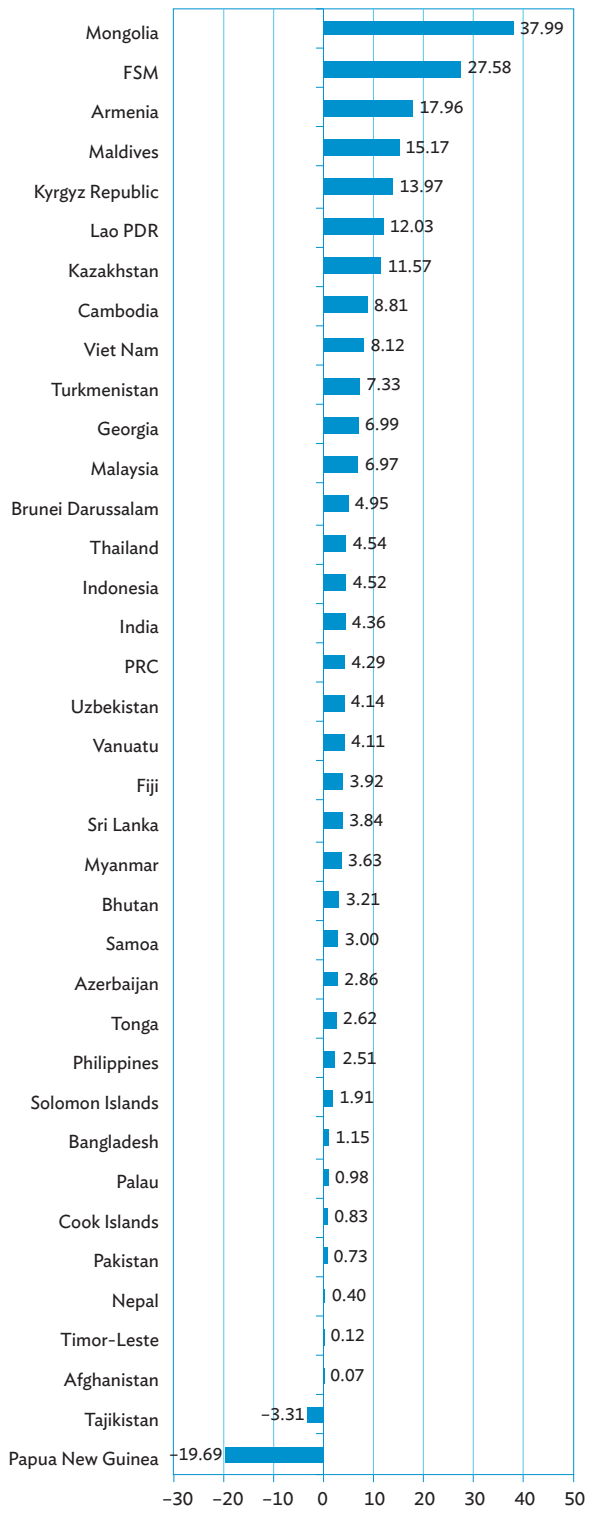
Net private capital flows in the region's developing members rose 9.5% year over year to $647.2 billion in 2013, with more than half of economies experiencing increased flows. Large increases in net flows—the sum of net foreign investment, portfolio equity flows, net flows of long-term public and publicly guaranteed debt from private creditors, and net flows of total private nonguaranteed debt—in the PRC ($78.3 billion) India ($10.4 billion), and Kazakhstan ($3.4 billion) more than offset moderating flows in other economies (Table 4.17). Figure 4.9 shows net private flows into the region's economies as a percentage of GDP. In Mongolia, net inflows in support of large mining

Figure 4.8: Net Official Flows as Share of GDP, 2013
(%)



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Sources: Table 4.16; GDP and exchange rate data from *Key Indicators 2015* country tables.

Figure 4.9: Net Private Flows as Share of GDP, 2013
(%)



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Sources: Table 4.17; GDP and exchange rate data from *Key Indicators 2015* country tables.

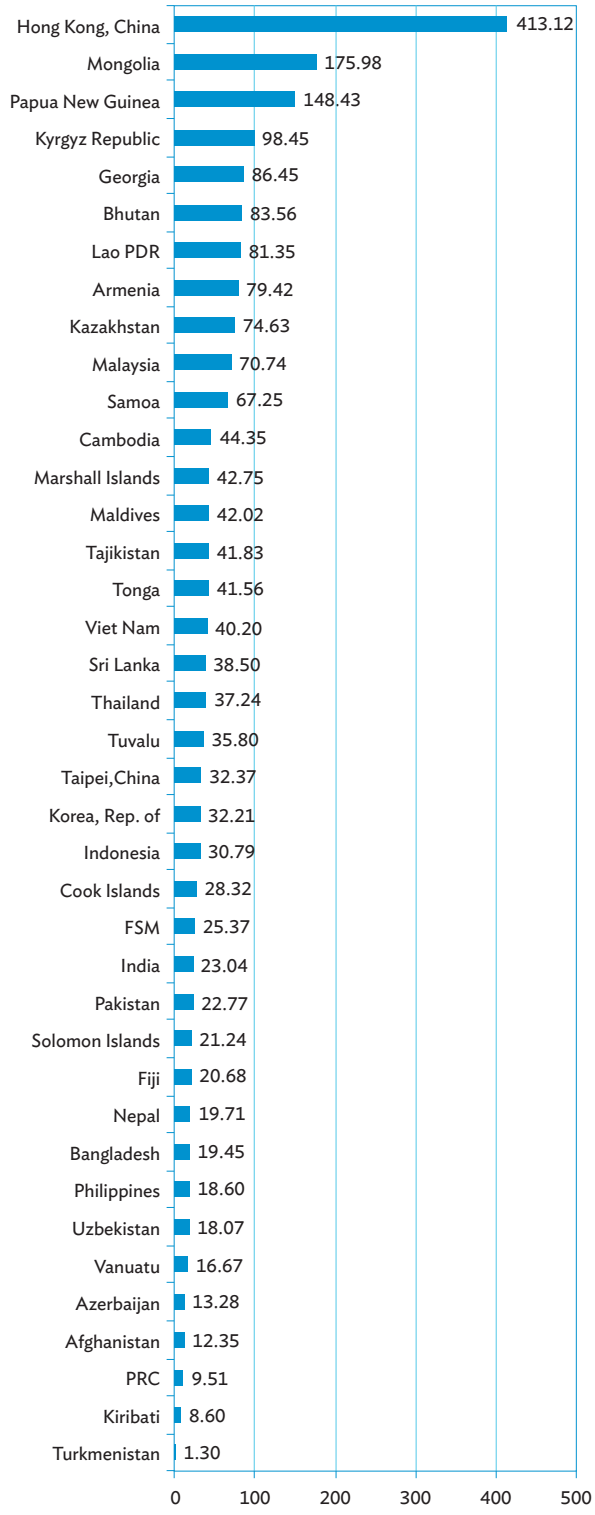
projects were equivalent to 38.0% of GDP. The reversal of earlier capital flows into the mining and petroleum extraction sectors in Papua New Guinea led to net outflows equal to 19.7% of GDP.

External debt as a percentage of gross national income (GNI) fell in more than half of the region's economies between 2000 and 2013. Figure 4.10 shows external debt as a share of GNI for the region's economies in 2013. Most had an external debt level well below 50%. Only Hong Kong, China (413.1%); Mongolia (176.0%); and Papua New Guinea (148.4%) had debt exceeding 100% of GNI. Hong Kong, China's role as an international financial center is the reason behind its exceedingly high external debt level. In Mongolia, mounting public debt and rising commercial borrowing costs are contributing to the increase in external debt. In Papua New Guinea, external debt has soared in the last several years, largely driven by financing for construction of a $20 billion liquefied natural gas project.

Debt service ratios—total debt service payments as a percentage of total exports of goods, services, and income—declined between 2000 and 2013, or the latest year in which data are available, in almost 60% of reporting economies (Table 4.22).

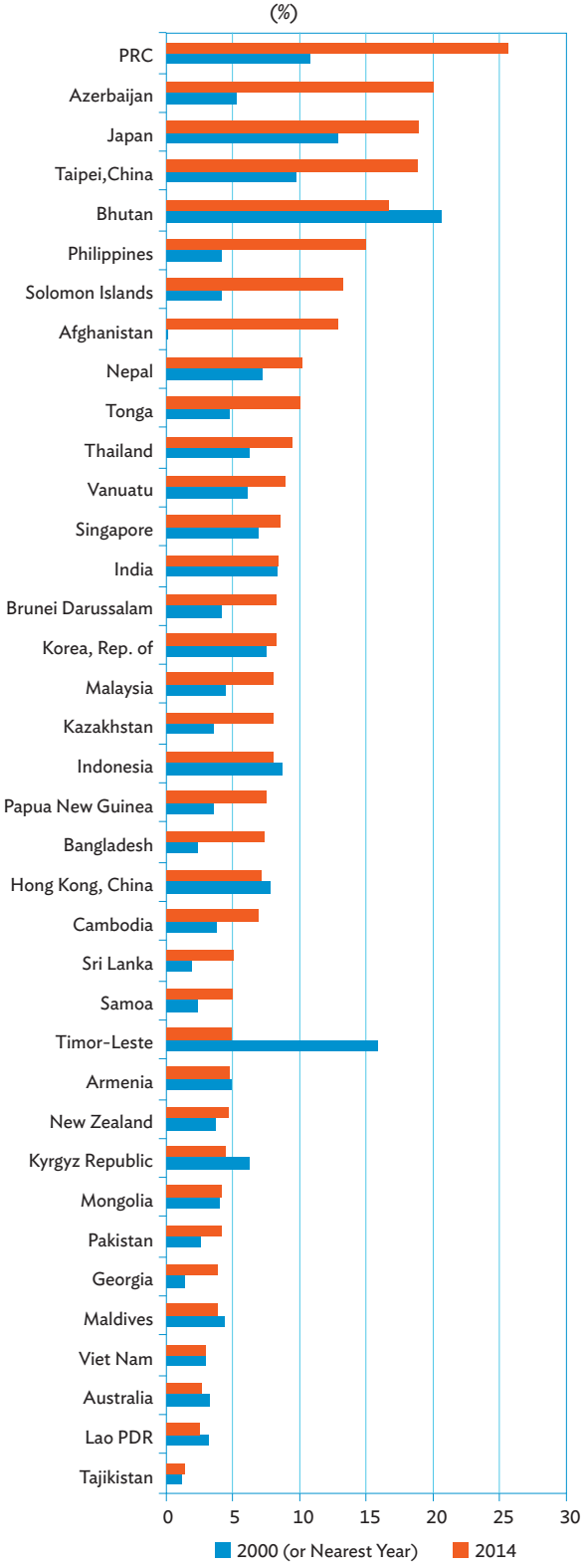
International reserves as a share of imports have risen in three-quarters of the Asia and Pacific economies since 2000 (or nearest year). Reserve funds—such as euros, Japanese yen, US dollars, and gold—have grown significantly in the Asia and Pacific economies as a share of imports, a standard indicator of vulnerability to external shocks. Between 2000 (or nearest year) and 2014, international reserves as a share of imports rose in 28 out of 37 reporting economies (Figure 4.11). Notable increases took place in the PRC (from 10.8% to 25.7%), Azerbaijan (from 5.3% to 20.0%), and Afghanistan (from zero to 12.9%). In absolute terms, international reserves rose in every reporting economy during the period under review (Table 4.15).

Figure 4.10: External Debt as Share of GNI, 2013
(%)



FSM = Federated States of Micronesia, GNI = gross national income, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 4.20.

Figure 4.11: Ratio of International Reserves to Imports, 2000 (or Nearest Year) and 2014



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 4.15.

Data issues and comparability

Most of the international transactions in this section are taken from balance-of-payments statistics. Countries follow International Monetary Fund guidelines when compiling these statistics and meet regularly to discuss methodology, but many countries have difficulty accurately recording nonofficial transactions such as migrant workers' remittances and private capital flows, which is one of the reasons that the *Balance of Payments Manual* was updated to the sixth edition (BPM6). Analysis for this section was based on the balance-of-payments data as reported by the economies. A majority of countries use BPM5, some have shifted to BPM6, and a few continue to use BPM4. This affects the comparability of data across economies.

International trade statistics are closely monitored by the World Trade Organization and other international agencies. Common definitions are used by all countries, and the larger Asian economies use standard forms and procedures for data processing.

International tourist arrivals and receipts data come from the World Tourism Organization, which serves as a global forum for tourism policy issues and a practical source of information on this topic.

Balance of Payments

Table 4.1: Trade in Goods Balance
(% of GDP)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	−65.5	−65.6	−57.8	−24.6	−25.5	−29.1	−30.4	−28.1	−38.1	−30.0
Armenia	...	−31.3	−24.4	−13.0	−14.8	−18.6	−24.1	−24.2	−22.3	−20.8	−21.2	−20.0	−19.0
Azerbaijan	...	−15.4	6.1	24.9	36.9	46.1	47.1	32.9	37.3	36.9	32.3	28.0	32.1
Georgia	...	...	−17.3	−18.9	−26.1	−28.5	−30.0	−22.3	−22.3	−24.2	−26.6	−21.6	−25.6
Kazakhstan	...	0.7	11.9	18.1	18.1	14.5	25.2	13.0	19.3	23.8	18.7	15.0	16.5
Kyrgyz Republic	...	−8.2	0.3	−17.0	−31.3	−33.6	−36.6	−23.9	−25.1	−26.9	−48.6	−48.6	−45.9
Pakistan	−6.3	−4.3	−2.0	−4.1	−6.1	−6.3	−9.8	−7.8	−6.6	−4.9	−7.3	−7.0	−6.7
Tajikistan	...	...	−9.5	−14.0	−23.8	−41.9	−41.2	−34.8	−50.7	−54.7	−46.6	−46.6	−43.1
Turkmenistan	...	7.5	15.5	11.6	21.6	20.5	29.7	4.4	10.2	21.5	18.6	9.6	9.1
Uzbekistan	...	2.3	3.6	10.0	7.9	8.5	7.4	5.8	7.6	7.3	3.0	4.1	4.4
East Asia													
China, People's Rep. of	2.3	2.5	2.5	5.8	8.0	8.9	8.0	4.9	4.1	3.1	3.7	3.8	4.2
Hong Kong, China	...	...	11.9	17.1	15.9	12.7	11.4	6.2	1.4	−3.0	−7.2	−10.1	−10.4
Korea, Rep. of	−0.9	−0.8	2.8	3.6	2.5	2.9	1.2	5.3	4.4	2.4	4.0	6.3	6.6
Mongolia	−25.3	1.7	−6.4	−3.9	4.0	−1.2	−11.2	−4.1	−2.5	−9.5	−12.6	−10.5	8.2
Taipei,China	9.0	4.8	4.0	5.0	6.1	7.1	4.2	7.5	5.6	5.5	6.0	6.9	7.8
South Asia													
Bangladesh	−6.5	−6.2	−4.1	−5.7	−4.7	−5.0	−6.7	−5.3	−4.5	−7.7	−7.0	−4.7	−3.9
Bhutan	−9.5	−9.0	−16.1	−30.4	−13.7	6.6	−3.6	−5.8	−17.0	−25.3	−21.7	−22.6	...
India	−2.9	−3.1	−2.6	−6.2	−6.5	−7.6	−9.2	−8.8	−7.5	−10.0	−10.5	−7.6	−7.0
Maldives	...	−37.8	−37.4	−49.8	−45.3	−69.9	−69.7	−46.0	−49.6	−63.4	−56.7	−59.5	−64.6
Nepal	−11.9	−20.3	−14.8	−14.4	−16.9	−16.7	−20.5	−21.4	−25.1	−23.9	−25.7	−28.8	−31.2
Sri Lanka	−8.9	−11.6	−10.8	−10.3	−11.9	−11.3	−14.7	−7.4	−9.7	−16.4	−15.9	−11.3	11.1
Southeast Asia													
Brunei Darussalam	...	8.7	...	50.7	52.6	46.5	54.5	45.6	47.0	47.8	49.4	45.4	34.1
Cambodia	−5.5	−9.7	−14.7	−16.1	−14.8	−12.1	−16.2	−16.7	−16.5	−16.7	−17.9	−21.0	−19.1
Indonesia	4.7	3.2	15.2	6.1	8.1	7.6	4.5	5.7	4.1	3.8	0.9	0.6	0.8
Lao PDR	−12.3	−15.8	−12.5	−12.1	−5.0	−3.4	−5.9	−7.3	−4.7	−2.7	−8.6	−7.6	−13.7
Malaysia	6.0	...	22.2	23.7	23.0	19.5	22.3	19.7	15.1	15.4	11.6	9.5	10.2
Myanmar	...	...	...	...	...	15.3	12.1	8.3	8.2	0.5	1.5	−0.1	−3.9
Philippines	−9.1	−12.1	−7.4	−11.8	−9.4	−9.4	−10.7	−8.2	−8.4	−9.1	−7.6	−6.5	−5.6
Singapore	−4.3	12.0	16.9	37.5	34.7	32.1	21.7	24.7	26.6	26.0	23.3	24.6	24.8
Thailand	−11.1	−4.5	4.3	1.8	6.2	10.2	6.0	11.7	8.7	4.6	1.7	1.6	6.1
Viet Nam	−0.6	−11.3	1.2	−4.2	−4.2	−13.5	−12.9	−7.2	−4.4	−0.3	5.6	5.1	6.5
	−1.2	−0.8	−0.1	−1.1	−0.8								
The Pacific													
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	−16.8	−11.9	−13.9	−25.8	−31.3	−25.0	−30.6	−21.9	−23.3	−23.3	−20.4	−33.1	...
Kiribati	−100.2	−49.2	−47.7	−66.3	−55.8	−47.1	−47.7	−43.9	−41.3	−42.8	−49.2	...	...
Marshall Islands	−66.2	−48.9	−56.3	−44.8	−44.6	−46.4	−45.7	−48.4	−61.3	−38.4	−34.1	−41.9	...
Micronesia, Fed. States of	−66.9	−39.8	−38.1	−42.9	−43.8	−40.4	−46.2	−45.8	−43.7	−43.4	−38.6	−41.7	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	−78.4	−50.2	−54.3	−50.6	−54.9	−46.2	−49.6	−55.9	−57.5	−57.9	−63.7
Papua New Guinea	2.8	29.1	31.4	36.8	40.1	33.4	33.4	18.8	22.8	20.8	10.2	3.5	31.7
Samoa	−54.7	−42.6	−120.7	−40.4	−46.3	−33.4	−36.4	−33.4	−37.8	−41.0	−34.6	−37.5	−38.1
Solomon Islands	−3.9	3.0	−8.1	−5.6	−22.6	−22.8	−12.9	−13.8	−23.4	−0.6	7.9	−1.8	−0.5
Timor-Leste	...	...	...	...	−3.7	−5.7	−7.2	−9.8	−6.7	−6.4	−10.1	−11.0	...
Tonga	−34.6	−27.5	−27.4	−34.1	−36.1	−36.6	−40.3	−43.0	−27.6	−28.2	−29.9	−31.9	−39.4
Tuvalu	−52.3	−67.1	−65.1	...	−40.4	−43.0	−50.7	−46.0	−53.6	−51.2	−46.7	−41.6	...
Vanuatu	−43.5	−22.4	−18.2	−23.3	−25.9	−30.6	−34.3	−31.8	−27.1	−21.8	−23.6	−35.0	...
Developed Member Economies													
Australia	0.2	−1.6	−2.1	−2.5	−1.8	−1.5	−2.4	0.5	−0.7	1.5	0.6	−0.3	0.4
Japan	2.3	2.5	2.5	2.3	2.2	2.8	1.2	1.1	2.0	−0.1	−0.9	−1.8	−2.1
New Zealand	2.1	0.8	1.7	−2.9	−2.1	−1.4	−1.0	1.2	1.5	1.0	0.2	1.2	−0.2

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

Source: Economy sources.

Table 4.2: Trade in Services Balance
(% of GDP)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan[a]	...	...	...	−8.2	−4.1	5.8	9.0	7.6	5.9	−0.1	−1.7	−0.3
Armenia	...	−1.8	−2.9	−3.0	−3.2	−3.4	−4.3	−3.4	−1.3	−1.5	−1.1	−0.9
Azerbaijan	...	−5.5	−4.3	−14.5	−5.8	−4.6	−3.6	−2.7	−4.2	−3.8	−5.6	−8.1
Georgia	...	...	2.1	1.6	1.7	0.2	3.3	4.7	5.2	7.0	8.8	8.2
Kazakhstan	...	−1.4	−4.4	−9.5	−8.0	−5.2	−5.2	−4.9	−3.5	−3.9	−3.0	...
Kyrgyz Republic	...	−10.5	−6.3	−1.3	2.1	−2.0	−2.3	−4.2	−1.7	−5.5	−0.9	...
Pakistan	−1.6	−1.8	−1.2	−3.6	−3.4	−3.7	−1.6	−0.3	−1.4	−0.9	−1.4	−1.0
Tajikistan	...	...	...	−4.5	−11.9	−5.3	−2.2	−1.8	−1.6	−0.9	...	...
Turkmenistan[b]	...	−7.1	−7.2	−7.9	−7.1	−13.2	−19.1	−21.0	−19.5	−18.5	−16.8	−15.0
Uzbekistan[b]	...	−2.7	−0.5	−1.1	−0.5	1.2	−3.2	−1.4	−1.6	−0.1	−0.4	−0.1
East Asia												
China, People's Rep. of	0.4	−0.8	−0.5	0.2	0.5	0.2	−0.3	−0.4	−0.7	−0.8	−1.2	...
Hong Kong, China	...	...	9.2	−4.9	−2.0	−1.2	1.7	4.4	6.9	8.3	10.7	10.4
Korea, Rep. of	−0.1	−0.5	−0.4	−1.0	−1.2	−0.7	−1.1	−1.3	−1.0	−0.4	−0.5	−0.6
Mongolia	...	−2.6	−7.5	−2.4	2.6	−1.9	−3.4	−4.2	−11.2	−9.0	−10.6	...
Taipei,China	−2.9	−3.3	−2.0	−1.8	−0.4	0.4	0.5	0.6	0.8	1.3	1.7	2.1
South Asia												
Bangladesh	−1.1	−2.2	−1.8	−1.5	−1.5	−1.8	−1.3	−1.9	−2.3	−2.3	−2.2	...
Bhutan[c]	0.1	−2.3	−3.5	−6.7	−2.4	−8.0	−5.9	−9.0	−10.9	−11.6	−12.7	...
India	−0.5	−0.1	−0.5	0.6	1.4	1.4	0.9	0.1	0.7	0.8	1.2	0.4
Maldives	...	39.1	38.2	11.1	80.8	64.0	57.7	63.7	69.3	68.8	80.3	...
Nepal	1.0	8.1	5.3	−0.7	−1.9	−1.1	−1.1	−1.2	0.4	0.2	1.1	...
Sri Lanka	−2.5	−2.9	−4.1	−2.2	−2.9	−3.1	−1.5	−1.5	−1.9	2.1	2.0	...
Southeast Asia												
Brunei Darussalam	...	0.1	...	−5.2	−4.1	−3.7	−4.8	...	...	−11.3	...	...
Cambodia	...	−2.1	2.8	7.6	7.1	6.1	9.4	9.4	11.0	11.8	11.3	...
Indonesia	−3.1	−4.0	−6.3	−3.2	−3.1	−2.9	−2.1	−1.3	−1.1	−1.2	−1.3	...
Lao PDR	−0.3	−1.4	8.1	6.1	5.6	5.6	4.7	3.7	2.7	2.6	2.3	...
Malaysia	−3.7	−3.8	−3.0	−1.5	0.2	0.2	0.4	−0.2	−0.7	−1.4	−1.5	...
Myanmar	0.1	0.1	0.0	−0.0	−0.0	−0.0	−0.0	−0.0	−0.0	−0.3	1.3	...
Philippines	3.3	3.3	−2.3	2.1	4.0	1.1	2.9	2.9	2.9	2.5	2.6	1.7
Singapore	10.7	7.0	−1.6	−7.6	−1.3	−0.8	−1.2	−0.2	0.4	−0.6	−1.4	−0.4
Thailand	0.1	−2.4	−1.3	−3.6	−3.0	−4.4	−2.3	−3.1	−2.9	−0.8	0.9	0.5
Viet Nam	...	...	−1.8	−0.5	−1.0	−1.0	−2.3	−2.1	−2.2	−1.9	−0.8	...
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	11.9	8.4	6.1	13.1	11.9	13.9	11.8	17.3	17.3	16.8	16.3	...
Kiribati	−45.4	...	...	...	−32.1	−32.5	−30.1	−27.9	−31.5	−37.8	...	...
Marshall Islands[b]	9.7	3.3	8.7	6.5	2.2	4.4	−5.7	−1.6	−0.4	−6.3	−3.8	...
Micronesia, Fed. States of[a]	...	−9.0	−15.2	−15.0	−12.4	−14.8	−18.1	−13.9	−14.0	−12.9	−12.4	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau[a]	...	...	18.8	20.7	22.5	23.3	26.7	26.2	32.8	28.6	37.1	39.9
Papua New Guinea	−6.1	−6.6	−15.1	−20.0	−25.1	−18.4	−20.4	−25.2	−19.7	−21.1	...	...
Samoa	9.7	10.5	...	14.1	15.2	14.5	14.2	14.5	13.8	13.8	13.9	...
Solomon Islands	−28.5	−10.7	−7.1	−5.4	−9.9	−12.2	−8.5	−16.3	−9.6	−10.1	−13.9	...
Timor-Leste[d]	...	...	...	...	−9.0	−10.1	−23.3	−23.8	−24.0	−13.5	−7.8	...
Tonga	2.6	...	...	−2.4	−4.7	−6.7	−5.1	0.8	−0.6	1.1	...	...
Tuvalu[a]	17.4	11.4	−51.4	...	11.8	−5.3	17.0	−3.7	−26.5	8.8	9.6	...
Vanuatu	24.1	20.4	21.8	16.5	20.9	16.3	22.9	21.8	17.8	22.5	23.1	...
Developed Member Economies												
Australia	−1.1	−0.2	0.3	−0.1	−0.2	−0.6	−0.3	−0.4	−0.7	−0.8	−1.0	−0.7
Japan	−1.4	−0.0	−0.0	−0.0	−0.0	−0.0	−0.0	−0.0	−0.0	−0.0	−0.0	−0.0
New Zealand	−1.9	−0.3	−0.1	1.5	1.5	1.0	1.2	0.9	0.7	0.4	0.5	...

... = data not available at cutoff date, 0.0 = magnitude is less than half of the unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Includes income.
b Includes other goods and income. Applicable starting 2005 for Uzbekistan.
c Prior to 2000, services, income, and transfer receipts and payments were grouped as service transfer receipts and service transfer payments.
d GDP estimates refer to non-oil GDP. Before 2002, estimates include the value-added of United Nations activities.

Sources: International Monetary Fund. *International Financial Statistics* CD ROM (June 2015); and economy sources.

Balance of Payments

Table 4.3: Current Account Balance
(% of GDP)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	−2.7	−5.0	0.8	−9.0	−6.6	−10.4	−15.7	−20.6	−25.9	−20.8
Armenia	...	−17.2	−15.8	−2.5	−3.9	−8.5	−15.0	−17.6	−14.2	−11.1	−11.1	−8.0	−7.9
Azerbaijan	...	−16.6	−3.2	1.3	17.7	27.3	33.7	23.0	28.4	26.0	21.7	16.7	32.1
Georgia	...	...	−5.8	−11.1	−15.2	−19.8	−22.0	−10.5	−10.2	−12.7	−11.7	−5.8	−9.7
Kazakhstan	...	−1.3	2.0	−1.8	−2.5	−8.0	4.7	−3.6	0.9	5.4	0.5	0.4	2.1
Kyrgyz Republic	...	−15.9	−5.5	−1.4	−9.3	−6.0	−13.8	−4.3	−6.6	−9.6	−25.4	−23.0	−24.2
Pakistan	−3.4	−3.7	−0.3	−1.4	−3.7	−4.5	−9.2	−5.7	−2.3	0.1	−2.2	−1.1	−1.3
Tajikistan	...	...	−7.2	−0.8	−1.5	−13.3	0.9	−3.6	−15.9	−11.8	−3.2	−2.4	−8.0
Turkmenistan	...	0.4	8.3	5.1	15.7	15.5	16.5	−14.7	−10.8	2.0	0.0	−7.3	−5.9
Uzbekistan	...	−0.2	1.6	13.5	8.9	7.3	8.4	2.2	6.1	5.7	2.7	3.4	4.1
East Asia													
China, People's Rep. of	3.1	0.2	1.7	5.9	8.5	10.1	9.3	4.9	3.9	1.8	2.5	1.6	2.1
Hong Kong, China	...	...	4.4	11.9	12.7	13.0	15.0	9.9	7.0	5.6	1.6	1.5	1.9
Korea, Rep. of	−0.5	−1.5	1.9	1.4	0.4	1.1	0.3	3.7	2.6	1.6	4.2	6.2	6.3
Mongolia	−32.6	2.7	−6.2	3.5	10.9	4.1	−12.3	−7.5	−12.3	−26.5	−27.4	−25.4	−11.6
Taipei,China	6.6	2.0	2.5	4.5	6.6	8.3	6.3	10.7	8.6	8.2	9.9	10.8	12.4
South Asia													
Bangladesh	−1.5	−1.8	−0.9	−1.0	1.3	1.4	0.9	2.7	3.2	−1.3	−0.3	1.6	0.9
Bhutan	−9.3	−11.3	5.5	−28.7	−4.2	7.0	−8.8	−6.0	−20.1	−28.6	−21.6	−28.1	...
India	−3.0	−1.6	−0.6	−1.2	−1.0	−1.3	−2.2	−2.9	−2.8	−4.1	−4.7	−1.7	−1.4
Maldives	...	−4.6	−8.2	−27.5	−23.2	−14.8	−32.3	−11.1	−16.7	−18.2	−8.4	−5.2	−7.4
Nepal	−7.7	−5.2	−2.3	1.9	2.2	−0.1	3.1	4.2	−2.3	−1.0	5.1	3.5	4.7
Sri Lanka	−4.7	−6.1	−6.4	−2.7	−5.3	−4.3	−9.5	−0.5	−2.2	−7.8	−6.7	−3.8	−2.7
Southeast Asia													
Brunei Darussalam	...	51.3	...	47.3	50.1	47.8	49.0	40.3	41.0	38.8	38.8	29.4	20.8
Cambodia	−3.5	−3.1	−2.7	−3.6	−3.6	−1.9	−5.4	−6.3	−6.0	−6.0	−8.2	−12.9	−9.8
Indonesia	−2.6	−3.2	4.8	0.1	3.0	2.4	0.0	2.0	0.7	0.2	−2.7	−3.2	−2.9
Lao PDR	−9.6	−7.5	−0.3	−7.1	1.2	1.8	1.7	−1.1	0.4	2.0	−4.5	−4.0	−10.0
Malaysia	−2.1	−9.8	9.0	14.4	16.1	15.4	17.1	15.5	10.1	10.9	5.2	3.5	4.3
Myanmar	−1.8	...	...	...	...	6.8	4.8	3.1	4.2	−2.9	−1.0	−1.3	−2.4
Philippines	−5.8	−4.4	−2.7	1.9	5.7	5.4	0.1	5.0	3.6	2.5	2.8	3.5	4.4
Singapore	8.0	16.4	10.6	21.9	25.0	26.0	14.4	16.8	23.7	22.0	17.2	17.9	19.1
Thailand	−8.1	−3.7	7.4	−4.0	1.0	6.0	0.7	7.8	2.9	2.4	−0.4	−0.9	3.2
Viet Nam	−4.0	−9.0	3.6	−1.0	−0.2	−9.2	−10.9	−6.2	−3.7	0.2	5.9	4.5	4.9
The Pacific													
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	−3.3	−0.9	−1.6	−11.2	−19.7	−11.3	−15.1	−4.2	−4.4	−5.3	−1.8	−14.9	...
Kiribati	−37.3	−4.5	−9.7	−34.1	−17.6	−19.4	−16.5	−14.9	−5.8	−18.8	−11.9	...	...
Marshall Islands	34.2	−24.2	−17.5	2.6	−1.5	−0.4	1.5	−14.3	−25.9	−4.5	−7.8	−12.4	...
Micronesia, Fed. States of	18.5	−9.0	−13.3	−8.5	−14.0	−9.5	−16.6	−18.9	−15.1	−17.9	−12.6	−9.8	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	−45.1	−19.6	−25.4	−17.9	−21.3	−7.4	−7.8	−10.5	−17.0	−10.3	−12.7
Papua New Guinea	−2.9	13.9	10.1	13.3	8.0	2.9	9.9	−7.2	−6.5	−1.3	−14.9	−22.6	17.4
Samoa	7.5	4.2	−3.3	−10.9	−17.0	−7.2	−8.2	−1.6	−5.5	−10.6	0.1	−4.6	−6.1
Solomon Islands	−14.8	2.5	−12.9	−1.9	−11.8	−18.9	−20.4	−23.8	−35.9	−8.4	−0.1	−9.9	...
Timor-Leste[a]	...	...	...	...	20.3	40.2	46.1	38.7	41.2	40.6	40.2	42.8	...
Tonga	10.8	−10.7	−5.2	−9.4	−6.3	−10.9	−8.8	−15.2	−7.4	−9.3	−6.9	−8.5	−8.1
Tuvalu	18.4	5.0	54.7	...	−1.6	−1.9	−13.0	27.6	−3.7	−26.5	−7.8	...	...
Vanuatu	−4.1	−8.0	−5.0	−3.5	−5.9	−10.4	−7.1	−8.0	−5.8	−6.9	−5.9	−3.2	−0.3
Developed Member Economies													
Australia	−4.9	−5.4	−3.1	−4.9	−4.3	−4.8	−6.0	−2.5	−4.4	−3.1	−3.4	−4.0	−2.8
Japan	1.5	2.1	2.8	3.7	4.0	4.9	3.0	2.9	4.0	2.2	1.0	0.8	0.5
New Zealand	−3.1	−4.2	−0.6	−5.4	−4.4	−5.1	−4.7	−1.0	−2.0	−2.6	−3.0	−2.1	−3.0

... = data not available at cutoff date, 0.0 = magnitude is less than half of the unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a GDP estimates refer to non-oil GDP.

Source: Economy sources.

Table 4.4: Workers' Remittances and Compensation of Employees, Receipts
($ million)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	104	152	331	247	385	538	636
Armenia	...	65	87	915	1,644	1,904	1,440	1,669	1,799	1,915	2,192	2,159
Azerbaijan	...	3	57	623	1,268	1,518	1,255	1,410	1,893	1,990	1,733	1,898
Georgia	...	...	210	446	883	1,065	1,112	1,184	1,547	1,770	1,945	2,065
Kazakhstan	...	116	122	62	143	126	198	226	180	171	207	209
Kyrgyz Republic	...	1	9	313	704	1,223	982	1,266	1,709	2,031	2,278	2,246
Pakistan	2,010	1,710	1,080	4,280	5,998	7,039	8,717	9,690	12,263	14,006	14,626	17,060
Tajikistan	...	...	...	467	1,691	2,544	1,748	2,306	3,060	3,626	4,154	3,835
Turkmenistan	...	...	...	...	29	48	33	35	34	37	40	30
Uzbekistan	...	...	...	...	1,666	2,978	2,052	2,845	4,262	5,668	6,633	5,588
East Asia												
China, People's Rep. of	124	350	758	23,626	38,395	47,743	41,600	52,460	61,576	57,987	59,491	64,140
Hong Kong, China	...	...	136	297	317	355	348	340	352	367	360	373
Korea, Rep. of	2,412	3,494	4,862	5,178	5,130	6,952	5,982	5,836	6,582	6,571	6,455	6,481
Mongolia	...	...	12	180	178	225	200	266	279	320	256	265
Taipei,China	...	142	274	323	430	454	455	500	613	688	792	860
South Asia												
Bangladesh	779	1,200	1,969	4,642	7,262	9,223	10,739	11,282	12,960	14,236	13,857	14,969
Bhutan	...	...	...	...	3	4	5	8	10	18	12	14
India	2,382	6,224	12,845	22,125	37,217	49,977	49,204	53,480	62,499	68,821	69,970	70,389
Maldives	2	2	2	2	8	6	5	3	3	3	3	3
Nepal	...	57	112	1,212	1,734	2,727	2,985	3,469	4,217	4,793	5,552	5,875
Sri Lanka	401	809	1,163	1,976	2,507	2,925	3,337	4,123	5,153	6,000	6,422	7,036
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	12	121	164	186	188	142	153	160	172	176	304
Indonesia	166	651	1,190	5,420	6,174	6,794	6,793	6,916	6,924	7,212	7,614	8,551
Lao PDR	11	22	1	1	6	18	38	42	110	59	60	60
Malaysia	185	116	342	1,117	1,556	1,329	1,131	1,103	1,211	1,320	1,396	1,565
Myanmar	6	81	102	129	81	55	54	115	127	275	229	232
Philippines	1,462	5,362	6,957	13,733	16,437	18,851	19,960	21,557	23,054	24,610	26,700	28,403
Singapore	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	973	1,700	1,700	1,187	1,635	1,898	2,776	3,580	4,554	4,713	5,690	5,655
Viet Nam	...	...	1,340	3,150	6,180	6,805	6,020	8,260	8,600	10,000	11,000	12,000
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	22	33	44	204	183	147	171	174	160	191	204	209
Kiribati	...	...	...	...	10	11	11	12	12	13	13	13
Marshall Islands	...	...	...	24	25	23	24	22	22	22	22	22
Micronesia, Fed. States of	...	...	...	...	...	...	17	18	19	21	22	22
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	5	16	7	7	8	7	5	3	17	14	15	15
Samoa	43	41	...	82	97	109	119	122	139	158	158	140
Solomon Islands	...	...	4	7	13	9	13	13	14	17	17	17
Timor-Leste	...	...	...	...	10	18	113	137	137	120	34	45
Tonga	24	...	...	69	101	94	72	76	70	112	114	114
Tuvalu	...	...	...	5	6	6	5	4	5	4	4	4
Vanuatu	8	14	35	5	6	9	11	12	22	22	24	24
Developed Member Economies												
Australia	2,368	1,651	1,904	940	1,342	1,526	1,335	1,864	2,449	2,441	2,465	2,292
Japan	...	1,150	1,374	905	1,384	1,732	1,595	1,684	2,132	2,540	2,364	3,729
New Zealand	761	1,650	236	352	384	421	331	371	455	462	459	476
DEVELOPING MEMBER ECONOMIES[a]	**11,015**	**22,760**	**39,687**	**92,346**	**139,921**	**175,510**	**170,023**	**195,046**	**226,597**	**240,457**	**251,008**	**263,530**
REGIONAL MEMBERS[a]	**14,144**	**27,214**	**43,201**	**94,931**	**143,031**	**179,190**	**173,283**	**198,966**	**231,634**	**245,899**	**256,296**	**270,026**
WORLD	**64,034**	**97,889**	**126,750**	**279,851**	**392,477**	**452,735**	**422,820**	**457,897**	**512,310**	**533,140**	**557,083**	**583,430**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a For reporting economies only.

Sources: World Bank. http://www.worldbank.org/migration (accessed 17 June 2015); and for Taipei,China: economy sources.

Balance of Payments

Table 4.5: Workers' Remittances and Compensation of Employees, Receipts
(% of GDP)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	1.0	1.2	2.1	1.3	1.8	2.5	3.0
Armenia	...	5.1	4.6	18.7	17.9	16.3	16.6	18.0	17.7	19.2	21.0	19.8
Azerbaijan	...	0.1	1.1	4.7	3.8	3.1	2.8	2.7	2.9	2.9	2.3	2.5
Georgia	...	...	6.9	7.0	8.7	8.3	10.3	10.2	10.7	11.2	12.1	12.5
Kazakhstan	...	0.7	0.7	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1
Kyrgyz Republic	...	0.1	0.6	12.7	18.5	23.8	20.9	26.4	27.6	31.4	31.5	30.3
Pakistan	5.1	2.9	1.5	3.9	3.9	4.7	5.4	5.6	5.8	6.5	6.6	6.9
Tajikistan	...	...	...	20.2	45.5	49.3	35.1	40.9	46.9	47.5	48.8	41.5
Turkmenistan	...	...	...	...	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Uzbekistan	...	...	...	...	7.5	10.0	6.1	7.2	9.2	11.0	11.5	8.9
East Asia												
China, People's Rep. of	0.0	0.0	0.1	1.0	1.1	1.1	0.8	0.9	0.8	0.7	0.6	0.6
Hong Kong, China	...	...	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Korea, Rep. of	0.9	0.7	0.9	0.6	0.5	0.7	0.7	0.5	0.5	0.5	0.5	0.5
Mongolia	...	...	1.1	7.1	4.2	4.0	4.4	3.7	2.7	2.6	2.0	2.2
Taipei,China	...	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
South Asia												
Bangladesh	2.7	3.2	4.3	8.1	9.1	10.1	10.5	9.9	10.5	11.0	9.0	8.6
Bhutan	...	...	...	...	0.2	0.3	0.4	0.5	0.6	1.0	0.7	...
India	0.7	1.7	2.7	2.6	3.1	3.9	3.7	3.1	3.3	3.7	3.6	3.4
Maldives	...	0.6	0.4	0.2	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Nepal	...	1.3	2.0	14.7	15.8	23.3	23.4	21.3	22.8	26.7	30.5	30.1
Sri Lanka	5.1	6.3	7.0	8.1	8.9	9.0	8.2	9.8	10.4	10.1	10.8	10.5
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	0.3	3.3	2.6	2.2	1.8	1.4	1.4	1.3	1.2	1.2	1.8
Indonesia	0.1	0.3	0.7	1.9	1.4	1.3	1.3	0.9	0.8	0.8	0.8	1.0
Lao PDR	1.3	1.3	0.0	0.0	0.1	0.3	0.7	0.6	1.4	0.6	0.6	0.5
Malaysia	0.4	0.1	0.4	0.8	0.8	0.6	0.6	0.4	0.4	0.4	0.4	0.5
Myanmar	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3
Philippines	3.3	7.2	8.6	13.3	11.0	10.8	11.9	10.8	10.3	9.8	9.8	10.0
Singapore	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	1.1	1.0	1.3	0.6	0.6	0.7	1.0	1.1	1.2	1.2	1.4	1.4
Viet Nam	...	...	4.3	5.5	8.0	6.9	5.7	7.1	6.3	6.4	6.4	6.4
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	1.6	2.0	2.6	6.8	5.4	4.2	6.0	5.5	4.4	5.0	5.0	4.9
Kiribati	...	...	...	...	8.5	8.0	8.2	7.6	7.1	7.1	7.3	...
Marshall Islands	...	...	...	17.2	16.8	15.1	15.5	13.7	12.9	11.9	11.5	...
Micronesia, Fed. States of	...	...	...	...	...	...	6.3	6.2	6.3	6.4	7.0	7.2
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Samoa	38.3	20.7	...	18.8	15.1	16.6	20.6	17.9	17.7	19.7	19.6	17.0
Solomon Islands	...	...	1.5	2.3	2.9	1.7	2.3	2.2	2.0	2.1	1.8	1.7
Timor-Leste	...	...	...	...	0.4	0.4	3.4	3.4	2.4	1.8	0.6	...
Tonga	20.4	...	...	26.0	33.0	27.7	22.1	20.3	15.6	24.2	26.0	26.2
Tuvalu	...	...	...	22.5	20.7	19.7	17.8	12.3	11.7	9.6	10.6	10.8
Vanuatu	5.4	5.9	12.7	1.3	1.1	1.5	1.9	1.7	2.7	2.8	3.0	...
Developed Member Economies												
Australia	0.7	0.4	0.5	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2
Japan	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
New Zealand	1.7	2.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2
DEVELOPING MEMBER ECONOMIES[a]	**0.6**	**0.7**	**0.9**	**1.2**	**1.1**	**1.2**	**1.1**	**1.0**	**1.0**	**1.5**	**1.5**	**1.4**
REGIONAL MEMBERS[a]	**0.3**	**0.3**	**0.4**	**0.7**	**0.8**	**0.9**	**0.8**	**0.8**	**0.8**	**1.1**	**1.1**	**1.1**

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a For reporting economies only.

Sources: World Bank. http://www.worldbank.org/migration (accessed 17 June 2015); and for Taipei,China: economy sources.

Table 4.6: Foreign Direct Investment, Net Inflows

($ million)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	−0	0	271	189	87	214	76	91	94	60	...
Armenia	...	25	104	292	668	944	760	529	653	489	370	383
Azerbaijan	...	330	130	4,476	4,594	3,987	2,900	3,353	4,485	5,293	2,619	4,430
Georgia	...	...	131	453	1,878	1,591	653	869	1,084	831	956	1,274
Kazakhstan	...	964	1,283	2,546	11,973	16,819	14,276	7,456	13,760	13,785	9,739	...
Kyrgyz Republic	...	96	−2	43	208	377	189	438	694	293	758	211
Pakistan	245	723	308	2,201	5,590	5,438	2,338	2,018	1,309	859	1,333	1,778
Tajikistan	...	10	24	54	360	376	16	−16	67	198	−54	261
Turkmenistan	...	233	131	418	856	1,277	4,553	3,631	3,399	3,117	3,061	...
Uzbekistan	...	−24	75	192	705	711	842	1,628	1,651	674	1,077	...
East Asia												
China, People's Rep. of	3,487	35,849	38,399	111,210	169,390	186,798	167,071	272,987	331,592	295,626	347,849	...
Hong Kong, China	...	...	61,924	40,963	62,121	67,035	54,276	82,709	96,135	74,887	76,857	115,980
Korea, Rep. of	789	1,776	9,283	13,643	8,827	11,188	9,022	9,497	9,773	9,496	12,767	9,899
Mongolia	...	10	54	185	373	845	624	1,691	4,715	4,452	2,151	...
Taipei,China	−3,913	1,559	4,928	1,625	7,769	5,432	2,805	2,492	−1,957	3,207	3,598	2,839
South Asia												
Bangladesh	3	2	280	761	650	1,024	824	862	1,185	1,475	1,502	...
Bhutan	2	0	...	6	74	3	18	75	31	24	50	8
India	237	2,144	3,584	7,269	25,228	43,406	35,581	27,397	36,499	23,996	28,153	34,411
Maldives	6	7	22	53	132	181	158	216	424	228	361	363
Nepal	6	...	−0	2	6	1	38	88	94	92	74	...
Sri Lanka	43	56	173	272	603	752	404	478	956	941	916	...
Southeast Asia												
Brunei Darussalam	...	...	...	175	258	222	326	626	1,208	859	895	...
Cambodia	...	151	149	377	867	815	511	735	795	1,441	1,345	...
Indonesia	1,093	4,346	−4,550	8,336	6,928	9,318	4,877	15,292	20,565	21,201	23,344	...
Lao PDR	6	95	34	28	324	228	319	279	301	294	427	...
Malaysia	2,332	4,178	3,788	3,925	9,071	7,573	115	10,886	15,119	9,734	11,583	...
Myanmar	163	280	258	235	710	864	1,079	901	2,520	1,334	2,255	...
Philippines	530	1,478	2,240	1,664	2,919	1,340	2,065	1,070	2,007	3,215	3,737	6,201
Singapore	5,575	11,535	16,484	18,090	47,733	12,201	23,821	55,076	48,002	56,659	64,793	67,523
Thailand	2,444	2,068	3,366	8,055	11,327	8,538	4,854	9,104	2,468	12,895	14,305	12,720
Viet Nam	180	1,780	1,298	1,954	6,700	9,579	7,600	8,000	7,430	8,368	8,900	...
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	92	70	1	160	377	350	140	357	417	267	158	...
Kiribati	0	0	1	3	1	−1	3	−7	1	1	9	...
Marshall Islands	0	0	0	3	7	6	15	14	−4	17	8	...
Micronesia, Fed. States of	...	...	...	0	17	−5	−0	1	−0	0	2	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	1	−0	15	1	2	4	−3	−7	6	9	8	...
Papua New Guinea	155	455	96	32	95	−31	419	29	−310	−64	18	...
Samoa	7	3	−2	4	7	46	10	1	15	21	24	...
Solomon Islands	10	2	13	1	64	95	120	238	145	80	45	...
Timor-Leste	...	...	...	1	9	40	48	30	49	20	52	...
Tonga	0	1	5	7	29	6	0	7	3	2	12	...
Tuvalu	...	...	...	−0	−0	2	2	0	−0	1	0	...
Vanuatu	13	31	20	13	34	38	32	42	58	38	33	...
Developed Member Economies												
Australia	8,111	12,026	13,618	−25,093	44,440	45,160	28,683	35,211	63,812	54,477	51,852	51,686
Japan	1,777	39	8,227	5,460	21,631	24,625	12,226	7,441	−851	547	7,412	9,070
New Zealand	1,735	3,316	3,841	1,907	4,336	2,592	−52	1,353	1,369	3,727	−510	4,046
DEVELOPING MEMBER ECONOMIES[a]	**13,506**	**70,233**	**144,046**	**230,000**	**389,671**	**399,498**	**343,913**	**521,149**	**607,434**	**556,448**	**626,147**	**258,280**
REGIONAL MEMBERS[a]	**25,129**	**85,615**	**169,731**	**212,273**	**460,078**	**471,875**	**384,770**	**565,154**	**671,765**	**615,199**	**684,902**	**323,082**

... = data not available at cutoff date, 0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a For reporting economies only.

Sources: International Monetary Fund. International Financial Statistics Online. 2015. http://data.imf.org/?sk=7CB6619C-CF87-48DC-9443-2973E161ABEB (accessed July 2015); World Bank. World Development Indicators Online. 2015. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2015); and for Taipei,China: economy source.

Balance of Payments

Table 4.7: Foreign Direct Investment, Net Inflows
(% of GDP)

Regional Member	1990	1995	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	4.1	1.8	0.8	1.7	0.5	0.5	0.4	0.3	...
Armenia	...	2.0	5.5	6.0	7.3	8.1	8.8	5.7	6.4	4.9	3.5	3.5
Azerbaijan	...	13.7	2.5	33.8	13.9	8.2	6.5	6.3	6.8	7.6	3.5	5.9
Georgia	...	...	4.3	7.1	18.5	12.4	6.1	7.5	7.5	5.2	5.9	7.7
Kazakhstan	...	5.8	7.0	4.5	11.4	12.6	12.4	5.0	7.3	6.8	4.2	...
Kyrgyz Republic	...	6.4	−0.2	1.7	5.5	7.3	4.0	9.1	11.2	4.5	10.5	2.8
Pakistan	0.6	1.2	0.4	2.0	3.7	3.6	1.4	1.2	0.6	0.4	0.6	0.7
Tajikistan	...	1.8	2.7	2.4	9.7	7.3	0.3	−0.3	1.0	2.6	−0.6	2.8
Turkmenistan	...	4.0	2.7	2.9	4.6	5.9	22.5	16.4	11.6	8.9	7.3	...
Uzbekistan	...	−0.2	0.5	1.3	3.2	2.4	2.5	4.1	3.6	1.3	1.9	...
East Asia												
China, People's Rep. of	0.9	4.9	3.2	4.9	4.8	4.1	3.3	4.5	4.4	3.5	3.7	...
Hong Kong, China	...	...	36.1	22.6	29.4	30.6	25.4	36.2	38.7	28.5	27.9	39.9
Korea, Rep. of	0.3	0.3	1.7	1.5	0.8	1.1	1.0	0.9	0.8	0.8	1.0	0.7
Mongolia	...	0.7	4.7	7.3	8.8	15.0	13.6	23.5	45.3	36.2	17.1	...
Taipei,China	−2.4	0.6	1.5	0.4	1.9	1.3	0.7	0.6	−0.4	0.6	0.7	0.5
South Asia												
Bangladesh	0.0	0.0	0.6	1.3	0.8	1.1	0.8	0.8	1.0	1.1	1.0	...
Bhutan	0.5	0.0	...	0.8	6.2	0.2	1.4	4.7	1.7	1.3	2.8	...
India	0.1	0.6	0.7	0.9	2.1	3.4	2.7	1.6	1.9	1.3	1.5	1.7
Maldives	...	1.8	3.6	5.3	8.6	9.6	8.0	10.1	19.6	10.2	15.6	14.1
Nepal	0.2	...	−0.0	0.0	0.1	0.0	0.3	0.5	0.5	0.5	0.4	...
Sri Lanka	0.5	0.4	1.0	1.1	2.1	2.3	1.0	1.1	1.9	1.6	1.5	...
Southeast Asia												
Brunei Darussalam	...	...	...	1.8	2.1	1.5	3.0	4.6	6.5	4.5	4.9	...
Cambodia	...	4.4	4.0	6.0	10.0	7.9	4.9	6.5	6.2	10.3	8.8	...
Indonesia	1.0	2.2	−2.8	2.9	1.6	1.8	0.9	2.0	2.3	2.3	2.6	...
Lao PDR	0.7	5.4	2.1	1.0	7.7	4.3	5.7	4.1	3.7	3.2	4.0	...
Malaysia	5.3	4.7	4.0	2.7	4.7	3.3	0.1	4.3	5.1	3.1	3.6	...
Myanmar	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.7	3.6	...
Philippines	1.2	2.0	2.8	1.6	2.0	0.8	1.2	0.5	0.9	1.3	1.4	2.2
Singapore	14.3	13.1	17.2	14.2	26.5	6.3	12.4	23.3	17.4	19.5	21.4	21.9
Thailand	2.8	1.2	2.7	4.3	4.3	2.9	1.7	2.7	0.7	3.2	3.4	3.1
Viet Nam	2.8	8.6	4.2	3.4	8.7	9.7	7.2	6.9	5.5	5.4	5.2	...
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	6.9	4.1	0.0	5.3	11.1	9.9	4.9	11.4	11.4	6.9	3.9	...
Kiribati	1.2	0.7	1.1	2.5	0.9	−1.1	2.4	−4.3	0.8	0.5	5.2	...
Marshall Islands	0.0	0.0	0.0	2.4	4.7	3.7	9.6	8.4	−2.5	9.2	3.9	...
Micronesia, Fed. States of	...	...	...	0.0	6.5	−2.0	−0.0	0.4	−0.1	0.1	0.6	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	10.0	0.4	1.1	1.8	−1.7	−3.6	2.9	4.2	3.4	...
Papua New Guinea	4.8	9.4	2.7	0.7	1.5	−0.4	5.2	0.3	−2.4	−0.4	0.1	...
Samoa	5.9	1.8	−0.7	0.9	1.1	7.0	1.7	0.2	1.9	2.6	3.0	...
Solomon Islands	5.6	0.6	4.6	0.2	15.0	17.9	22.3	40.7	20.0	9.7	4.9	...
Timor-Leste	...	...	...	0.0	0.3	0.9	1.4	0.7	0.8	0.3	0.9	...
Tonga	0.2	0.5	2.5	2.7	9.5	1.8	0.1	1.9	0.7	0.3	2.6	...
Tuvalu	...	...	...	−0.1	−0.0	5.6	6.5	1.4	−0.3	3.3	0.9	...
Vanuatu	8.7	13.6	7.4	3.4	6.5	6.2	5.3	5.9	7.3	4.8	4.1	...
Developed Member Economies												
Australia	2.6	3.3	3.6	−3.6	4.9	4.6	2.9	3.0	4.4	3.5	3.5	3.6
Japan	0.1	0.0	0.2	0.1	0.5	0.5	0.2	0.1	−0.0	0.0	0.2	0.2
New Zealand	3.9	5.3	7.1	1.7	3.2	2.0	−0.0	0.9	0.8	2.1	−0.3	2.0
DEVELOPING MEMBER ECONOMIES[a]	**0.8**	**2.4**	**3.7**	**2.9**	**3.1**	**2.7**	**2.1**	**2.7**	**2.7**	**3.6**	**3.7**	**1.4**
REGIONAL MEMBERS[a]	**0.5**	**1.0**	**1.9**	**1.6**	**2.6**	**2.3**	**1.7**	**2.2**	**2.2**	**2.6**	**2.9**	**1.3**

... = data not available at cutoff date, 0.0 = magnitude is less than half of the unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a For reporting economies only.

Sources: International Monetary Fund. International Financial Statistics Online. 2015. http://data.imf.org/?sk=7CB6619C-CF87-48DC-9443-2973E161ABEB (accessed July 2015); World Bank. World Development Indicators Online. 2015. http://data.worldbank.org/data-catalog/world-development-indicators (accessed July 2015); and for Taipei,China: economy source.

Table 4.8: Merchandise Exports

($ million)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia[b]	**5,346**	**21,288**	**26,714**	**64,110**	**85,906**	**109,683**	**149,212**	**107,519**	**134,768**	**182,918**	**183,690**	**158,822**	**159,673**
Afghanistan	235	166	137	384	416	454	545	403	388	375	475	515	571
Armenia	...	271	300	974	985	1,152	1,057	710	1,041	1,334	1,428	1,480	1,547
Azerbaijan	...	637	1,745	7,649	13,015	21,269	30,586	21,097	26,476	34,495	32,634	23,811	28,260
Georgia	...	...	323	866	936	1,232	1,495	1,134	1,677	2,189	2,375	2,908	2,861
Kazakhstan	...	5,250	8,812	27,849	38,250	47,755	71,184	43,196	60,271	84,336	86,449	84,700	78,238
Kyrgyz Republic	...	409	505	674	891	1,321	1,856	1,673	1,756	2,242	1,928	2,007	1,884
Pakistan	4,960	7,972	8,335	14,453	16,468	17,107	17,642	17,202	19,261	24,917	22,797	23,383	25,554
Tajikistan	...	779	784	909	1,399	1,468	1,409	1,010	1,195	1,257	1,358	1,163	977
Turkmenistan	151	2,084	2,508	4,944	7,156	8,932	11,945	9,323	9,679	16,751	19,987	18,854	19,782
Uzbekistan	...	3,720	3,265	5,409	6,390	8,992	11,493	11,771	13,023	15,021	14,259	...	...
East Asia	**276,954**	**559,470**	**775,319**	**1,534,929**	**1,836,562**	**2,184,646**	**2,471,938**	**2,088,504**	**2,710,768**	**3,194,014**	**3,344,276**	**3,535,620**	**3,707,336**
China, People's Rep. of	62,091	148,780	249,203	761,953	968,969	1,220,460	1,430,690	1,201,610	1,577,754	1,898,381	2,048,714	2,209,004	2,342,747
Hong Kong, China	82,143	173,753	201,855	289,325	316,823	344,490	362,683	318,520	390,134	428,732	442,775	458,959	473,654
Korea, Rep. of	65,016	125,058	172,268	284,419	325,465	371,489	422,007	363,534	466,384	555,214	547,870	559,632	572,665
Mongolia	661	473	536	1,064	1,542	1,948	2,535	1,885	2,909	4,817	4,385	4,269	5,774
Taipei,China	67,044	111,405	151,458	198,168	223,763	246,259	254,024	202,955	273,587	306,869	300,532	303,756	312,496
South Asia	**22,226**	**40,392**	**56,445**	**119,305**	**144,721**	**180,208**	**217,211**	**202,500**	**281,366**	**352,200**	**347,119**	**369,247**	**360,180**
Bangladesh	1,415	3,260	4,780	8,259	10,264	12,211	14,111	15,526	16,099	22,061	23,508	27,619	30,217
Bhutan	68	103	103	214	308	613	556	503	535	646	580	511	539
India	18,601	32,798	45,297	103,496	126,201	158,619	193,254	178,348	255,086	317,717	312,084	329,547	317,070
Maldives	53	85	109	162	224	228	331	169	198	346	314	331	301
Nepal	176	340	701	823	828	894	850	873	830	869	872	827	923
Sri Lanka	1,913	3,807	5,456	6,351	6,896	7,645	8,109	7,081	8,618	10,560	9,761	10,413	11,130
Southeast Asia[b]	**144,168**	**321,259**	**427,614**	**654,415**	**768,032**	**859,861**	**982,071**	**808,168**	**1,045,678**	**1,233,748**	**1,248,103**	**1,266,975**	**1,217,508**
Brunei Darussalam	2,237	2,392	3,906	6,247	7,626	7,668	10,543	7,174	8,887	12,464	12,980	11,432	...
Cambodia	86	854	1,397	2,908	3,692	3,341	3,503	3,138	3,906	5,035	5,633	6,530	7,408
Indonesia	25,675	45,418	62,124	85,660	100,799	114,101	137,020	116,510	157,779	203,497	190,032	182,552	176,292
Lao PDR	79	308	330	553	882	923	1,092	1,053	1,746	2,190	2,271	2,264	2,662
Malaysia	29,446	73,865	98,229	141,595	160,625	175,793	198,755	156,765	198,325	228,059	227,480	228,503	234,085
Myanmar	477	897	1,961	3,558	5,233	6,402	6,779	7,587	8,861	9,136	8,977	11,204	12,524
Philippines	8,186	17,447	38,078	41,255	47,410	50,466	49,078	38,436	51,498	48,305	52,100	56,698	...
Singapore[a]	52,527	118,186	137,953	229,832	271,604	299,003	336,968	268,900	351,182	409,246	408,368	410,286	409,552
Thailand	23,053	56,444	69,152	110,360	130,336	153,604	175,647	151,509	191,257	218,912	225,734	225,474	224,767
Viet Nam	2,404	5,449	14,483	32,447	39,826	48,561	62,685	57,096	72,237	96,906	114,529	132,033	150,217
The Pacific[b]	**1,968**	**3,631**	**2,841**	**4,327**	**5,227**	**5,872**	**7,288**	**5,405**	**7,042**	**8,708**	**8,401**	**6,689**	**9,518**
Cook Islands	5	5	9	5	4	5	4	3	5	3	5	11	18
Fiji	608	623	543	705	694	751	923	629	837	1,073	1,224	...	...
Kiribati	3	7	4	4	3	10	7	6	4	9	...	...	...
Marshall Islands	3	23	25	34	28	28	32	34	...	...	...	...	...
Micronesia, Fed. States of	4	39	17	13	9	16	...	...	...	...	...	...	...
Nauru	60	28	28	23	27	48	159	60	95	121	153	125	...
Palau	...	14	12	14	15	16	29	13	15	19	21	21	19
Papua New Guinea	1,175	2,672	2,089	3,311	4,197	4,741	5,798	4,384	5,737	6,907	6,326	5,942	8,843
Samoa	9	9	14	12	10	14	10	11	23	25	31	24	27
Solomon Islands	70	168	65	105	121	165	211	165	227	415	493	448	455
Timor-Leste	...	...	...	43	61	19	48	35	42	53	77	79	92
Tonga	12	15	9	10	10	8	9	8	8	16	16	...	...
Tuvalu	0	0	0	0	0	0	0	0	0	0	0	0	...
Vanuatu	19	28	26	46	49	50	56	57	48	67	55	39	63
Developed Member Economies[b]	**335,449**	**508,306**	**556,595**	**723,606**	**792,776**	**880,536**	**1,000,504**	**757,009**	**1,011,217**	**1,128,938**	**1,092,780**	**1,007,259**	**929,658**
Australia	39,726	53,127	63,980	106,211	123,311	140,901	186,500	153,297	212,027	269,941	256,522	252,894	239,744
Japan	286,321	441,538	479,323	595,697	647,006	712,769	783,851	578,931	767,825	821,312	798,937	714,931	689,915
New Zealand	9,402	13,641	13,292	21,698	22,459	26,867	30,153	24,781	31,365	37,685	37,321	39,434	...
DEVELOPING MEMBER ECONOMIES[b]	**450,662**	**946,041**	**1,288,933**	**2,377,086**	**2,840,447**	**3,340,270**	**3,827,721**	**3,212,096**	**4,179,621**	**4,971,589**	**5,131,589**	**5,337,354**	**5,454,214**
REGIONAL MEMBERS[b]	**786,111**	**1,454,347**	**1,845,527**	**3,100,693**	**3,633,223**	**4,220,806**	**4,828,225**	**3,969,105**	**5,190,838**	**6,100,527**	**6,224,368**	**6,344,613**	**6,383,873**

... = data not available at cutoff date, 0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Prior to 2003, data exclude Indonesia.
b For reporting economies only.

Sources: Economy sources; and International Financial Statistics Online (International Monetary Fund 2015).

External Trade

Table 4.9: Growth Rates of Merchandise Exports[a]

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	34.3	58.2	−17.4	25.9	8.3	9.1	20.0	−26.1	−3.7	−3.4	26.7	8.4	10.9
Armenia	...	...	29.7	34.7	1.2	17.0	−8.3	−32.8	46.6	28.2	7.0	3.6	4.5
Azerbaijan	...	−2.4	87.7	111.6	70.1	63.4	43.8	−31.0	25.5	30.3	−5.4	−27.0	18.7
Georgia	...	...	35.5	33.8	8.2	31.6	21.4	−24.2	48.0	30.5	8.6	22.4	-1.6
Kazakhstan	...	48.2	50.1	38.6	37.3	24.8	49.1	−39.3	39.5	39.9	2.5	−4.6	-7.6
Kyrgyz Republic	...	20.2	11.2	−6.5	32.2	48.3	40.5	−9.8	5.0	27.7	−14.0	4.8	-6.1
Pakistan	11.9	18.1	4.8	14.9	13.9	3.9	3.1	−2.5	12.0	29.4	−8.5	2.6	9.3
Tajikistan	...	39.3	13.9	−0.7	54.0	4.9	−4.0	−28.3	18.3	5.2	8.1	−14.4	-16.0
Turkmenistan	...	−4.2	115.5	28.3	44.7	24.8	33.7	−21.9	3.8	73.1	19.3	−5.7	4.9
Uzbekistan	...	38.3	0.9	11.5	18.1	40.7	27.8	2.4	10.6	15.4	−5.1	...	...
East Asia													
China, People's Rep. of	18.2	23.0	27.8	28.4	27.2	26.0	17.2	−16.0	31.3	20.3	7.9	7.8	6.1
Hong Kong, China	12.3	14.8	16.1	11.6	9.5	8.7	5.3	−12.2	22.5	9.9	3.3	3.7	3.2
Korea, Rep. of	4.2	30.3	19.9	12.0	14.4	14.1	13.6	−13.9	28.3	19.0	−1.3	2.1	2.3
Mongolia	−8.4	32.9	18.0	22.4	44.9	26.3	30.1	−25.6	54.3	65.6	−9.0	−2.6	35.3
Taipei,China	1.3	20.0	22.6	8.6	12.9	10.1	3.2	−20.1	34.8	12.2	−2.1	1.1	2.9
South Asia													
Bangladesh	−99.9	33.8	12.5	11.3	24.3	19.0	15.6	10.0	3.7	37.0	6.6	17.5	9.4
Bhutan	−2.4	55.6	−11.3	35.8	43.7	98.8	−9.3	−9.5	6.5	20.7	−10.2	−11.9	5.5
India	9.1	24.5	22.2	25.0	21.9	25.7	21.8	−7.7	43.0	24.6	−3.7	5.7	-3.8
Maldives	19.2	12.7	18.8	−10.5	38.6	1.5	45.7	−49.0	16.9	75.4	−9.2	5.3	-9.1
Nepal	13.8	−13.0	34.0	12.4	0.6	8.0	−5.0	2.8	−4.8	4.5	0.3	−5.7	11.6
Sri Lanka	24.2	18.6	18.5	10.1	8.6	10.9	6.1	−12.7	21.7	22.5	−7.6	6.7	6.9
Southeast Asia													
Brunei Darussalam	16.2	10.9	53.1	23.3	22.1	0.5	37.5	−32.0	23.9	40.2	4.1	−11.9	-8.1
Cambodia	8.3	74.3	23.6	12.3	27.0	−12.0	7.6	−9.9	25.1	27.8	11.9	15.9	13.4
Indonesia	15.9	13.4	27.7	19.7	17.7	13.2	20.1	−15.0	35.4	29.0	−6.6	−3.9	-3.4
Lao PDR	24.8	2.4	9.6	52.2	59.5	4.6	18.3	−3.6	65.9	25.4	3.7	−0.3	17.6
Malaysia	17.6	25.9	16.1	11.8	13.4	9.4	13.1	−21.1	26.5	15.0	−0.3	0.5	2.4
Myanmar	9.0	−2.2	72.3	21.5	47.1	22.3	5.9	11.9	16.8	3.1	...	...	11.8
Philippines	4.7	29.4	8.7	4.0	14.9	6.4	−2.8	−21.7	34.0	−6.2	7.9	8.8	9.0
Singapore[b]	17.6	22.5	20.3	15.7	18.2	10.1	12.7	−20.2	30.6	16.5	−0.2	0.5	-0.2
Thailand	14.8	27.0	18.0	14.6	18.1	17.9	14.4	−13.7	27.3	14.0	3.6	−1.3	-0.3
Viet Nam	23.5	34.4	25.5	22.5	22.7	21.9	29.1	−8.9	26.5	34.2	18.2	15.4	13.8
The Pacific													
Cook Islands	74.7	10.5	154.4	−26.9	−32.7	47.5	−20.1	−33.7	88.0	−39.4	69.9	100.6	65.8
Fiji	−99.9	9.4	−12.1	1.4	−1.6	8.2	22.9	−31.8	33.9	26.9	14.6	...	7.3
Kiribati	−43.5	42.9	−59.1	58.2	−41.5	301.5	−27.2	−14.9	−38.1	121.2	−32.3	...	...
Marshall Islands	23.5	5.4	48.7	14.0	−16.6	0.8	14.7	5.6	...	...	...	...	...
Micronesia, Fed. States of	62.5	−50.0	688.9	−7.3	−31.3	79.7	32.2	−13.6	24.1	62.3	...	...	...
Nauru	−24.9	−15.1	−22.2	−73.8	620.5	75.6	231.9	−62.1	58.3	27.0	25.9	−18.1	-32.4
Palau	...	10.2	65.9	116.9	6.5	8.9	78.5	−53.8	8.7	27.6	12.2	−0.5	-8.7
Papua New Guinea	−16.3	0.8	7.3	26.8	26.8	12.9	22.3	−24.4	30.9	20.4	−8.5	−11.8	48.8
Samoa	−31.0	149.5	−24.9	0.7	−13.8	33.7	−26.2	5.7	114.4	6.6	26.5	−23.2	14.7
Solomon Islands	−5.8	18.4	−48.1	22.3	14.9	36.5	28.0	−21.7	37.4	83.4	18.7	−10.8	1.6
Timor-Leste	...	...	...	−58.9	39.7	−68.4	151.4	−28.4	20.7	27.8	44.4	3.2	15.9
Tonga	23.7	6.0	−27.1	−35.2	−6.2	−11.1	11.6	−19.1	7.1	92.0	−1.2	...	10.5
Tuvalu	−43.7	−51.9	−91.5	−54.0	−16.9	80.4	117.4	50.0	0.0	0.0	0.0	0.0	...
Vanuatu	−15.3	13.2	2.8	−6.5	4.8	2.1	13.6	0.7	−14.8	38.7	−18.5	−31.2	62.6
Developed Member Economies													
Australia	6.9	12.2	14.1	22.6	16.1	14.3	32.4	−17.8	38.3	27.3	−5.0	−1.4	-5.2
Japan	4.4	11.4	14.8	5.4	8.6	10.2	10.0	−26.1	32.6	7.0	−2.7	−10.5	-3.5
New Zealand	6.1	12.1	6.5	6.6	3.5	19.6	12.2	−17.8	26.6	20.1	−1.0	5.7	...
DEVELOPING MEMBER ECONOMIES[c]	**11.0**	**22.0**	**21.0**	**18.3**	**20.8**	**18.7**	**15.7**	**-16.5**	**31.0**	**19.9**	**12.3**	**-5.0**	**3.5**
REGIONAL MEMBERS[c]	**8.3**	**18.1**	**19.0**	**15.6**	**17.9**	**16.9**	**15.2**	**-18.3**	**31.6**	**18.1**	**9.2**	**-5.5**	**1.8**

... = data not available at cutoff date, 0.0 = magnitude is less than half of the unit employed, Lao PDR = Lao People's Democratic Republic.

a Rates are based on US dollar values of exports.
b Prior to 2003, data exclude Indonesia.
c For reporting economies only.

Sources: Economy sources; and International Financial Statistics Online (International Monetary Fund 2015).

Table 4.10: Merchandise Imports

($ million)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	936	387	1,176	2,470	2,744	3,022	3,020	3,336	5,154	6,390	8,784	8,554	7,725
Armenia	...	674	885	1,802	2,192	3,268	4,426	3,321	3,749	4,145	4,267	4,477	4,424
Azerbaijan	...	668	1,172	4,350	5,269	6,045	7,575	6,514	6,746	10,167	10,417	8,403	9,332
Georgia	...	...	709	2,490	3,675	5,212	6,302	4,500	5,257	7,065	8,049	8,026	8,596
Kazakhstan	...	3,807	5,040	17,353	23,677	32,756	37,889	28,409	31,127	36,906	46,358	48,806	41,213
Kyrgyz Republic	...	522	554	1,189	1,931	2,789	4,072	3,040	3,223	4,261	5,576	5,987	5,735
Pakistan	6,859	10,144	9,967	20,630	28,401	30,492	35,689	33,351	34,169	40,042	42,960	42,802	45,801
Tajikistan	...	838	675	1,330	1,725	2,547	3,273	2,570	2,657	3,206	3,779	4,121	4,297
Turkmenistan	400	1,644	1,742	2,947	2,558	4,442	5,707	8,992	8,204	11,361	14,138	16,090	16,638
Uzbekistan	...	2,893	2,947	4,091	4,782	6,728	9,704	9,438	9,176	11,038	12,028	...	...
East Asia													
China, People's Rep. of	53,345	132,084	225,094	659,953	791,461	956,120	1,132,570	1,005,920	1,396,244	1,743,484	1,818,405	1,949,989	1,960,290
Hong Kong, China	82,484	192,755	212,800	299,520	334,689	367,627	388,513	347,322	433,102	483,633	504,377	523,558	544,107
Korea, Rep. of	69,844	135,119	160,481	261,238	309,383	356,846	435,275	323,085	425,212	524,413	519,584	515,586	525,515
Mongolia	924	415	615	1,177	1,435	2,062	3,245	2,138	3,200	6,598	6,738	6,358	5,237
Taipei,China	54,734	103,598	140,630	182,709	203,014	219,584	239,458	174,164	251,027	281,021	270,852	269,264	272,919
South Asia													
Bangladesh	3,580	5,823	8,080	12,575	14,381	17,204	21,629	22,577	23,581	34,715	35,219	38,738	41,031
Bhutan[a]	78	112	193	466	429	529	598	576	810	1,093	952	887	906
India	24,677	37,832	51,372	149,753	185,513	244,824	315,925	294,017	381,863	513,086	511,282	480,550	461,495
Maldives	137	268	389	683	849	999	1,272	963	1,091	1,465	1,554	1,733	1,988
Nepal	624	1,227	1,526	2,094	2,389	2,931	3,181	3,667	5,110	5,352	5,419	5,987	7,171
Sri Lanka	2,635	5,311	7,198	8,869	10,265	11,303	14,083	10,202	13,441	20,273	19,137	17,999	19,417
Southeast Asia													
Brunei Darussalam	1,012	2,089	1,107	1,448	1,673	2,101	2,573	2,401	2,535	3,600	3,565	3,612	3,386
Cambodia[a]	164	1,187	1,936	3,918	4,771	4,383	5,185	4,878	5,756	7,180	8,139	9,744	10,616
Indonesia	21,837	40,654	33,515	57,701	61,066	74,473	129,197	96,829	135,663	177,436	191,691	186,629	178,179
Lao PDR	185	589	535	882	1,060	1,065	1,403	1,461	2,060	2,404	3,055	3,081	4,271
Malaysia	29,250	77,601	81,963	114,302	130,337	146,033	155,825	123,328	164,177	187,460	196,412	205,875	208,681
Myanmar	889	1,832	2,319	1,984	2,937	3,353	4,543	4,181	6,413	9,035	9,069	13,760	16,633
Philippines	13,042	28,488	33,807	49,487	54,078	57,996	60,420	45,878	58,468	64,097	65,839	65,739	68,704
Singapore[b]	60,583	124,394	134,675	200,187	238,477	262,743	318,684	244,962	310,391	365,450	379,741	373,022	366,031
Thailand	33,005	70,784	62,180	118,200	130,482	141,090	178,982	134,224	161,679	202,029	219,016	218,414	200,180
Viet Nam	2,752	8,155	15,637	36,761	44,891	62,765	80,714	69,949	84,839	106,750	113,780	132,033	147,849
The Pacific													
Cook Islands	52	48	51	81	100	106	105	82	91	109	112	116	111
Fiji	751	892	856	1,610	1,805	1,795	2,260	1,436	1,806	2,182	2,254	2,823	2,656
Kiribati	27	35	39	76	62	70	74	69	73	92	109	...	...
Marshall Islands	56	75	116	132	127	134	138	158	...	176	...	...	...
Micronesia, Fed. States of[c]	84	100	107	128	138	146	160	171	168	188	194	188	...
Nauru	34	28	27	26	34	57	90	102	22	32	41	58	55
Palau	...	60	127	108	115	108	130	94	103	125	136	145	149
Papua New Guinea	1,107	1,266	999	1,519	1,984	2,623	3,133	2,863	3,522	4,232	4,757	5,410	4,000
Samoa[a]	81	92	91	187	219	227	249	205	280	319	308	326	341
Solomon Islands	91	154	92	185	220	294	328	268	405	467	492	510	505
Timor-Leste	...	...	...	109	101	206	267	295	298	340	670	838	985
Tonga	62	77	70	121	116	143	167	143	158	192	199	198	219
Tuvalu	...	5	5	13	13	16	26	14	16	25	25	16	...
Vanuatu	96	95	84	165	217	229	313	291	284	305	296	314	314
Developed Member Economies													
Australia	38,880	57,426	67,806	118,924	132,600	157,207	189,523	156,451	193,081	234,046	250,375	232,207	227,326
Japan	233,820	335,412	379,886	516,698	579,062	621,091	763,888	550,383	692,242	853,449	885,928	832,440	810,884
New Zealand	9,483	13,945	13,963	26,248	26,403	30,770	34,099	25,124	30,523	37,048	38,256	39,646	...
DEVELOPING MEMBER ECONOMIES[d]	**466,415**	**994,822**	**1,203,583**	**2,227,022**	**2,605,782**	**3,039,485**	**3,618,372**	**3,022,386**	**3,983,348**	**4,883,936**	**5,049,776**	**5,180,765**	**5,197,700**
REGIONAL MEMBERS[d]	**748,597**	**1,401,605**	**1,665,239**	**2,888,891**	**3,343,847**	**3,848,553**	**4,605,883**	**3,754,344**	**4,899,194**	**6,008,478**	**6,224,335**	**6,285,057**	**6,235,910**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Compilation methodology shifted from cost, insurance, and freight (CIF) to free on board (FOB) for Bhutan beginning in 2004, Cambodia beginning in 2005, and Samoa beginning in 2000.
b Prior to 2003, data exclude Indonesia.
c Starting 2000, compilation methodology shifted from FOB to CIF.
d For reporting economies only.

Sources: Economy sources; and International Financial Statistics Online (International Monetary Fund 2015).

External Trade

Table 4.11: Growth Rates of Merchandise Imports[a]

(%)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	13.9	−1.0	16.2	13.5	11.1	10.1	−0.1	10.5	54.5	24.0	37.5	−2.6	−9.7
Armenia	...	...	9.1	33.4	21.6	49.1	35.4	−25.0	12.9	10.6	2.9	4.9	−1.2
Azerbaijan	...	−14.2	13.1	23.7	21.1	14.7	25.3	−14.0	3.6	50.7	2.5	−19.3	11.1
Georgia	...	...	21.1	34.9	47.6	41.8	20.9	−28.6	16.8	34.4	13.9	−0.3	7.1
Kazakhstan	...	−28.0	37.9	35.8	36.4	38.3	15.7	−25.0	9.6	18.6	25.6	5.3	−15.6
Kyrgyz Republic	...	39.5	−7.6	25.5	62.5	44.4	46.0	−25.3	6.0	32.2	30.9	7.4	−4.2
Pakistan	3.7	20.0	5.7	33.7	37.7	7.4	17.0	−6.5	2.5	17.2	7.3	−0.4	7.0
Tajikistan	...	21.0	1.8	11.7	29.7	47.6	28.5	−21.5	3.4	20.7	17.9	9.1	4.3
Turkmenistan	...	−2.8	26.8	−6.4	−13.2	73.7	28.5	57.6	−8.8	38.5	24.4	13.8	3.4
Uzbekistan	...	10.9	−5.2	7.2	16.9	40.7	44.2	−2.7	−2.8	20.3	9.0	...	...
East Asia													
China, People's Rep. of	−9.8	14.2	35.8	17.6	19.9	20.8	18.5	−11.2	38.8	24.9	4.3	7.2	0.5
Hong Kong, China	14.3	19.1	18.5	10.5	11.7	9.8	5.7	−10.6	24.7	11.7	4.3	3.8	3.9
Korea, Rep. of	13.6	32.0	34.0	16.4	18.4	15.3	22.0	−25.8	31.6	23.3	−0.9	−0.8	1.9
Mongolia	−4.0	60.7	19.8	15.5	21.9	43.7	57.4	−34.1	49.7	106.2	2.1	−5.6	−17.6
Taipei,China	4.3	21.2	26.3	8.0	11.1	8.2	9.1	−27.3	44.1	11.9	−3.6	−0.6	1.4
South Asia													
Bangladesh	6.5	39.7	3.1	16.5	14.4	19.6	25.7	4.4	4.4	47.2	1.5	10.0	5.9
Bhutan[b]	−13.4	22.5	2.9	75.1	−8.1	21.1	13.7	−4.1	38.5	35.6	−14.7	−7.5	2.3
India	13.3	31.9	2.8	35.4	23.9	32.0	29.0	−6.9	29.9	34.4	−0.4	−6.0	−4.0
Maldives	22.0	20.8	−3.4	21.3	24.4	17.7	27.3	−24.3	13.3	34.3	6.1	11.5	14.7
Nepal	4.3	17.5	19.0	13.2	14.0	22.7	8.5	15.3	39.3	4.8	1.2	10.5	19.8
Sri Lanka	26.0	18.5	20.5	10.7	15.7	10.1	24.6	−27.6	31.8	50.8	−5.6	−5.9	7.9
Southeast Asia													
Brunei Darussalam	15.2	15.5	−16.7	1.5	15.5	25.6	22.5	−6.7	5.6	42.0	−1.0	1.3	−6.2
Cambodia[b]	−7.1	59.5	21.6	19.8	21.8	−8.1	18.3	−5.9	18.0	24.7	13.4	19.7	8.9
Indonesia	33.5	27.1	39.6	24.0	5.8	22.0	73.5	−25.1	40.1	30.8	8.0	−2.6	−4.5
Lao PDR	−4.6	4.4	−3.4	23.8	20.2	0.5	31.7	4.1	41.0	16.7	27.1	0.8	38.6
Malaysia	30.2	30.6	25.3	8.7	14.0	12.0	6.7	−20.9	33.1	14.2	4.8	4.8	1.4
Myanmar	81.7	29.5	−11.0	0.6	48.0	14.2	35.5	−8.0	53.4	40.9	0.4	51.7	20.9
Philippines	16.7	25.8	3.8	7.3	9.3	7.2	4.2	−24.1	27.4	9.6	2.7	−0.2	4.5
Singapore[c]	22.0	21.5	21.3	15.3	19.1	10.2	21.3	−23.1	26.7	17.7	3.9	−1.8	−1.9
Thailand	28.0	32.4	23.3	25.1	10.4	8.1	26.9	−25.0	20.5	25.0	8.4	−0.3	−8.3
Viet Nam	7.3	40.0	33.2	15.0	22.1	39.8	28.6	−13.3	21.3	25.8	6.6	16.0	12.0
The Pacific													
Cook Islands	17.8	−0.3	21.9	7.0	22.7	6.6	−0.9	−22.6	11.2	20.0	2.7	3.9	−4.4
Fiji	29.6	6.2	−8.3	11.5	12.1	−0.6	25.9	−36.5	25.8	20.8	3.3	25.3	−5.9
Kiribati	18.9	33.5	−4.2	28.7	−18.8	12.8	5.3	−5.9	5.4	25.5	18.4	...	...
Marshall Islands	27.6	6.1	16.7	15.3	−4.1	6.1	2.5	15.0	...	...	...	...	...
Micronesia, Fed. States of[d]	15.3	−22.9	...	−3.2	7.5	5.6	10.1	6.6	−1.8	12.0	3.0	−3.1	...
Nauru	146.8	−2.8	107.7	27.3	23.4	29.5	26.3	−6.3	15.0	15.0	11.5	12.0	−4.7
Palau	...	36.6	−5.7	0.7	6.7	−6.5	20.8	−27.8	9.3	21.7	8.4	6.7	3.1
Papua New Guinea	−24.6	−4.2	−7.0	4.5	30.6	32.2	19.5	−8.6	23.0	20.2	12.4	13.7	−26.1
Samoa[b]	6.8	15.2	...	20.7	16.7	3.7	9.9	−17.9	36.6	14.1	−3.3	5.6	4.8
Solomon Islands	−19.3	10.5	−16.1	52.4	18.6	33.7	11.8	−18.3	51.2	15.1	5.5	3.7	−1.0
Timor-Leste	...	...	...	−25.3	−7.6	104.5	29.3	10.7	1.0	13.9	97.3	25.1	17.5
Tonga	13.9	12.0	−3.8	15.3	−3.6	22.6	17.1	−14.1	10.3	21.4	3.7	−0.5	10.4
Tuvalu	...	−39.0	−36.0	13.3	−0.7	22.0	68.9	−47.0	14.3	56.3	0.0	−36.0	...
Vanuatu	33.1	6.4	−12.6	22.4	31.5	5.3	36.7	−6.8	−2.5	7.3	−2.7	5.8	−0.0
Developed Member Economies													
Australia	−4.9	15.3	3.5	14.5	11.5	18.6	20.6	−17.5	23.4	21.2	7.0	−7.3	−2.1
Japan	11.3	22.0	22.7	13.6	12.1	7.3	23.0	−27.9	25.8	23.3	3.8	−6.0	−2.6
New Zealand	7.8	17.7	−2.7	13.4	0.6	16.5	10.8	−26.3	21.5	21.4	3.3	3.6	...
DEVELOPING MEMBER ECONOMIES[e]	**12.8**	**23.2**	**24.2**	**16.5**	**17.0**	**16.6**	**19.0**	**−16.5**	**31.8**	**22.6**	**3.4**	**2.6**	**0.3**
REGIONAL MEMBERS[e]	**11.2**	**22.5**	**22.6**	**15.9**	**15.7**	**15.1**	**19.7**	**−18.5**	**30.5**	**22.6**	**3.6**	**1.0**	**−0.8**

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Rates are based on US dollar values of imports.
b Compilation methodology shifted from cost, insurance, and freight (CIF) to free on board (FOB) for Bhutan beginning in 2004, Cambodia beginning in 2005, and for Samoa in 2000.
c Prior to 2003, data exclude Indonesia.
d Starting 2000, compilation methodology shifted from FOB to CIF.
e For reporting economies only.

Sources: Economy sources; and International Financial Statistics Online (International Monetary Fund 2015).

Table 4.12: Trade in Goods[a]

(% of GDP)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies													
Central and West Asia													
Afghanistan	...	...	...	43.1	42.1	33.5	33.1	29.7	34.5	35.3	43.4	42.0	39.3
Armenia	...	73.4	62.0	56.6	49.8	48.0	47.0	46.6	51.7	54.0	57.2	57.1	54.8
Azerbaijan	...	54.0	55.3	90.6	87.1	82.6	78.1	62.3	62.8	67.7	61.8	43.4	50.0
Georgia	...	...	33.8	52.3	59.5	63.3	60.9	52.3	59.6	64.1	65.8	67.7	69.3
Kazakhstan	...	54.4	75.7	79.1	76.4	76.8	81.7	62.1	61.7	64.5	65.3	57.6	55.3
Kyrgyz Republic	...	62.4	77.3	75.7	99.6	108.1	115.3	100.5	103.8	104.9	113.6	109.0	102.9
Pakistan	30.0	30.7	25.7	32.1	32.9	31.3	35.3	31.3	30.6	30.7	30.6	29.9	28.8
Tajikistan	...	284.6	169.6	96.8	110.4	108.0	90.7	71.9	68.3	68.4	67.3	62.1	57.1
Turkmenistan	...	63.4	86.2	55.6	59.9	72.3	81.6	90.6	80.7	96.2	97.0	83.5	75.3
Uzbekistan	...	65.0	45.1	66.0	64.3	70.3	71.5	62.7	56.2	56.5	50.9	...	...
East Asia													
China, People's Rep. of	29.6	38.6	39.6	63.0	64.9	62.3	56.7	44.2	49.2	48.6	45.7	43.8	41.5
Hong Kong, China	214.1	254.1	241.5	324.3	336.6	336.5	342.6	311.1	360.1	367.1	360.6	356.3	349.9
Korea, Rep. of	49.9	49.0	59.2	60.8	62.7	64.9	85.5	76.1	81.5	89.8	87.3	82.4	77.9
Mongolia	...	61.2	101.2	88.8	87.2	94.7	102.8	87.8	85.0	109.7	90.5	84.5	91.2
Taipei,China	73.9	78.2	89.5	104.4	113.4	114.1	118.3	96.2	117.6	121.0	115.2	112.1	110.5
South Asia													
Bangladesh	17.2	24.0	28.3	36.2	35.2	36.8	39.0	37.3	34.7	46.0	45.6	43.2	41.2
Bhutan	48.8	71.1	67.3	83.1	82.2	95.4	91.7	85.3	84.9	94.5	82.3	78.5	...
India	13.3	19.2	20.0	30.2	32.9	33.4	39.3	35.3	37.4	43.9	44.0	41.8	37.9
Maldives	...	88.4	79.7	85.1	82.4	79.5	84.8	57.0	60.4	83.8	84.0	89.5	89.1
Nepal	21.2	34.6	38.8	35.3	35.8	34.9	34.5	35.6	36.5	33.7	35.1	37.4	41.5
Sri Lanka	57.3	70.5	75.7	62.4	60.7	58.6	54.5	41.1	44.5	52.1	48.7	42.3	40.8
Southeast Asia													
Brunei Darussalam	92.3	94.6	83.5	80.7	81.1	79.8	91.1	89.2	83.3	86.7	86.9	83.1	81.3
Cambodia[b]	17.8	59.3	90.9	108.5	116.3	89.4	83.9	77.1	85.9	95.2	98.1	106.6	107.2
Indonesia	41.5	42.6	58.0	50.1	44.4	43.6	52.2	39.5	38.9	42.7	41.6	40.5	39.9
Lao PDR	30.5	50.9	52.9	52.8	54.8	47.2	47.2	45.0	56.5	57.0	58.6	49.7	59.0
Malaysia	133.3	170.5	192.1	178.3	178.8	166.3	153.6	138.5	142.1	139.5	134.8	134.3	131.0
Myanmar	5.7	2.6	1.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2	22.6	40.2	43.9
Philippines	47.9	62.0	88.7	88.0	83.0	72.6	62.9	50.1	55.1	50.1	47.2	45.0	45.8
Singapore[c]	290.8	276.0	284.5	337.5	345.1	312.1	341.1	267.1	279.8	281.3	271.8	259.2	251.9
Thailand	63.5	75.3	103.9	120.7	117.6	112.1	121.7	101.5	103.5	113.6	111.9	105.6	105.0
Viet Nam	79.7	65.6	96.6	120.1	127.6	143.8	144.7	119.8	135.5	150.3	146.5	154.2	160.1
The Pacific													
Cook Islands	88.2	56.8	65.3	47.3	54.9	48.9	46.9	39.2	37.5	39.1	38.1	42.9	...
Fiji	101.7	89.8	94.9	90.5	95.2	88.2	107.2	84.4	100.4	108.4	110.7	121.3	...
Kiribati	123.5	76.2	63.6	76.0	61.7	65.0	60.2	58.2	50.2	57.3	63.3	...	...
Marshall Islands	75.8	82.9	127.1	120.3	107.7	108.4	111.3	126.6	...	139.4	...	...	...
Micronesia, Fed. States of[d]	56.9	62.3	52.9	56.6	58.1	63.3	69.5	68.3	64.9	74.7	75.4	70.7	...
Nauru	...	...	...	159.8	197.5	335.3	473.4	174.7	216.1	194.9	166.8	...	...
Palau	...	78.0	93.3	63.1	66.9	63.4	80.7	57.8	63.9	71.6	72.6	72.5	67.5
Papua New Guinea	70.8	81.4	88.3	99.3	111.8	116.1	111.6	89.4	95.4	86.3	71.9	74.2	77.5
Samoa[e]	79.8	51.5	45.1	45.9	50.8	37.7	39.5	37.1	44.5	43.6	42.4	43.5	44.7
Solomon Islands	86.3	98.6	55.1	93.7	94.2	107.0	101.4	80.6	108.1	121.9	118.6	104.1	98.4
Timor-Leste	...	...	...	8.2	6.0	7.8	7.1	9.9	8.3	6.8	11.0	16.4	...
Tonga	62.8	44.4	41.9	49.6	42.9	49.4	52.0	46.3	44.6	46.4	46.2	49.0	54.6
Tuvalu	...	45.4	37.4	59.2	56.2	58.2	87.8	52.8	51.2	64.4	63.4	42.5	...
Vanuatu	76.1	54.1	40.5	53.5	60.5	52.9	60.7	57.1	47.4	46.9	44.9	43.9	...
Developed Member Economies													
Australia	24.9	30.1	34.4	32.0	34.1	32.8	38.0	31.6	34.1	34.7	32.9	33.0	32.7
Japan	17.0	14.6	18.2	24.3	28.1	30.6	31.9	22.4	26.6	28.3	28.3	31.5	32.6
New Zealand	42.5	44.0	50.1	41.7	43.8	42.1	48.7	41.4	42.6	45.0	43.3	42.0	...
DEVELOPING MEMBER ECONOMIES[f]	**54.4**	**65.4**	**63.3**	**58.2**	**56.4**	**51.3**	**49.8**	**38.9**	**42.5**	**43.0**	**65.1**	**62.1**	**58.7**
REGIONAL MEMBERS[f]	**30.0**	**32.7**	**38.5**	**45.0**	**46.9**	**45.2**	**45.1**	**34.8**	**38.8**	**39.8**	**53.4**	**53.7**	**52.2**

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a The sum of merchandise exports and imports.
b Starting 2004 Bhutan and 2005 Cambodia, compilation methodology for imports shifted from cost, insurance, and freight (CIF) to free on board (FOB).
c Prior to 2003, data exclude Indonesia.
d Starting 2000, compilation methodology for imports shifted from FOB to CIF.
e Starting 2000, compilation methodology for imports shifted from CIF to FOB.
f For reporting economies only.

Sources: Economy sources; and International Financial Statistics Online (International Monetary Fund 2015).

Table 4.13: Direction of Trade: Merchandise Exports

(% of total merchandise exports)

From \ To / Regional Member	Asia		Europe		North and Central America		Middle East		South America		Africa		Oceania		Rest of the World	
	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014
Developing Member Economies																
Central and West Asia[a]																
Afghanistan	17.6	73.2	73.7	10.7	4.4	9.1	3.9	5.7	0.0	0.6	0.1	0.3	0.3	0.4	0.0	0.0
Armenia	4.2	20.4	73.3	52.3	20.7	12.4	0.0	13.6	0.0	0.0	0.0	0.1	0.0	0.0	1.8	1.2
Azerbaijan	22.0	24.1	55.7	62.0	2.6	5.0	19.4	5.7	0.0	0.0	0.1	1.3	0.2	0.0	0.0	1.9
Georgia	3.6	48.0	86.3	38.1	9.9	9.3	0.2	3.0	0.0	0.7	0.0	0.7	0.0	0.0	0.0	0.1
Kazakhstan	57.5	28.4	31.7	66.2	8.9	3.2	0.8	1.7	0.0	0.2	0.0	0.2	0.0	0.0	1.2	0.1
Kyrgyz Republic	41.1	76.4	57.5	15.2	0.5	0.2	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
Pakistan	28.2	30.6	40.7	26.4	14.3	14.2	8.9	16.9	0.1	1.4	2.0	5.9	1.4	0.9	4.5	3.7
Tajikistan	37.0	67.2	52.8	16.2	2.5	0.5	0.0	14.3	0.0	0.0	0.0	0.2	0.0	0.0	7.7	1.6
Turkmenistan	4.4	82.2	92.0	9.6	3.2	1.8	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.7
Uzbekistan	12.7	74.6	80.6	22.4	0.4	0.2	0.1	2.6	0.0	0.1	0.0	0.1	0.0	0.0	6.2	0.0
East Asia																
China, People's Rep. of	68.3	43.7	14.7	18.7	10.0	20.4	2.3	5.6	0.4	3.6	1.8	3.9	0.9	1.9	1.5	2.1
Hong Kong, China	42.3	70.9	20.3	10.8	27.2	10.9	1.6	2.3	0.5	1.0	1.5	0.7	1.8	1.1	4.9	2.2
Korea, Rep. of	34.0	55.1	15.5	11.3	33.4	16.4	3.0	5.7	0.8	2.9	1.4	2.1	1.7	2.2	10.2	4.4
Mongolia	31.6	96.9	45.2	2.6	2.4	0.3	0.1	0.1	0.0	0.0	20.7	0.0	0.0	0.0	0.0	0.0
Taipei,China[b]	38.2	70.7	18.2	9.3	36.0	12.7	2.1	2.7	0.6	1.2	1.9	0.9	2.3	1.3	0.7	1.1
South Asia																
Bangladesh	14.8	12.4	41.8	48.9	32.3	18.0	5.0	1.8	0.4	0.8	3.3	0.5	2.0	1.7	0.5	15.8
Bhutan[c]	99.3	89.1	0.6	9.9	0.0	0.2	0.0	0.1	0.1	0.5	0.0	0.2	0.0	0.1	0.0	0.0
India	21.0	30.1	47.2	17.5	16.3	15.4	7.1	21.1	0.1	3.4	1.8	9.6	1.2	1.0	5.2	1.9
Maldives	47.0	36.4	26.5	46.6	26.3	11.7	0.0	0.2	0.0	0.0	0.0	3.6	0.2	0.4	0.0	1.0
Nepal	14.7	71.5	60.0	12.7	24.1	9.8	0.1	1.2	0.1	0.2	0.0	0.1	0.1	0.8	0.9	3.7
Sri Lanka	14.8	20.3	30.9	35.2	28.8	27.3	17.8	9.8	0.7	1.3	1.2	1.5	1.6	1.8	4.4	2.9
Southeast Asia																
Brunei Darussalam	91.6	82.4	0.2	0.2	3.4	0.4	0.0	0.1	0.0	0.0	0.0	0.0	1.3	12.0	3.4	5.0
Cambodia	90.9	25.8	7.8	37.7	0.4	32.6	0.1	0.5	0.4	0.9	0.1	0.7	0.2	1.1	0.0	0.7
Indonesia	64.4	63.9	12.8	10.3	13.9	10.5	3.0	4.0	0.1	1.5	0.5	2.7	2.1	3.5	3.3	3.7
Lao PDR	85.2	82.2	11.1	6.0	1.7	1.0	0.0	0.0	0.6	0.0	1.0	0.0	0.1	0.1	0.3	10.5
Malaysia	58.0	65.2	16.6	10.2	18.1	9.6	2.5	3.3	0.3	0.8	0.4	2.2	2.0	5.3	2.2	3.3
Myanmar	67.4	94.0	10.3	2.2	2.5	0.4	1.5	0.3	0.0	0.1	1.0	0.4	0.7	0.1	16.7	2.5
Philippines	34.8	64.4	18.8	11.4	40.2	16.0	1.1	1.1	0.1	0.5	0.2	0.5	1.3	1.6	3.4	4.4
Singapore	45.8	67.5	17.2	8.6	23.0	9.1	2.7	2.5	0.4	0.5	1.4	1.9	3.3	4.8	6.3	5.0
Thailand	37.9	58.4	25.3	11.8	25.3	12.5	5.4	5.1	0.2	2.0	2.1	3.1	1.9	4.8	2.0	2.4
Viet Nam	39.1	46.8	48.1	20.7	0.6	20.9	0.9	3.6	0.0	2.0	0.2	1.1	0.3	3.3	10.7	1.6
The Pacific																
Cook Islands[d]	55.4	77.0	0.0	0.0	6.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	32.4	3.9	6.1	18.8
Fiji	10.6	9.7	23.3	8.4	10.6	12.9	0.0	0.3	0.0	0.0	0.0	0.0	29.3	36.7	26.2	32.0
Kiribati[c]	13.0	81.1	77.8	0.1	8.9	3.5	0.0	0.0	0.1	7.4	0.0	4.9	0.3	2.1	0.0	0.8
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of[e]	88.9	4.1	0.0	0.0	10.7	40.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.8	0.0	50.8
Nauru[c]	11.3	15.1	1.1	0.8	2.2	1.1	0.0	0.0	0.0	0.0	1.2	66.0	84.4	16.8	-0.2	0.0
Palau[c]	98.4	99.3	0.9	0.4	0.0	0.0	0.0	0.0	0.6	0.2	0.0	0.0	0.1	0.1	0.0	0.0
Papua New Guinea	44.7	29.5	24.7	6.6	2.7	0.7	0.0	0.0	0.0	0.0	0.1	0.0	27.2	24.0	0.6	39.2
Samoa	5.4	3.4	19.2	1.0	6.5	3.7	0.0	0.2	0.0	2.5	0.1	0.0	47.3	24.2	21.7	65.0
Solomon Islands	58.1	71.2	21.8	12.4	3.8	1.2	0.0	0.0	0.0	0.1	0.0	0.1	7.6	8.1	8.7	7.0
Timor-Leste[c,f]	96.1	84.0	3.1	10.6	0.4	2.3	0.0	0.0	0.0	0.0	0.3	0.5	0.1	2.6	0.0	0.0
Tonga	30.0	23.8	1.6	6.6	25.9	15.7	0.0	0.0	0.0	0.0	0.0	0.3	36.4	45.4	6.0	8.1
Tuvalu[c]	0.3	65.7	43.7	12.5	0.0	1.1	0.0	0.0	0.0	0.0	0.0	7.8	56.0	12.8	0.0	0.1
Vanuatu	22.8	80.8	58.2	1.5	3.9	4.7	0.3	0.0	0.1	0.1	0.2	0.8	13.5	8.4	1.1	3.7
Developed Member Economies																
Australia	50.6	75.2	17.1	5.0	12.9	4.9	4.5	3.5	0.7	0.6	0.6	1.0	7.4	4.2	6.2	5.6
Japan	26.1	48.8	23.0	12.4	36.3	23.1	3.4	4.3	1.1	1.6	1.6	1.3	3.0	2.5	5.6	6.1
New Zealand	30.1	44.0	18.5	10.3	16.9	11.6	2.7	5.8	1.0	1.3	1.4	3.1	21.2	19.4	8.2	4.4
DEVELOPING MEMBER ECONOMIES[g]	**45.3**	**51.6**	**19.4**	**15.9**	**24.3**	**16.0**	**2.8**	**5.6**	**0.4**	**2.5**	**1.5**	**3.2**	**2.0**	**2.4**	**4.3**	**2.9**
REGIONAL MEMBERS[g]	**38.4**	**52.1**	**20.6**	**15.1**	**28.0**	**16.4**	**3.1**	**5.4**	**0.7**	**2.3**	**1.5**	**2.9**	**2.8**	**2.6**	**4.9**	**3.3**
WORLD	**17.9**	**31.0**	**50.2**	**36.8**	**20.1**	**17.5**	**3.4**	**4.7**	**1.7**	**3.0**	**2.2**	**2.7**	**1.4**	**1.4**	**3.2**	**2.9**

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Except for Afghanistan and Pakistan, data for 1990 refer to 1992.
b Economies are classified following Taipei,China's trade groupings. Data under the heading "Middle East" refer to "Middle and Near East" economies.
c Based on reporting partner-country data. For Palau, data for 1990 refer to 2001.
d Data for 1990 refer to 1993.
e Data for 1990 refer to 1991, and for 2014 to 2007.
f Data for 1990 refer to 2004.
g For reporting economies only.

Sources: International Monetary Fund. *Direction of Trade Statistics* CD-ROM (May 2015); for the Cook Islands; the Federated States of Micronesia; and Taipei,China: economy sources.

Table 4.14: Direction of Trade: Merchandise Imports

(% of total merchandise imports)

From / To / Regional Member	Asia		Europe		North and Central America		Middle East		South America		Africa		Oceania		Rest of the World	
	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014	1990	2014
Developing Member Economies																
Central and West Asia[a]																
Afghanistan	79.1	62.7	17.1	23.1	1.3	10.8	0.4	0.5	0.2	0.2	0.0	2.6	0.1	0.1	1.6	0.0
Armenia	2.7	24.2	43.4	59.4	53.3	3.8	0.1	8.1	0.1	2.6	0.0	0.7	0.1	0.6	0.3	0.6
Azerbaijan	20.2	33.2	70.8	52.2	2.6	9.6	6.2	3.5	0.2	0.9	0.0	0.1	0.0	0.4	0.0	0.1
Georgia	13.7	47.6	56.5	41.9	29.8	3.6	0.0	4.5	0.0	1.7	0.0	0.6	0.0	0.1	0.1	0.1
Kazakhstan	59.9	38.3	35.8	57.7	3.5	2.7	0.7	0.6	0.0	0.3	0.0	0.3	0.0	0.0	0.1	0.1
Kyrgyz Republic	38.7	73.0	55.1	25.6	6.2	0.9	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	30.3	46.1	29.3	11.0	14.2	3.6	19.1	34.3	0.9	0.7	2.2	2.0	2.4	0.9	1.6	1.5
Tajikistan	4.2	70.4	82.4	23.5	13.3	0.6	0.0	5.0	0.0	0.4	0.0	0.0	0.0	0.1	0.1	0.0
Turkmenistan	8.2	45.3	65.0	36.6	26.7	5.2	0.0	11.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.5
Uzbekistan	19.1	55.6	61.8	42.1	19.0	1.6	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
East Asia																
China, People's Rep. of	48.6	32.0	24.1	17.1	15.8	9.8	0.9	8.3	2.0	5.6	0.6	5.5	2.8	5.2	5.2	16.5
Hong Kong, China	66.7	74.2	12.4	9.5	8.6	6.0	0.8	1.6	0.7	0.8	0.6	0.3	1.1	0.5	9.1	7.2
Korea, Rep. of	33.5	39.3	13.1	16.1	25.3	10.6	7.0	22.2	1.7	2.5	0.6	1.9	4.3	4.3	14.4	3.1
Mongolia	33.1	58.7	66.0	36.7	0.0	3.2	0.0	0.7	0.1	0.1	0.7	0.1	0.1	0.5	0.0	0.1
Taipei,China[b]	54.5	54.5	11.3	11.3	11.5	11.5	14.5	14.5	1.6	1.6	3.2	3.2	3.4	3.4	0.0	0.0
South Asia																
Bangladesh	47.7	66.2	22.0	7.3	8.4	3.4	5.1	7.1	1.4	3.6	0.1	1.6	1.8	1.5	13.4	9.3
Bhutan[c]	11.2	94.4	72.1	4.7	11.3	0.7	0.0	0.1	3.1	0.0	0.0	0.0	2.2	0.2	0.0	0.0
India	17.4	29.9	41.3	16.8	12.9	6.4	18.3	27.5	1.7	6.3	2.8	8.0	3.4	2.4	2.3	2.7
Maldives	85.2	58.1	13.3	11.8	0.5	3.2	0.5	21.7	0.0	1.0	0.0	0.7	0.3	3.2	0.1	0.4
Nepal	69.4	93.3	20.1	2.6	2.8	0.6	0.0	2.5	0.5	0.0	0.2	0.0	5.8	0.3	1.2	0.6
Sri Lanka	47.5	67.7	17.8	10.3	8.9	3.6	11.7	12.7	0.8	0.7	4.4	0.2	2.8	2.4	6.1	2.3
Southeast Asia																
Brunei Darussalam	61.5	81.1	18.6	8.7	15.4	8.7	0.0	0.3	0.2	0.1	0.0	0.1	2.6	0.7	1.7	0.5
Cambodia	64.8	89.1	28.5	2.9	0.1	2.4	3.5	0.1	0.5	0.2	0.1	0.0	2.5	0.3	0.0	5.0
Indonesia	43.6	67.4	22.4	9.0	13.7	5.7	5.0	6.8	2.0	2.4	0.7	2.9	6.0	3.5	6.6	2.2
Lao PDR	87.7	95.0	9.7	3.1	0.8	0.5	0.1	0.0	0.2	0.0	0.1	0.0	0.9	0.5	0.6	0.8
Malaysia	50.6	59.1	17.9	12.8	18.0	10.1	1.2	5.4	1.6	2.1	0.5	1.3	4.2	3.4	5.8	5.7
Myanmar	69.2	94.4	23.3	2.9	3.1	0.5	0.1	0.3	0.0	0.2	0.4	0.0	3.7	0.6	0.2	1.1
Philippines	40.0	59.1	13.2	13.9	21.1	9.4	11.8	7.5	2.5	1.2	0.7	0.1	4.3	2.0	6.5	6.8
Singapore	47.7	47.5	15.8	15.7	16.9	11.8	11.0	12.5	0.9	2.0	0.4	0.7	2.2	1.5	5.1	8.3
Thailand	53.4	57.0	19.7	12.2	12.1	7.2	4.1	12.7	1.8	1.6	0.8	1.8	2.0	2.8	6.1	4.5
Viet Nam	34.1	79.7	21.3	5.4	0.4	3.5	0.0	1.6	0.0	2.2	0.1	0.3	0.4	1.8	43.8	5.6
The Pacific																
Cook Islands[d]	1.0	1.0	0.0	0.0	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	80.6	80.6	15.6	15.6
Fiji	26.4	59.0	5.6	3.7	13.4	3.9	0.0	0.2	0.0	0.1	0.0	0.2	44.1	27.2	10.5	5.8
Kiribati[c]	14.4	53.8	6.0	1.3	48.9	1.8	0.0	0.0	0.1	0.3	0.0	0.2	30.6	41.4	0.1	1.3
Marshall Islands[e]	18.5	8.6	0.0	0.0	74.9	24.5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	6.5	1.2	60.3
Micronesia, Fed. States of[d]	19.7	23.6	0.0	0.0	72.1	59.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	6.4	5.6	11.0
Nauru[c]	31.4	5.9	7.4	1.2	0.6	1.0	0.0	0.0	0.0	0.0	2.2	0.2	58.9	82.7	-0.5	9.1
Palau[c]	98.5	96.7	0.9	0.4	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.3	2.7	0.0	0.0
Papua New Guinea	29.4	50.0	7.0	3.1	11.5	3.0	0.1	0.1	0.5	0.1	0.3	0.2	50.2	37.7	1.0	5.8
Samoa	10.2	38.3	7.5	1.7	8.2	6.1	0.0	0.3	0.0	0.3	0.0	0.6	36.6	50.0	37.5	2.8
Solomon Islands	37.6	45.5	5.8	1.7	6.1	1.4	0.0	0.0	0.0	0.1	0.1	1.6	44.9	39.3	5.6	10.5
Timor-Leste[c,f]	92.6	91.9	6.2	0.2	1.0	0.3	0.0	0.0	0.0	0.9	0.0	0.4	0.1	6.3	0.0	0.0
Tonga	16.9	23.8	1.8	3.1	10.3	9.5	0.0	0.0	0.0	0.6	0.0	0.0	62.4	61.8	8.6	1.1
Tuvalu[c]	29.8	55.9	33.9	0.1	0.0	0.5	0.0	0.0	0.5	0.4	0.0	0.5	35.8	43.0	0.0	-0.5
Vanuatu	62.7	60.5	21.9	2.5	2.3	3.8	0.0	0.0	0.3	0.0	0.0	0.3	12.4	30.1	0.4	2.8
Developed Member Economies																
Australia	32.4	53.5	27.5	19.5	26.4	12.3	3.2	1.9	1.0	1.0	0.4	2.0	5.5	4.8	3.7	4.9
Japan	25.3	42.1	19.8	13.8	27.2	11.0	13.3	18.5	3.0	2.9	1.6	2.0	6.2	6.6	3.7	3.0
New Zealand	24.0	45.3	25.0	19.4	20.0	13.3	5.4	5.7	1.0	1.1	0.2	0.9	21.2	12.5	3.2	1.9
DEVELOPING MEMBER ECONOMIES[g]	**48.9**	**46.0**	**16.7**	**15.1**	**14.6**	**8.5**	**7.8**	**11.0**	**1.5**	**3.6**	**1.4**	**3.4**	**3.2**	**3.4**	**5.9**	**9.1**
REGIONAL MEMBERS[g]	**41.2**	**45.8**	**18.2**	**15.1**	**18.8**	**9.0**	**9.1**	**11.5**	**1.9**	**3.4**	**1.4**	**3.2**	**4.4**	**4.0**	**5.2**	**8.1**
WORLD	**19.9**	**31.3**	**48.5**	**37.1**	**17.1**	**13.5**	**4.5**	**6.4**	**2.7**	**3.4**	**2.4**	**2.7**	**1.6**	**1.6**	**3.4**	**3.9**

0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Except for Afghanistan and Pakistan, data for 1990 refer to 1992.
b Economies are classified following Taipei,China's trade groupings. Data under the heading "Middle East" refer to "Middle and Near East" economies.
c Based on reporting partner-country data. For Palau, data for 1990 refer to 2000.
d Data for 2014 refer to 2013.
e Data for 2014 refer to 2006.
f Data for 1990 refer to 2003.
g For reporting economies only.

Sources: International Monetary Fund. *Direction of Trade Statistics* CD-ROM (May 2015); for the Cook Islands; the Federated States of Micronesia; and Taipei,China: economy sources.

International Reserves

Table 4.15: International Reserves and Ratio of International Reserves to Imports

Regional Member	International Reserves[a] (end of year; $ million)						Ratio of International Reserves to Imports[b] (months)					
	1990	1995	2000	2005	2010	2014	1990	1995	2000	2005	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	292	7	6	0	5,147	7,521	...	...	...	0.0	12.2	12.9
Armenia	...	110	314	669	1,866	1,489	...	2.0	4.8	4.8	6.9	4.8
Azerbaijan	–	121	680	1,178	6,409	15,549	...	1.5	5.3	3.2	11.4	20.0
Georgia	–	199	116	479	2,264	2,699	...	3.3	1.4	2.1	5.4	3.9
Kazakhstan	–	1,660	2,096	7,070	28,275	28,919	...	3.7	3.5	4.7	10.3	8.0
Kyrgyz Republic	–	124	262	612	1,720	1,957	...	2.8	6.2	6.6	6.9	4.4
Pakistan	985	2,453	2,056	10,948	17,210	14,293	1.6	2.9	2.6	6.9	6.6	4.1
Tajikistan	–	0	94	189	403	503	...	...	1.2	1.6	1.5	1.3
Turkmenistan	...	1,170	1,808	4,457	...	...	...	8.5	12.5	18.1	...	...
Uzbekistan	...	...	1,273	...	...	...	...	...	6.3	...	...	...
East Asia												
China, People's Rep. of	30,209	76,036	168,856	825,588	2,875,895	3,868,985	8.6	8.3	10.8	17.5	27.8	25.7
Hong Kong, China	24,657	55,424	107,560	124,278	268,743	328,516	...	...	7.9	6.1	8.4	7.2
Korea, Rep. of	14,825	32,712	96,198	210,391	291,571	363,580	2.7	3.0	7.5	10.0	8.4	8.3
Mongolia	23	152	202	333	2,288	1,650	0.3	4.3	4.0	3.4	8.9	4.1
Taipei,China	78,064	95,911	111,370	257,952	387,207	423,851	17.8	11.5	9.7	17.3	18.8	18.8
South Asia												
Bangladesh	649	2,367	1,516	2,825	11,178	22,311	2.3	4.9	2.4	2.9	6.3	7.3
Bhutan	89	130	318	467	1,002	1,245	11.2	16.1	20.6	12.2	15.2	16.6
India	5,188	21,591	40,155	136,026	297,747	322,833	2.2	5.9	8.3	10.4	9.3	8.4
Maldives	24	48	123	189	364	627	2.4	2.4	4.3	3.5	3.5	3.8
Nepal	302	593	952	1,504	2,939	6,034	...	5.6	7.3	8.9	7.1	10.2
Sri Lanka	433	2,094	1,147	2,735	7,196	8,208	1.9	4.7	1.9	3.7	6.4	5.1
Southeast Asia												
Brunei Darussalam	–	–	408	492	1,563	3,648	...	–	...	4.2	8.0	8.3
Cambodia	0	192	611	1,159	3,802	6,106	0.0	1.9	3.8	3.5	7.9	6.9
Indonesia	8,520	14,787	29,268	34,731	96,211	111,863	...	4.3	8.7	6.0	9.1	8.0
Lao PDR	2	93	140	239	713	890	...	1.9	3.1	3.3	4.2	2.5
Malaysia	9,871	23,899	28,624	70,153	106,525	115,937	4.6	4.0	4.4	7.8	8.6	8.0
Myanmar	325	573	234	782	5,729	...	7.4	3.9	1.3	5.3	16.0	...
Philippines	2,048	7,799	15,063	18,494	62,373	79,541	2.0	3.5	4.2	5.9	14.0	15.0
Singapore	27,790	68,816	80,170	116,172	225,715	256,855	5.9	6.7	6.9	7.2	8.8	8.5
Thailand	14,273	36,945	32,661	52,065	172,129	157,107	5.2	7.0	6.3	5.9	12.8	9.4
Viet Nam	0	1,379	3,510	9,216	12,926	34,575	0.0	2.2	3.0	3.2	2.0	3.0
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	261	349	412	321	721	916	4.9	5.5	6.4	2.6	5.6	...
Kiribati	0	0	0	0	8	...	0.0	0.0	0.0	0.0	0.0	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	–	69	113	50	56	114	...	7.5	12.4	4.8	4.2	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	–	–	0	0	5	...	...	...	0.0	0.0	0.5	...
Papua New Guinea	415	263	296	749	3,092	2,305	4.5	2.5	3.5	5.9	10.5	7.5
Samoa	69	55	64	82	209	141	11.8	7.2	2.4	5.2	9.0	4.9
Solomon Islands	18	16	32	95	266	507	2.7	1.2	4.2	9.4	8.9	13.2
Timor-Leste	–	–	–	153	406	311	...	...	...	...	15.9	4.9
Tonga	31	29	25	47	105	159	7.6	4.7	4.7	5.0	11.5	10.0
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	38	48	39	67	161	184	5.7	7.3	6.1	6.2	8.1	9.0
Developed Member Economies												
Australia	19,328	14,951	18,817	43,257	42,268	53,893	5.9	3.2	3.3	4.6	2.7	2.6
Japan	79,707	184,510	361,639	846,896	1,096,185	1,260,514	4.5	7.5	12.9	21.9	21.0	19.0
New Zealand	4,129	4,410	3,952	8,893	16,723	15,861	6.0	4.1	3.7	4.2	6.5	4.6
DEVELOPING MEMBER ECONOMIES[c]	**...**	**448,215**	**728,769**	**1,892,958**	**4,902,139**	**6,191,930**	**...**	**6.1**	**6.9**	**10.2**	**15.0**	**14.9**
REGIONAL MEMBERS[c]	**...**	**652,086**	**1,113,177**	**2,792,003**	**6,057,315**	**7,522,198**	**...**	**6.3**	**7.9**	**11.8**	**15.2**	**14.9**

... = data not available at cutoff date, – = magnitude equals zero, 0 or 0.0 = magnitude is less than half of the unit employed, Lao PDR = Lao People's Democratic Republic.

a Data refer to international reserves with gold at national valuation unless otherwise specified. For Afghanistan (up to 2007), Bhutan, Kiribati, Palau, Samoa, Solomon Islands, Timor-Leste, Tonga, Turkmenistan, and Vanuatu, data refer to international reserves without gold.

b Merchandise imports from the balance-of-payments were used in the computation.

c For reporting economies only.

Sources: For international reserves: *International Financial Statistics* CD-ROM, May 2015; for Taipei,China: economy sources; for the reserves-to-imports ratio: Asian Development Bank estimates using data from *International Financial Statistics* CD-ROM; and economy sources.

Table 4.16: Official Flows[a] from All Sources to Developing Member Economies

($ million)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Developing Member Economies												
Central and West Asia												
Afghanistan[b]	122	213	136	2,838	2,962	4,965	4,876	6,235	6,427	6,885	6,726	5,267
Armenia	...	229	205	182	228	359	318	1,098	369	428	402	402
Azerbaijan	...	191	273	197	391	355	391	467	495	738	1,067	394
Georgia	...	219	136	234	224	313	900	989	828	730	778	698
Kazakhstan	...	459	152	-656	133	68	332	856	1,482	1,045	638	537
Kyrgyz Republic	...	201	217	272	272	283	326	640	470	631	741	769
Pakistan	1,545	1,298	616	1,691	2,556	2,514	2,478	4,403	3,397	4,359	2,953	2,793
Tajikistan	...	93	84	231	372	394	557	467	529	463	351	385
Turkmenistan	...	29	271	-54	-84	-47	-35	-54	-33	-44	51	51
Uzbekistan	...	320	334	149	67	105	158	353	306	420	539	564
East Asia												
China, People's Rep. of	2,364	8,799	2,346	2,002	2,253	1,970	2,741	2,142	2,123	-192	31	-1,964
Hong Kong, China[b]	38	18	...	...	...	...	...	...	...	...	...	...
Korea, Rep. of[b]	52	57	...	...	...	...	...	...	...	...	...	...
Mongolia	13	211	199	224	214	244	254	391	306	336	354	698
Taipei,China[b]	36	0	...	...	...	...	...	...	...	...	...	...
South Asia												
Bangladesh	1,816	1,239	1,132	1,184	1,681	1,536	3,102	1,917	1,548	1,325	2,416	3,511
Bhutan	48	71	72	148	127	83	65	94	203	304	438	353
India	3,151	-51	524	2,568	2,374	3,721	4,365	4,540	7,904	5,369	2,642	2,625
Maldives	23	60	17	76	60	54	53	117	129	70	103	55
Nepal	397	433	344	548	497	568	789	856	784	907	778	921
Sri Lanka	631	610	317	1,274	867	853	883	1,171	1,708	1,409	1,848	1,783
Southeast Asia												
Brunei Darussalam[b]	4	4	...	...	...	...	...	...	...	...	...	...
Cambodia	41	513	372	559	638	672	910	790	947	1,080	1,424	1,179
Indonesia	3,096	1,879	2,240	545	-2	-1,499	231	1,454	2,744	57	-497	258
Lao PDR	222	278	263	326	332	442	453	514	474	726	773	980
Malaysia	538	513	697	-168	-353	-1,424	-664	-921	-571	-531	-26	-185
Myanmar	233	214	108	143	141	201	538	355	389	395	528	4,818
Philippines	1,536	-136	335	-246	383	470	-415	1,210	189	301	378	-390
Singapore[b]	-3	17	...	...	...	...	...	...	...	...	...	...
Thailand	521	858	724	-1,622	-559	-622	-490	-170	-92	7	397	955
Viet Nam	99	632	1,522	1,779	1,757	2,558	2,720	4,386	3,969	4,226	4,714	4,456
The Pacific												
Cook Islands[b]	12	13	4	8	32	9	6	7	13	28	21	16
Fiji	23	37	21	73	62	54	52	79	101	132	176	138
Kiribati[b]	20	15	18	28	27	27	27	27	23	64	65	64
Marshall Islands[b]	...	39	57	57	55	52	53	59	91	83	76	94
Micronesia, Fed. States of[b]	...	77	102	107	109	115	94	121	125	134	115	143
Nauru[b]	0	3	4	9	17	26	31	24	28	38	36	29
Palau[b]	...	142	39	24	37	22	43	35	26	28	15	35
Papua New Guinea	534	397	351	250	242	229	277	407	510	654	712	2,219
Samoa	46	41	25	43	47	46	59	83	172	120	152	123
Solomon Islands	41	50	70	200	204	245	218	204	327	323	303	287
Timor-Leste[b]	0	0	231	185	209	278	278	216	292	279	283	258
Tonga	30	38	21	31	21	30	31	53	109	130	87	81
Tuvalu[b]	5	8	4	9	15	12	16	17	13	39	24	27
Vanuatu	50	47	46	40	49	61	102	114	108	93	102	90
DEVELOPING MEMBER ECONOMIES[c]	**17,284**	**20,379**	**14,628**	**15,487**	**18,659**	**20,342**	**27,122**	**35,747**	**38,961**	**33,586**	**32,716**	**35,513**
DEVELOPING ECONOMIES[d]	**66,026**	**68,927**	**46,729**	**75,920**	**120,356**	**109,412**	**134,906**	**174,899**	**189,584**	**158,628**	**161,282**	**172,798**

... = data not available at cutoff date, 0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Refers to net flows of long-term public and publicly guaranteed debt from official creditors and grants, including technical cooperation grants. However, data for 2010 only include net flows of long-term public and publicly guaranteed debt from official creditors for economies whose data were sourced from World Bank's International Debt Statistics Online.

b Refers to net official development assistance only, i.e., concessional flows to developing economies and multilateral institutions provided by official agencies, including state and local governments, or by their executing agencies, administered with the objective of promoting the economic development and welfare of developing economies, and containing a grant element of at least 25%.

c For reporting economies only.

d Includes data for all developing economies as reported in the World Bank's International Debt Statistics Online. For developing member economies not covered by the World Bank, data are from the Organisation for Economic Co-operation and Development's Geographical Distribution of Financial Flows to Aid Recipients.

Sources: World Bank. International Debt Statistics Online. http://data.worldbank.org/data-catalog/international-debt-statistics (accessed 27 July 2015); and for Afghanistan; Brunei Darussalam; the Cook Islands; Hong Kong, China; Kiribati; the Republic of Korea; the Marshall Islands; the Federated States of Micronesia; Nauru; Palau; Singapore; Taipei,China; Timor-Leste; and Tuvalu: Organization for Economic Cooperation and Development. Stat Extracts Online. http://stats.oecd.org/Index.aspx?r=404180 (accessed 28 July 2015).

Capital Flows

Table 4.17: Net Private Flows[a] from All Sources to Developing Member Economies
($ million)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Developing Member Economies												
Central and West Asia												
Afghanistan[b]	−2	0	21	−12	19	13	37	30	−22	−22	−11	16
Armenia	...	25	103	356	517	1,172	1,320	789	1,240	1,229	1,027	1,875
Azerbaijan	...	330	185	4,736	4,558	4,826	4,342	3,210	5,245	4,987	5,906	2,118
Georgia	...	...	157	502	1,350	1,986	1,991	981	1,197	1,387	1,941	1,128
Kazakhstan	...	1,204	2,175	9,306	36,172	34,000	27,304	24,165	16,761	19,497	23,415	26,825
Kyrgyz Republic	...	96	−63	41	316	319	985	286	516	964	577	1,025
Pakistan	182	1,050	−18	3,394	6,491	7,877	5,715	1,795	4,580	1,596	866	1,608
Tajikistan	...	10	12	51	344	363	387	−52	64	112	389	−281
Turkmenistan	...	253	−40	334	655	814	1,241	4,532	3,592	3,409	3,122	3,068
Uzbekistan	...	177	0	−47	−70	726	974	2,500	2,142	1,836	826	2,388
East Asia												
China, People's Rep. of	8,107	40,862	43,434	138,314	183,634	203,916	208,407	185,671	318,824	349,026	328,468	406,785
Hong Kong, China[b]	3,482	3,758	...	...	...	...	...	...	...	...	...	...
Korea, Rep. of[b]	1,572	7,596	...	...	...	...	...	...	...	...	...	...
Mongolia	...	−4	51	184	359	452	1,215	924	5,140	8,171	10,014	4,779
Taipei,China[b]	428	428	132	...	...	...	...	...	...	...	...	...
South Asia												
Bangladesh	59	−33	327	765	774	766	874	707	746	1,305	1,563	1,770
Bhutan	−1	−2	−	6	6	74	3	23	91	50	31	57
India	1,831	4,974	10,143	18,294	48,446	88,219	40,487	72,878	76,830	50,279	74,058	84,461
Maldives	7	9	22	60	82	163	248	150	233	438	202	350
Nepal	−6	−5	−8	2	−7	5	0	38	87	94	91	74
Sri Lanka	54	159	321	212	350	1,140	428	660	501	1,949	1,787	2,578
Southeast Asia												
Brunei Darussalam[b]	−2	32	...	175	88	258	222	326	626	1,208	859	895
Cambodia	...	164	149	377	483	867	815	511	735	795	1,441	1,345
Indonesia	2,891	8,147	−10,640	7,265	10,425	12,973	16,997	16,650	26,411	35,878	44,509	41,184
Lao PDR	6	95	34	309	453	1,081	710	676	321	830	676	1,295
Malaysia	476	7,850	4,957	6,149	15,103	12,352	3,421	5,476	18,929	22,034	27,624	22,525
Myanmar	96	289	245	235	276	710	864	1,079	901	2,520	1,334	2,255
Philippines	639	2,372	3,782	2,524	3,623	3,132	−956	4,837	4,937	4,988	8,324	6,814
Singapore[b]	3,220	4,290	8,393	...	...	...	...	...	...	...	...	...
Thailand	4,370	10,146	−1,137	15,682	17,853	14,796	3,590	8,617	20,145	11,410	29,030	19,065
Viet Nam	180	2,136	592	2,678	3,626	13,215	9,415	8,127	13,272	9,201	12,019	13,898
The Pacific												
Cook Islands[b]	4	27	−31	−29	3	1	0	−1	0	8	−1	3
Fiji	79	69	1	161	519	382	352	139	357	517	267	158
Kiribati[b]	...	...	0	1	−1	−8	...	2	0	3	0	0
Marshall Islands[b]	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of[b]	...	0	...	0	1	16	49	9	3	599	5	92
Nauru[b]	1	1	−2	2	0	0	2	2	...	0	...	...
Palau[b]	...	0	18	1	1	3	−2	0	3	6	22	2
Papua New Guinea	204	111	45	232	72	−111	119	444	2,447	6,749	10,392	−3,011
Samoa	7	3	−2	4	22	7	46	10	1	15	21	24
Solomon Islands	7	4	10	−6	35	82	96	132	266	166	67	18
Timor-Leste[b]	−5	9	...	0	−64	0	3	2	−4	−1	3	6
Tonga	0	1	4	7	12	29	6	1	7	3	1	12
Tuvalu[b]	...	0	−4	−1	4	−1	2	2	2	...	...	...
Vanuatu	13	31	20	13	43	34	38	32	42	58	38	33
DEVELOPING MEMBER ECONOMIES[c]	**27,900**	**96,665**	**63,387**	**212,279**	**336,570**	**406,649**	**331,746**	**346,360**	**527,168**	**543,295**	**590,905**	**647,234**
DEVELOPING ECONOMIES[d]	**39,854**	**159,432**	**172,049**	**430,032**	**633,808**	**854,547**	**724,422**	**598,884**	**829,575**	**932,211**	**1,007,963**	**1,129,139**

... = data not available at cutoff date, − = magnitude equals zero, 0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Refers to the sum of net foreign direct investment, portfolio equity flows, net flows of long-term public and publicly guaranteed debt from private creditors, and net flows of total private nonguaranteed debt.
b Refers to the sum of direct investment, portfolio investment, and private net exports credits of Development Assistance Committee economies only.
c For reporting economies only.
d Includes data for all developing economies as reported in World Bank's International Debt Statistics Online. For developing member economies not covered by the World Bank, data are from Organisation for Economic Co-operation and Development's Geographical Distribution of Financial Flows to Aid Recipients.

Sources: World Bank. International Debt Statistics Online. http://data.worldbank.org/data-catalog/international-debt-statistics (accessed 1 July 2015); and for Afghanistan; Brunei Darussalam; the Cook Islands; Hong Kong, China; Kiribati; the Republic of Korea; the Marshall Islands, the Federated States of Micronesia; Nauru; Palau; Singapore; Taipei,China; Timor-Leste; and Tuvalu: Organisation for Economic Co-operation and Development. Stat Extracts Online. http://stats.oecd.org/Index.aspx?r=404180 (accessed 2 July 2015).

Table 4.18: Aggregate Net Resource Flows[a] from All Sources to Developing Member Economies

($ million)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Developing Member Economies												
Central and West Asia												
Afghanistan	120	213	157	2,826	2,980	4,978	4,913	6,265	6,405	6,863	6,715	5,283
Armenia	...	254	308	538	745	1,531	1,639	1,887	1,609	1,657	1,430	2,277
Azerbaijan	...	521	457	4,933	4,949	5,181	4,733	3,676	5,740	5,725	6,973	2,512
Georgia	...	219	294	736	1,574	2,300	2,891	1,970	2,025	2,117	2,718	1,826
Kazakhstan	...	1,664	2,327	8,650	36,305	34,068	27,637	25,021	18,244	20,542	24,053	27,362
Kyrgyz Republic	...	297	154	314	589	602	1,311	925	987	1,595	1,318	1,793
Pakistan	1,727	2,348	598	5,085	9,047	10,391	8,194	6,198	7,977	5,955	3,820	4,401
Tajikistan	...	103	96	282	716	756	944	416	593	574	740	104
Turkmenistan	...	282	231	279	571	768	1,206	4,478	3,560	3,365	3,173	3,119
Uzbekistan	...	498	334	102	-3	831	1,131	2,854	2,448	2,257	1,365	2,952
East Asia												
China, People's Rep. of	10,471	49,661	45,781	140,317	185,887	205,886	211,148	187,813	320,947	348,834	328,499	404,820
Hong Kong, China	3,520	3,776	...	...	...	...	...	...	...	...	...	...
Korea, Rep. of	1,624	7,653	...	...	...	...	...	...	...	...	...	...
Mongolia	13	207	250	408	573	696	1,469	1,315	5,445	8,507	10,368	5,478
Taipei,China	464	428	132	...	...	...	...	...	...	...	...	...
South Asia												
Bangladesh	1,874	1,205	1,458	1,949	2,455	2,302	3,976	2,624	2,294	2,630	3,979	5,281
Bhutan	47	69	72	154	134	157	68	117	295	354	469	410
India	4,982	4,923	10,667	20,862	50,820	91,940	44,853	77,418	84,734	55,648	76,700	87,085
Maldives	29	68	39	136	142	217	301	267	362	508	306	405
Nepal	391	428	336	550	489	573	790	894	871	1,001	869	995
Sri Lanka	685	769	638	1,486	1,217	1,993	1,311	1,831	2,209	3,358	3,635	4,361
Southeast Asia												
Brunei Darussalam	1	36	...	175	88	258	222	326	626	1,208	859	895
Cambodia	41	676	521	936	1,121	1,539	1,725	1,301	1,682	1,875	2,865	2,524
Indonesia	5,987	10,026	-8,401	7,810	10,423	11,473	17,227	18,104	29,155	35,934	44,012	41,442
Lao PDR	228	373	297	634	784	1,522	1,163	1,191	795	1,556	1,450	2,275
Malaysia	1,014	8,362	5,654	5,981	14,750	10,928	2,757	4,555	18,358	21,503	27,598	22,340
Myanmar	329	503	354	378	417	911	1,401	1,434	1,290	2,914	1,862	7,072
Philippines	2,175	2,236	4,117	2,278	4,006	3,601	-1,371	6,047	5,127	5,289	8,702	6,424
Singapore	3,216	4,307	8,393	...	...	...	...	...	...	...	...	...
Thailand	4,892	11,004	-413	14,060	17,294	14,174	3,099	8,447	20,053	11,417	29,427	20,020
Viet Nam	279	2,769	2,114	4,457	5,384	15,773	12,135	12,513	17,242	13,428	16,733	18,354
The Pacific												
Cook Islands	17	40	-27	-22	35	10	6	7	13	36	21	18
Fiji	102	105	22	234	581	436	404	218	458	649	443	296
Kiribati	20	15	18	29	26	19	27	29	23	67	65	65
Marshall Islands	...	39	57	57	55	52	53	59	91	83	76	94
Micronesia, Fed. States of	...	77	102	107	109	131	143	130	128	734	120	235
Nauru	1	3	2	12	17	26	33	26	28	38	36	29
Palau	...	142	57	25	39	25	41	35	29	34	37	38
Papua New Guinea	738	508	396	482	314	118	396	850	2,957	7,403	11,104	-793
Samoa	52	45	23	46	69	53	104	93	173	136	173	147
Solomon Islands	49	54	80	194	239	326	314	336	593	488	371	304
Timor-Leste	-5	9	231	185	145	278	280	218	287	279	286	264
Tonga	30	39	25	38	32	60	37	55	117	133	89	92
Tuvalu	5	8	0	9	19	11	18	20	15	39	24	27
Vanuatu	63	77	66	53	92	95	140	146	149	151	139	123
DEVELOPING MEMBER ECONOMIES[b]	**45,184**	**117,044**	**78,015**	**227,766**	**355,228**	**426,992**	**358,868**	**382,107**	**566,129**	**576,882**	**623,620**	**682,747**
DEVELOPING ECONOMIES[c]	**105,881**	**228,358**	**218,777**	**505,952**	**754,164**	**963,959**	**859,328**	**773,783**	**1,019,159**	**1,090,839**	**1,169,245**	**1,301,937**

... = data not available at cutoff date, 0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Refers to the sum of official and net private flows. However, data for 2010 official flows only include net flows of long-term public and publicly guaranteed debt from official creditors for economies whose data were sourced from the International Debt Statistics Online.

b For reporting economies only.

c Includes data for all developing economies as reported in World Bank's International Debt Statistics Online. For developing member economies not covered by the World Bank, data are from the Organisation for Economic Co-operation and Development's Geographical Distribution of Financial Flows to Aid Recipients.

Sources: World Bank. International Debt Statistics Online. http://data.worldbank.org/data-catalog/international-debt-statistics (accessed 27 July 2015); and for Afghanistan; Brunei Darussalam; the Cook Islands; Hong Kong, China; Kiribati; the Republic of Korea; the Marshall Islands, the Federated States of Micronesia; Nauru; Palau; Singapore; Taipei,China; Timor-Leste; and Tuvalu: Organisation for Economic Co-operation and Development (OECD). Stat Extracts Online. http://stats.oecd.org (accessed 28 July 2015).

External Indebtedness

Table 4.19: Total External Debt of Developing Member Economies[a]

($ million)

Regional Member	Total External Debt						External Debt, Public and Publicly Guaranteed					
	1990	1995	2000	2005	2010	2013	1990	1995	2000	2005	2010	2013
Developing Member Economies												
Central and West Asia												
Afghanistan[b]	...	...	...	969	2,423	2,577	...	...	...	911	1,966	2,097
Armenia	...	371	1,010	1,968	6,280	8,677	...	298	675	923	2,557	3,312
Azerbaijan	...	321	1,524	2,118	7,029	9,219	...	206	734	1,362	3,711	6,075
Georgia	...	1,240	1,826	2,151	9,519	13,694	...	1,039	1,274	1,531	4,141	4,986
Kazakhstan	...	3,750	12,890	43,857	119,145	148,456	...	2,834	3,623	2,177	3,845	12,246
Kyrgyz Republic	...	609	1,938	2,257	4,114	6,804	...	472	1,220	1,665	2,442	2,945
Pakistan	20,589	30,169	32,954	34,018	61,960	56,461	16,432	23,727	27,124	30,089	43,402	43,303
Tajikistan	...	634	1,141	1,121	3,082	3,538	...	590	755	826	1,806	2,016
Turkmenistan	...	402	2,609	1,158	529	502	...	385	2,271	878	359	281
Uzbekistan	...	1,799	4,980	4,656	7,782	10,605	...	1,415	3,762	3,626	3,410	4,303
East Asia												
China, People's Rep. of	55,301	118,090	145,648	281,114	559,772	874,463	45,515	94,674	94,470	82,016	90,637	78,211
Hong Kong, China[c,d]	12,339	29,177	208,260	470,288	879,034	1,160,738	...	...	...	...	...	...
Korea, Rep. of	34,968	113,002	135,208	161,956	355,911	423,505	18,768	25,799	52,128	39,665	120,636	172,269
Mongolia	...	531	960	1,396	5,928	18,921	...	472	833	1,267	1,782	3,568
Taipei,China[c]	17,703	27,077	34,757	86,732	101,581	170,134	898	305	23	222	8,035	2,307
South Asia												
Bangladesh	12,285	15,726	15,596	18,449	25,752	27,804	11,504	14,905	14,985	17,385	21,400	24,850
Bhutan	84	106	212	657	868	1,480	80	105	202	636	852	1,465
India	85,661	95,174	101,130	121,195	291,651	427,562	72,858	81,091	81,195	54,726	101,786	132,109
Maldives	78	155	206	362	994	821	64	152	185	300	628	748
Nepal	1,627	2,410	2,878	3,191	3,789	3,833	1,559	2,339	2,826	3,112	3,509	3,572
Sri Lanka	5,865	8,396	9,173	11,472	19,898	25,168	4,948	7,175	7,868	9,609	16,473	22,397
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	1,845	2,281	2,648	3,525	3,755	6,427	1,683	2,107	2,328	3,141	3,345	5,064
Indonesia	69,848	124,389	143,655	141,820	198,268	259,069	47,959	65,299	69,649	77,405	103,388	114,074
Lao PDR	1,766	2,155	2,520	2,912	5,723	8,615	1,757	2,091	2,459	1,989	3,007	4,335
Malaysia	15,330	34,343	41,946	64,911	135,800	213,129	11,593	16,023	19,125	34,387	61,858	70,365
Myanmar	4,271	6,747	5,916	6,888	8,189	7,367	4,156	6,356	5,347	6,033	6,757	6,095
Philippines	30,580	39,379	58,456	58,693	60,775	60,609	24,040	28,525	33,744	35,364	44,727	38,697
Singapore	3,772	8,368	220,298	300,359	...	...	...	...	...	...	...	...
Thailand	28,094	100,039	79,830	58,600	106,323	135,379	12,460	16,826	29,463	17,585	21,172	34,014
Viet Nam	23,270	25,428	12,859	19,039	44,923	65,461	21,378	21,778	11,558	16,193	32,764	42,918
The Pacific												
Cook Islands	1	25	55	71	76	84	...	...	...	...	...	...
Fiji	308	178	182	196	553	797	296	163	172	185	388	654
Kiribati	3	7	8	11	18	14	...	...	...	...	...	...
Marshall Islands	72	149	105	92	105	97	...	...	...	...	...	...
Micronesia, Fed. States of	20	120	63	62	84	87	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	58	60	68	...	...	...	...	...	...	...
Papua New Guinea	2,594	2,506	2,305	1,896	5,965	21,733	1,523	1,668	1,454	1,264	1,042	2,733
Samoa	92	160	139	169	325	447	91	160	138	167	299	412
Solomon Islands	120	159	156	167	231	204	103	100	121	144	125	101
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	44	63	74	89	154	199	44	63	65	80	144	189
Tuvalu[b]	...	...	4	10	16	14	...	...	...	...	...	...
Vanuatu	38	49	96	105	173	132	29	44	73	72	99	84
DEVELOPING MEMBER COUNTRIES[e]	**428,570**	**795,679**	**1,286,274**	**1,910,761**	**3,038,566**	**4,174,822**	**299,740**	**419,189**	**471,849**	**446,934**	**712,492**	**842,796**
DEVELOPING ECONOMIES[f]	**1,262,026**	**1,920,882**	**2,562,790**	**3,371,644**	**5,446,331**	**7,261,043**	**1,212,815**	**1,769,062**	**2,016,123**	**2,391,889**	**4,238,108**	**5,680,949**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a Refers to the sum of public and publicly guaranteed long-term debt, private nonguaranteed long-term debt, use of International Monetary Fund credit, and estimated short-term debt.
b Data in 2005 refers to 2006.
c Figures for 1990 are from the Organisation for Economic Co-operation and Development (OECD) where total external debt refers to long-term debt to OECD countries and capital markets, multilateral loans, and long-term debts to non-OECD creditor economies only.
d Data for 1990–2000 and from 2005 on are not comparable due to a change in coverage or compilation methodology.
e For reporting economies only.
f Includes data for all developing economies as reported in the World Bank's Global Development Finance Online. For developing member economies not covered by the World Bank, data are from economy sources.

Sources: World Bank. International Debt Statistics Online. http://data.worldbank.org/data-catalog/international-debt-statistics (accessed 15 June 2015); *Statistical Compendium 2004-1* CD ROM (OECD 2004); and economy sources.

Table 4.20: Total External Debt of Developing Member Economies
(% of GNI)

Regional Member	Total External Debt						External Debt, Public and Publicly Guaranteed					
	1990	1995	2000	2005	2010	2013	1990	1995	2000	2005	2010	2013
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	15.1	12.3	...	...	...	...	0.1	0.1
Armenia	...	25.3	51.4	39.1	65.4	79.4	...	0.2	0.3	0.2	0.3	0.3
Azerbaijan	...	10.6	30.6	18.3	14.2	13.3	...	0.1	0.1	0.1	0.1	0.1
Georgia	...	48.2	57.5	33.2	83.4	86.4	...	0.4	0.4	0.2	0.4	0.3
Kazakhstan	...	18.5	75.7	85.0	92.6	74.6	...	0.1	0.2	0.0	0.0	0.1
Kyrgyz Republic	...	37.5	150.5	95.1	92.5	98.4	...	0.3	0.9	0.7	0.5	0.4
Pakistan	49.3	49.4	45.1	30.4	33.7	22.8	0.4	0.4	0.4	0.3	0.2	0.2
Tajikistan	...	53.6	138.4	50.2	55.4	41.8	...	0.5	0.9	0.4	0.3	0.2
Turkmenistan	...	16.1	95.7	15.4	2.6	1.3	...	0.2	0.8	0.1	0.0	0.0
Uzbekistan	...	13.5	36.8	32.6	19.2	18.1	...	0.1	0.3	0.3	0.1	0.1
East Asia												
China, People's Rep. of	15.5	16.5	12.3	12.5	9.5	9.5	0.1	0.1	0.1	0.0	0.0	0.0
Hong Kong, China[a]	...	20.1	120.3	257.7	376.5	413.1	...	...	...	...	...	...
Korea, Rep. of	12.5	19.7	24.2	18.2	32.5	32.2	6.7	4.7	9.3	4.5	11.0	13.1
Mongolia	...	37.2	84.8	56.5	105.1	176.0	...	0.3	0.7	0.5	0.3	0.3
Taipei,China[b]	10.5	9.7	10.5	23.2	22.1	32.4	0.5	0.1	0.0	0.1	1.7	0.4
South Asia												
Bangladesh	39.9	40.2	31.9	29.1	23.5	19.5	0.4	0.4	0.3	0.3	0.2	0.2
Bhutan	29.7	39.8	48.2	81.3	57.3	83.6	0.3	0.4	0.5	0.8	0.6	0.8
India	26.6	26.2	21.4	14.6	17.3	23.0	0.2	0.2	0.2	0.1	0.1	0.1
Maldives	40.2	40.9	34.7	37.7	54.5	42.0	0.3	0.4	0.3	0.3	0.3	0.4
Nepal	44.7	54.7	52.2	39.1	23.5	19.7	0.4	0.5	0.5	0.4	0.2	0.2
Sri Lanka	73.6	65.3	57.3	47.6	40.6	38.5	0.6	0.6	0.5	0.4	0.3	0.3
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	165.5	67.5	74.9	58.7	35.1	44.4	1.5	0.6	0.7	0.5	0.3	0.3
Indonesia	64.0	63.4	95.6	52.1	28.8	30.8	0.4	0.3	0.5	0.3	0.1	0.1
Lao PDR	204.0	122.6	151.7	109.1	85.2	81.4	2.0	1.2	1.5	0.7	0.4	0.4
Malaysia	36.4	40.6	48.7	47.3	56.7	70.7	0.3	0.2	0.2	0.3	0.3	0.2
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	70.2	51.5	61.6	45.2	22.9	18.6	0.6	0.4	0.4	0.3	0.2	0.1
Singapore	12.4	9.8	16.0	...	...	...	...	...	...	...	...	...
Thailand	33.3	60.5	66.1	34.9	34.8	37.2	0.1	0.1	0.2	0.1	0.1	0.1
Viet Nam	384.0	124.0	38.7	33.7	40.3	40.2	3.5	1.1	0.3	0.3	0.3	0.3
The Pacific												
Cook Islands[b]	1.9	26.6	60.1	38.7	29.7	28.3	...	...	...	...	...	...
Fiji	23.9	9.2	10.6	6.4	17.7	20.7	0.2	0.1	0.1	0.1	0.1	0.2
Kiribati	11.2	...	1.5	11.2	11.3	8.6	...	...	...	...	...	...
Marshall Islands	...	...	71.3	51.6	53.2	42.8	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	26.4	23.9	28.1	25.8	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau[b]	...	...	36.7	28.8	34.7	...	...	...	...	...	...	...
Papua New Guinea	83.8	57.3	69.8	41.8	64.4	148.4	0.5	0.4	0.4	0.3	0.1	0.2
Samoa	55.9	82.6	58.1	43.6	58.9	67.2	0.6	0.8	0.6	0.4	0.5	0.6
Solomon Islands	58.1	49.5	35.9	40.3	45.4	21.2	0.5	0.3	0.3	0.3	0.2	0.1
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	38.2	30.4	38.6	33.6	41.2	41.6	0.4	0.3	0.3	0.3	0.4	0.4
Tuvalu[b]	...	...	29.0	...	49.1	35.8	...	...	...	...	...	...
Vanuatu	23.5	22.6	36.9	28.5	25.5	16.7	0.2	0.2	0.3	0.2	0.1	0.1

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GNI = gross national income, Lao PDR = Lao People's Democratic Republic.

a Data for 1995 and 2000 and from 2005 onward are not comparable due to a change in coverage/compilation methodology.
b For total external debt as percentage of GNI, gross domestic product is used in lieu of GNI.

Sources: World Bank. International Debt Statistics Online. http://data.worldbank.org/data-catalog/international-debt-statistics (accessed 15 June 2015); Asian Development Bank estimates; and economy sources.

External Indebtedness

Table 4.21: Total External Debt of Developing Member Economies

(% of exports of goods, services, and income)

Regional Member	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	110.3	97.0	61.8	61.1	63.9	61.0
Armenia	...	104.7	183.4	101.3	96.8	110.4	122.4	219.7	207.6	209.0	207.3	217.3
Azerbaijan	...	40.4	70.1	25.4	19.2	16.4	13.7	20.4	24.3	21.2	25.2	25.0
Georgia	...	...	181.3	89.1	90.6	79.5	179.8	233.0	207.4	189.3	185.2	169.1
Kazakhstan	...	62.3	123.0	139.8	172.2	173.1	133.4	214.3	174.7	135.5	144.4	163.1
Kyrgyz Republic	...	134.9	328.5	234.4	195.9	139.5	133.3	175.0	170.8	173.7	204.2	217.3
Pakistan	297.1	290.1	321.9	172.2	173.7	180.3	185.1	245.8	215.6	198.9	190.7	184.7
Tajikistan	...	...	...	88.7	64.4	77.8	140.3	217.6	342.8	277.3	216.2	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of	91.6	77.5	49.9	34.7	31.2	27.8	23.6	32.6	31.3	33.3	31.9	34.3
Hong Kong, China[a]	...	...	76.8	121.2	122.8	147.3	126.6	147.6	149.2	148.1	145.6	152.0
Korea, Rep. of[a]	45.4	74.3	64.6	46.5	57.1	71.2	57.9	76.2	62.5	56.7	55.5	56.3
Mongolia	...	103.8	153.2	93.5	73.0	67.4	71.7	128.6	173.2	175.6	284.8	376.1
Taipei,China[a]	21.8	19.8	19.3	36.1	31.7	31.3	28.8	32.2	30.2	32.5	35.0	44.8
South Asia												
Bangladesh	577.3	334.5	213.9	162.9	151.4	140.6	129.7	139.7	108.4	96.0	92.7	87.7
Bhutan	...	...	...	...	188.8	120.8	100.8	121.4	143.0	133.2	190.2	215.9
India	366.9	241.0	161.9	75.6	79.2	80.7	70.8	93.3	81.5	73.8	87.1	89.3
Maldives	42.4	48.0	44.1	73.1	70.2	45.4	45.3	56.2	49.4	39.9	34.8	28.9
Nepal	363.7	224.7	212.5	224.2	244.5	217.7	190.0	215.6	212.4	178.0	175.1	153.3
Sri Lanka	245.8	173.4	140.5	144.1	136.0	146.7	152.0	178.5	174.2	156.4	171.5	165.3
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	233.0	139.9	86.1	68.9	57.7	62.0	68.6	62.3	55.7	63.6	63.7
Indonesia	235.1	229.4	196.6	145.4	120.9	116.1	104.4	139.7	117.6	101.9	115.1	124.8
Lao PDR	1,688.4	519.1	490.9	382.0	311.7	370.3	339.6	388.3	248.0	274.1	251.8	276.3
Malaysia	44.4	39.9	36.7	38.9	36.7	38.8	44.2	60.5	55.8	52.1	69.9	77.8
Myanmar	1,328.2	515.2	275.8	179.5	146.8	113.9	115.8	120.1	104.3	96.7	84.9	63.9
Philippines	234.7	119.8	132.7	152.4	120.1	110.1	106.3	112.2	99.2	94.2	81.8	80.3
Singapore[a,b]	5.1	4.9	112.0	94.7	82.3	...	...	...	...	...	...	...
Thailand	89.8	135.0	92.8	44.5	40.1	33.5	31.0	43.4	46.0	41.1	47.4	46.4
Viet Nam	...	...	73.6	51.5	40.9	41.8	37.3	52.0	56.0	50.0	47.5	45.8
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	35.0	15.6	17.8	11.6	22.7	22.2	18.7	36.1	29.1	36.9	29.1	34.2
Kiribati[a]	8.9	14.7	15.7	17.6	20.3	17.4	16.5	18.4	19.3	14.6	11.3	...
Marshall Islands[a]	...	239.5	144.4	104.7	106.3	116.7	111.7	108.0	107.1	81.7	75.3	71.1
Micronesia, Fed. States of[a]	...	169.1	150.8	147.7	138.3	114.2	120.9	141.2	123.0	116.2	93.2	99.9
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau[a]	...	...	87.0	71.5	68.3	75.2	66.6	79.7	71.0	55.6	57.4	...
Papua New Guinea	174.4	83.1	97.3	52.0	40.1	27.8	22.9	38.6	97.8	170.5	337.4	...
Samoa	179.2	231.6	...	114.8	107.3	99.6	107.2	139.4	154.5	169.3	168.7	183.1
Solomon Islands	123.2	75.1	121.3	108.1	99.6	76.5	59.6	72.6	69.2	45.7	35.2	34.0
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	102.3	...	...	151.0	215.3	174.5	164.7	214.5	220.6	192.2	173.3	...
Tuvalu[a]	...	...	85.9	...	54.9	56.9	58.3	57.0	65.0	67.6	48.1	47.3
Vanuatu	36.1	39.8	54.4	51.5	50.0	48.4	48.1	46.9	47.4	51.0	89.2	32.4

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a External debt as percent of exports of goods, services, and income was derived using data from the balance-of-payments.
b Data for 1990 and 1995 and from 2000 onward are not comparable due to a change in coverage or compilation methodology.

Sources: World Bank. International Debt Statistics Online. http://data.worldbank.org/data-catalog/international-debt-statistics (accessed 8 June 2015); Asian Development Bank estimates; and economy sources.

Table 4.22: Total Debt Service Paid

Regional Member	Debt Service Payment ($ million)						Debt Service Payment (% of exports of goods, services, and income)					
	1990	1995	2000	2005	2010	2013	1990	1995	2000	2005	2010	2013
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	10	25	...	...	...	...	0.3	0.6
Armenia	...	11	51	142	968	2,027	...	3.2	9.2	7.3	32.0	50.8
Azerbaijan	...	10	138	222	416	2,498	...	1.3	6.4	2.7	1.4	6.8
Georgia	...	20	126	195	803	1,780	...	...	12.5	8.1	17.5	22.0
Kazakhstan	...	235	3,392	13,158	39,474	30,904	...	3.9	32.4	41.9	57.9	34.0
Kyrgyz Republic	...	60	178	143	557	388	...	13.3	30.2	14.8	23.1	12.4
Pakistan	1,902	3,216	2,864	2,451	4,282	8,032	27.4	30.9	28.0	12.4	14.9	26.3
Tajikistan	...	0	68	73	686	427	...	...	...	5.8	76.3	...
Turkmenistan	...	104	472	310	155	49	...	...	...	...	...	...
Uzbekistan	...	245	901	795	618	702	...	...	...	...	...	...
East Asia												
China, People's Rep. of	7,057	15,066	26,607	27,404	60,389	38,678	11.7	9.9	9.1	3.4	3.4	1.5
Hong Kong, China[a]	1,700	3,159	...	...	...	...	...	...	...	...	...	...
Korea, Rep. of[a]	8,274	11,870	22,905	7,224	2,843	...	10.7	7.8	10.9	2.1	0.5	...
Mongolia	...	52	41	45	239	1,402	...	10.2	6.6	3.0	7.0	27.9
Taipei,China[a]	1,715	2,677	45	11,006	3,630	7,233	2.1	2.0	0.0	4.6	1.1	1.9
South Asia												
Bangladesh	735	755	769	801	1,027	1,644	34.6	16.1	10.5	7.1	4.3	5.2
Bhutan	5	10	7	7	84	75	...	...	...	...	13.9	11.0
India	8,141	13,607	10,959	23,922	24,413	41,125	34.9	34.4	17.5	14.9	6.8	8.6
Maldives	9	11	20	31	81	72	4.8	3.4	4.2	6.3	4.0	2.5
Nepal	68	85	102	120	189	218	15.2	7.9	7.5	8.4	10.6	8.7
Sri Lanka	385	452	791	422	1,396	1,805	16.1	9.3	12.1	5.3	12.2	11.9
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	30	7	32	33	63	155	...	0.7	1.7	0.8	1.0	1.5
Indonesia	9,946	16,418	16,638	20,258	29,342	40,276	33.5	30.3	22.8	20.8	17.4	19.4
Lao PDR	9	25	41	133	305	303	8.5	6.1	8.0	17.4	13.2	9.7
Malaysia	4,334	6,041	6,441	9,381	5,575	9,602	12.6	7.0	5.6	5.6	2.3	3.5
Myanmar	193	164	90	5	6	943	60.0	12.6	4.2	0.1	0.1	8.2
Philippines	3,590	5,363	7,066	9,528	11,461	5,850	27.6	16.3	16.0	24.7	18.7	7.7
Singapore[a]	525	1,349	...	...	...	...	0.7	0.8	...	...	...	...
Thailand	5,290	8,586	13,996	18,044	10,964	12,885	16.9	11.6	16.3	13.7	4.7	4.4
Viet Nam	174	364	1,310	969	1,873	5,071	...	...	7.5	2.6	2.3	3.5
The Pacific												
Cook Islands[a]	0	1	1	3	2	...	2.5	26.0	12.8	52.0	47.9	41.1
Fiji	81	42	25	14	24	44	9.1	3.7	2.4	0.8	1.2	1.9
Kiribati	...	1	1	1	1	1	...	3.0	1.7	1.9	0.6	...
Marshall Islands	14	20	22	4	9	6	39.8	31.8	30.5	5.1	8.8	4.6
Micronesia, Fed. States of	–	18	23	2	4	5	...	26.1	54.2	5.9	6.3	5.7
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	553	626	305	308	812	4,443	37.2	20.8	12.9	8.4	13.3	...
Samoa	5	5	6	6	11	15	10.6	6.6	...	3.9	5.0	6.1
Solomon Islands	12	8	9	14	21	44	11.8	3.8	7.1	9.1	6.2	7.4
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	2	3	5	5	5	6	3.5	...	...	8.8	7.2	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	2	2	3	3	6	8	2.3	1.3	1.6	1.6	1.6	1.9

... = data not available at cutoff date, 0 or 0.0 = magnitude is less than half of unit employed, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic.

a Refers to principal repayments on long-term debts plus interests on short-term and long-term debts.

Sources: World Bank. International Debt Statistics Online. http://data.worldbank.org/data-catalog/international-debt-statistics (accessed 8 June 2015); Asian Development Bank estimates; and economy sources.

Table 4.23: International Tourist Arrivals[a]

(thousand)

Regional Member	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia[b]	**821**	**2,828**	**6,086**	**7,745**	**9,578**	**10,665**	**10,415**	**8,967**	**11,171**	**12,918**	**15,250**	**12,991**
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	12	45	319	382	511	558	575	687	758	963	1,084	1,204
Azerbaijan	...	...	693	682	732	1,043	1,005	1,280	1,562	1,986	2,130	2,160
Georgia	85	387	560	983	1,052	1,290	1,500	1,067	1,319	1,790	2,065	2,218
Kazakhstan	...	1,471	3,143	3,468	3,876	3,447	3,118	3,196	4,093	4,807	4,926	4,560
Kyrgyz Republic	36	59	319	766	1,656	2,435	2,147	855	2,278	2,406	3,076	2,849
Pakistan	378	557	798	898	840	823	855	907	1,161	966	...	...
Tajikistan	...	4	...	...	...	...	...	...	...	...	...	...
Turkmenistan	218	3	12	6	8	...	...	...	...	...	...	...
Uzbekistan	92	302	242	560	903	1,069	1,215	975	...	...	1,969	...
East Asia[b]	**26,227**	**48,126**	**71,321**	**75,795**	**82,490**	**81,551**	**80,425**	**90,571**	**96,239**	**100,422**	**101,957**	**107,897**
China, People's Rep. of	20,034	31,229	46,809	49,913	54,720	53,049	50,875	55,665	57,581	57,725	55,686	55,622
Hong Kong, China	...	8,814	14,773	15,821	17,154	17,320	16,926	20,085	22,316	23,770	25,661	27,770
Korea, Rep. of	3,753	5,322	6,023	6,155	6,448	6,891	7,818	8,798	9,795	11,140	12,176	14,202
Mongolia	108	137	338	386	452	446	411	456	460	476	418	393
Taipei,China	2,332	2,624	3,378	3,520	3,716	3,845	4,395	5,567	6,087	7,311	8,016	9,910
South Asia[b]	**3,366**	**4,187**	**5,460**	**6,210**	**7,089**	**7,399**	**7,072**	**8,169**	**8,898**	**9,575**	**10,430**	**10,435**
Bangladesh	156	199	208	200	289	467	267	303	...	125	148	...
Bhutan	5	8	14	17	21	28	23	41	66	105	116	...
India	2,124	2,649	3,919	4,447	5,082	5,283	5,168	5,776	6,309	6,578	6,968	7,703
Maldives	315	467	395	602	676	683	656	792	931	958	1,125	1,205
Nepal	363	464	375	384	527	500	510	603	736	803	798	...
Sri Lanka	403	400	549	560	494	438	448	654	856	1,006	1,275	1,527
Southeast Asia[b]	**28,103**	**35,458**	**48,542**	**53,109**	**59,663**	**61,738**	**62,058**	**70,431**	**77,453**	**84,642**	**94,204**	**93,801**
Brunei Darussalam	...	...	126	158	179	226	157	214	242	209	225	...
Cambodia	...	...	1,333	1,591	1,873	2,001	2,046	2,508	2,882	3,584	4,210	4,503
Indonesia	4,324	5,064	5,002	4,871	5,506	6,234	6,324	7,003	7,650	8,044	8,802	9,435
Lao PDR	60	191	672	842	1,142	1,295	1,239	1,670	1,786	2,140	2,510	...
Malaysia	7,469	10,222	16,431	17,547	20,973	22,052	23,646	24,577	24,714	25,033	25,715	27,437
Myanmar	117	208	232	264	248	193	243	792	391	1,059	2,044	3,081
Philippines	1,760	1,992	2,623	2,843	3,092	3,139	3,017	3,520	3,917	4,273	4,681	4,833
Singapore	6,070	6,062	7,079	7,588	7,957	7,778	7,489	9,161	10,390	11,098	11,898	11,858
Thailand	6,952	9,579	11,567	13,822	14,464	14,584	14,150	15,936	19,230	22,354	26,547	24,780
Viet Nam	1,351	2,140	3,477	3,583	4,229	4,236	3,747	5,050	6,251	6,848	7,572	7,874
The Pacific[b]	**625**	**701**	**1,031**	**1,074**	**1,143**	**1,221**	**1,188**	**1,346**	**1,405**	**1,484**	**1,492**	**1,160**
Cook Islands	48	73	88	92	97	95	101	104	113	122	121	121
Fiji	318	294	545	549	540	585	542	632	675	661	658	693
Kiribati	4	5	4	4	5	4	4	5	5	5	6	...
Marshall Islands	6	5	9	6	7	6	5	5	5	5	5	...
Micronesia, Fed. States of	...	21	19	19	21	26	...	45	...	38	42	35
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	53	58	81	82	88	79	72	86	109	119	105	141
Papua New Guinea	42	58	69	78	104	114	126	140	163	168	174	...
Samoa	68	88	102	110	117	118	122	122	121	126	116	...
Solomon Islands	12	5	9	11	14	16	18	21	23	24	24	...
Timor-Leste	...	...	...	14	22	36	44	40	50	58	79	60
Tonga	29	35	42	39	46	49	51	47	46	49	51	...
Tuvalu	1	1	1	1	1	2	2	2	1	1	1	1
Vanuatu	44	58	62	68	81	91	101	97	94	108	110	109
Developed Member Economies[b]	**8,480**	**11,475**	**14,592**	**15,275**	**16,446**	**16,384**	**14,822**	**16,836**	**14,501**	**16,863**	**19,375**	**20,281**
Australia	3,726	4,931	5,499	5,532	5,644	5,586	5,584	5,790	5,771	6,032	6,382	6,868
Japan	3,345	4,757	6,728	7,334	8,347	8,351	6,790	8,611	6,219	8,358	10,364	13,413
New Zealand	1,409	1,787	2,365	2,409	2,455	2,447	2,448	2,435	2,511	2,473	2,629	...
DEVELOPING MEMBER ECONOMIES[b]	**59,142**	**91,300**	**132,440**	**143,933**	**159,963**	**162,574**	**161,158**	**179,484**	**195,166**	**209,041**	**223,333**	**226,284**
REGIONAL MEMBERS[b]	**67,622**	**102,775**	**147,032**	**159,208**	**176,409**	**178,958**	**175,980**	**196,320**	**209,667**	**225,904**	**242,708**	**246,565**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a For Australia; Japan; the Republic of Korea; Kyrgyz Republic; Taipei,China; and Viet Nam, data refer to international visitor arrivals at frontiers (including tourists and same-day visitors). For the rest of the economies, data refer to international tourist arrivals at frontiers (excluding same-day visitors).

b For reporting economies only.

Source: World Tourism Organization (UNWTO). *Tourism Highlights, 2015 Edition*. http://mkt.unwto.org/publication/unwto-tourism-highlights (accessed 24 June 2015).

Table 4.24: International Tourism Receipts

($ million)

Regional Member	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia[a]	**308**	**677**	**1,525**	**2,006**	**2,556**	**2,878**	**2,958**	**3,377**	**4,986**	**6,477**	**6,764**	**6,801**
Afghanistan	...	...	...	...	...	...	...	55	71	56	56	...
Armenia	1	38	220	271	305	331	334	411	448	454	458	978
Azerbaijan	70	63	78	117	178	190	353	657	1,287	2,433	2,365	2,432
Georgia	...	97	241	313	384	447	476	659	955	1,411	1,720	1,787
Kazakhstan	122	356	701	838	1,013	1,012	963	1,005	1,209	1,347	1,344	1,321
Kyrgyz Republic	5	15	73	167	346	514	459	160	640	434	530	...
Pakistan	110	81	182	255	276	316	272	305	373	339	288	283
Tajikistan	...	...	2	2	3	4	2	4	3	3	3	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	27	28	43	51	64	99	121	...	...	...	...
East Asia[a]	**26,792**	**32,707**	**50,435**	**56,559**	**62,462**	**72,105**	**72,953**	**87,307**	**100,678**	**108,743**	**117,739**	**128,227**
China, People's Rep. of	8,730	16,231	29,296	33,949	37,233	40,843	39,675	45,814	48,464	50,028	51,664	56,913
Hong Kong, China	9,604	5,868	10,179	11,461	13,566	15,304	16,408	22,200	28,455	33,074	38,934	38,376
Korea, Rep. of	5,150	6,834	5,806	5,788	6,138	9,774	9,819	10,328	12,476	13,429	14,629	18,147
Mongolia	21	36	177	225	312	247	235	244	218	442	189	173
Taipei,China	3,287	3,738	4,977	5,136	5,213	5,937	6,816	8,721	11,065	11,770	12,323	14,618
South Asia[a]	**3,226**	**4,247**	**8,429**	**9,787**	**12,021**	**13,285**	**12,608**	**17,244**	**20,926**	**21,479**	**23,094**	**25,358**
Bangladesh	25	50	70	80	76	75	70	87	87	105	128	...
Bhutan	5	10	19	23	28	36	32	35	48	61	83	89
India	2,582	3,460	7,493	8,634	10,730	11,832	11,136	14,490	17,707	17,971	18,397	19,700
Maldives	211	321	287	512	602	664	608	1,713	1,868	1,951	2,333	2,661
Nepal	177	158	131	128	200	336	412	343	386	352	438	477
Sri Lanka	226	248	429	410	385	342	350	576	830	1,039	1,715	2,431
Southeast Asia[a]	**26,235**	**25,347**	**34,953**	**43,555**	**55,472**	**59,777**	**53,834**	**68,423**	**84,594**	**95,823**	**107,820**	**105,000**
Brunei Darussalam	...	...	191	224	233	242	254	...	...	92	...	...
Cambodia	53	304	840	963	1,135	1,219	1,082	1,519	2,084	2,462	2,659	2,953
Indonesia	5,229	4,975	4,522	4,448	5,346	7,378	5,598	6,958	7,997	8,324	9,119	9,848
Lao PDR	51	114	139	158	189	276	268	382	406	451	596	642
Malaysia	3,969	5,011	8,846	10,427	14,050	15,277	15,772	18,115	19,656	20,250	21,496	21,820
Myanmar	151	162	68	46	86	69	56	72	281	539	929	...
Philippines	1,136	2,156	2,265	3,501	4,933	2,499	2,330	2,645	3,190	4,061	4,690	4,767
Singapore	7,611	5,142	6,205	7,545	9,083	10,714	9,368	14,178	18,086	18,939	19,301	19,203
Thailand	8,035	7,483	9,577	13,393	16,667	18,173	16,056	20,104	27,184	33,855	41,780	38,437
Viet Nam	...	...	2,300	2,850	3,750	3,930	3,050	4,450	5,710	6,850	7,250	7,330
The Pacific[a]	**455**	**416**	**883**	**944**	**1,041**	**981**	**835**	**1,289**	**1,328**	**1,399**	**1,324**	**986**
Cook Islands	28	36	91	90	107	105	103	110	...	...	...	...
Fiji	291	189	485	480	499	547	422	634	724	729	719	751
Kiribati	2	3	3	2	4	3	3	4	...	3	...	...
Marshall Islands	3	3	6	7	5	3	4	4	4	4	...	...
Micronesia, Fed. States of	...	17	17	19	20	22	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	53	97	99	113	117	113	91	115	133	112	...
Papua New Guinea	25	7	4	4	4	2	1	2	5	2	...	...
Samoa	35	41	79	90	103	112	116	123	134	148	136	145
Solomon Islands	16	4	2	26	27	37	44	44	71	54	61	55
Timor-Leste	...	...	...	20	26	14	13	31	21	21	29	35
Tonga	10	7	15	16	14	19	16	27	28	41	...	...
Tuvalu	...	...	...	...	...	...	...	2	...	3	2	...
Vanuatu	45	56	85	92	119	...	...	217	226	261	265	...
Developed Member Economies[a]	**13,672**	**14,934**	**34,489**	**31,102**	**37,067**	**40,613**	**40,276**	**48,319**	**49,642**	**53,602**	**53,857**	**59,339**
Australia	8,130	9,289	16,848	17,840	22,308	24,755	25,385	28,598	31,335	31,898	31,254	32,022
Japan	3,224	3,373	12,430	8,470	9,345	10,821	10,305	13,199	10,966	14,576	15,131	18,853
New Zealand	2,318	2,272	5,211	4,792	5,414	5,037	4,586	6,522	7,341	7,128	7,472	8,464
DEVELOPING MEMBER ECONOMIES[a]	**57,016**	**63,394**	**96,225**	**112,851**	**133,553**	**149,026**	**143,188**	**177,640**	**212,512**	**233,921**	**256,741**	**266,372**
REGIONAL MEMBERS[a]	**70,688**	**78,328**	**130,714**	**143,953**	**170,620**	**189,639**	**183,464**	**225,959**	**262,154**	**287,523**	**310,598**	**325,711**

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a For reporting economies only.

Source: World Tourism Organization (UNWTO). *Tourism Highlights, 2015 Edition*. http://mkt.unwto.org/publication/unwto-tourism-highlights (accessed 24 June 2015).

Transport and Communications

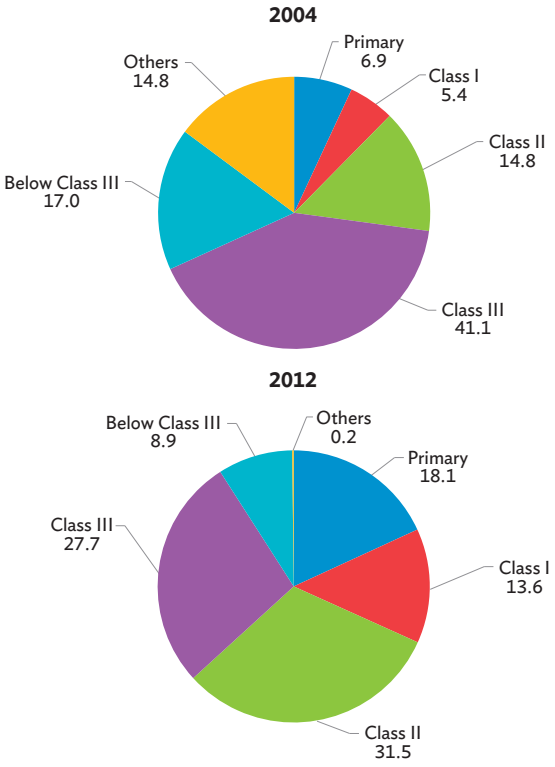
Snapshots

- The share of Primary and Class I roads in highway networks in Asia and the Pacific increased from 12% to 32% between 2004 and 2012.
- The number of vehicles has surged in the region. Nineteen economies have at least 100 vehicles per 1,000 people. The increase in the number of registered motor vehicles in many developing economies has been accompanied by a relatively high incidence of fatal road accidents.
- The region's rail networks are heavily concentrated in three economies—the People's Republic of China, India, and Japan.
- The People's Republic of China accounted for nearly half of all container port traffic in Asia and the Pacific in 2013.
- The number of mobile phone subscriptions per 100 people rose in all but three economies in Asia and the Pacific between 2010 and 2014.
- Fixed broadband internet penetration rates have increased throughout the region, but remain low in many economies.

Key trends

The share of Primary and Class I roads in highway networks in Asia and the Pacific increased from 12% to 32% between 2004 and 2012.[1] Roads provide access to employment, markets, education, and health services. The improvement of highway networks, as evidenced by an increased share of Primary and Class I roads among the region's highway networks since 2004 (Figure 5.1), is contributing to the region's economic development.[2] The addition of Primary Class highways in the region between 2004 and 2012 occurred almost entirely in the People's Republic of

Figure 5.1: Distribution of Asian Highway by Class
(%)



Source: Table 5.1.

[1] Primary class highways are access-controlled motorways used exclusively by automobiles. Class I refers to asphalt, cement, or concrete roads with four or more lanes. Class II refers to double bituminous treated roads with two lanes. Class III is regarded as the minimum desirable standard, usually described as a two-lane (narrow) road. Below Class III refers to road sections below the minimum desirable standard. (Source: United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). *ESCAP Online Statistical Database.* http://www.unescap.org/stat/data/statdb/DataExplorer.aspx).

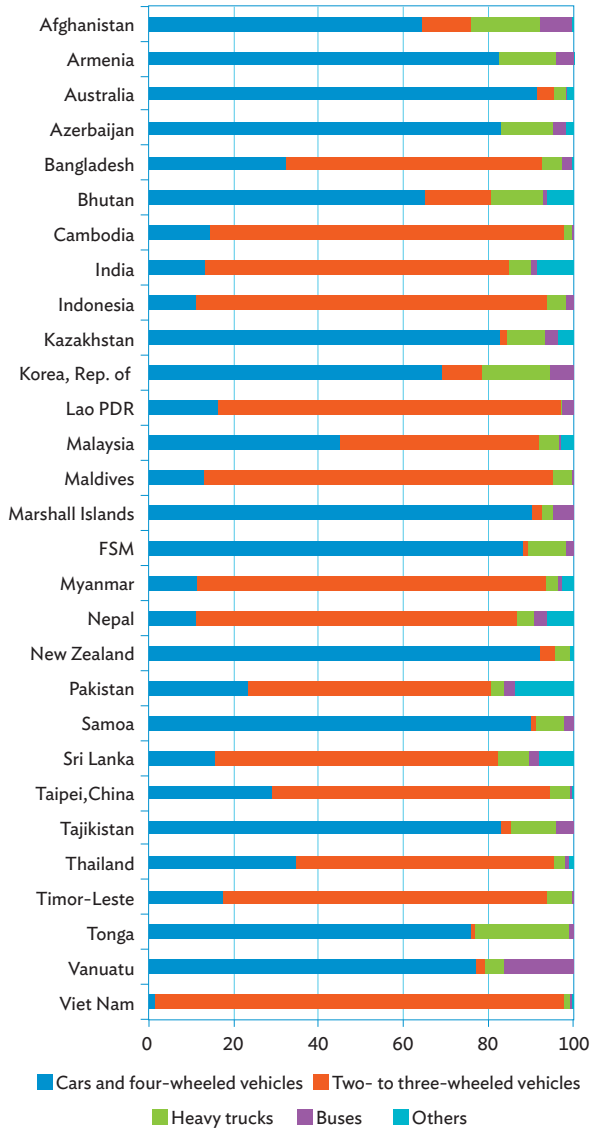
[2] ESCAP. 2013. Review of Developments in Transport in Asia and the Pacific. http://www.unescap.org/sites/default/files/TransportReview_2013_full_text.pdf

China (PRC), which saw a fourfold increase in the number of kilometers of Primary class highways (Table 5.1). Over the same period for which data are available, Class I roads expanded by more than two-thirds of the economies, and Class II roads by more than three-fourths. Meanwhile, the number of kilometers of Class III and below Class III roads declined in more than two-thirds of reporting economies, indicating the upgrading of existing low-quality roads.

The number of vehicles has surged in developing Asian economies. In 1990, only two developing Asian economies recorded 100 or more motor vehicles per 1,000 people.[3] In 2010, or the latest year for which data are available, 19 economies had more than 100 vehicles per 1,000 people (Table 5.2). Taipei,China had the highest number of registered vehicles among developing member economies at 923 per 1,000 people, followed by Brunei Darussalam at 903 and Malaysia at 706. For comparison, the developed economies of Australia, Japan, and New Zealand had registered vehicle rates of 729, 702, and 739, respectively. In Singapore, which imposes high costs on vehicle registration, the number of vehicles per 1,000 people in 2010 was 186, reflecting an annual growth of only 1.0% since 1990.[4]

The primary type of vehicle in each economy—whether cars and other four-wheeled vehicles, or two- and three-wheeled vehicles—depends on a mix of factors such as an economy's level of development and population density, as well as subregional characteristics (Figure 5.2). For example, in developed economies with low population densities—such as Australia and New Zealand—cars and other four-wheeled vehicles comprise about 90% of all registered vehicles. This ratio is only slightly lower in some developing economies in the Pacific (the Marshall Islands, the Federated States of Micronesia, and Samoa) and in Central and West Asia (Armenia, Azerbaijan, Georgia, Kazakhstan, and Tajikistan). In most of Southeast Asia, two- and three-wheeled vehicles are the primary form of motorized transportation, with their share of all registered vehicles exceeding 80% in Cambodia, Indonesia, the Lao People's Democratic Republic, Myanmar, and Viet Nam.

Figure 5.2: Distribution of Registered Vehicles by Type, 2010
(%)



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic.
Source: Table 5.2.

The increase in the number of registered motor vehicles in developing economies has been

[3] International Road Federation. 2013. *IRF World Road Statistics 2013*. Geneva.

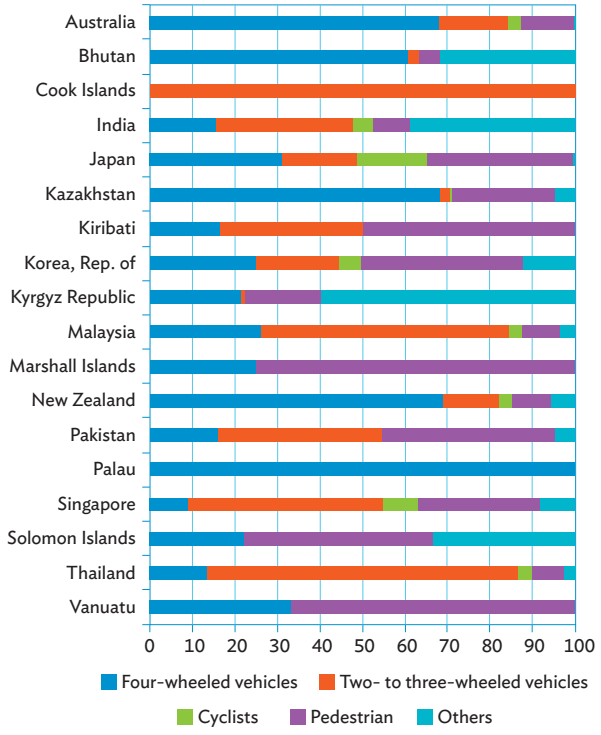
[4] Ibid.

accompanied by a relatively high incidence of fatal road accidents. Twenty-eight out of 35 developing Asian economies had road fatality rates of at least 10 deaths per 100,000 people in 2010, with the highest rates in Thailand (38), and Malaysia and Viet Nam (25 each) (Table 5.3). By contrast, the number of fatalities in developed economies averaged about seven per 100,000 people.

Figure 5.3 provides a breakdown of road deaths by type of vehicle. Notably, the three economies with the highest levels of road traffic deaths per 1,000 people were also among those with the highest percentage of two- and three-wheeled registered vehicles.

According to the Asian Development Bank's Road Safety Action Plan 2012, developing economies' relatively high fatality rates are the result of underdeveloped road networks, mixed traffic, limited availability of traffic engineering expertise, governance issues, and rapid growth of the vehicle fleet, particularly motorcycles.[5] The Asian Development Bank plan quotes estimates that the cost to developing economies from road accidents was about 2.0% of their total gross domestic product in 2007, or cumulative financial losses of $96 billion.

Figure 5.3: Distribution of Road Deaths by Type of Vehicle, 2010
(%)

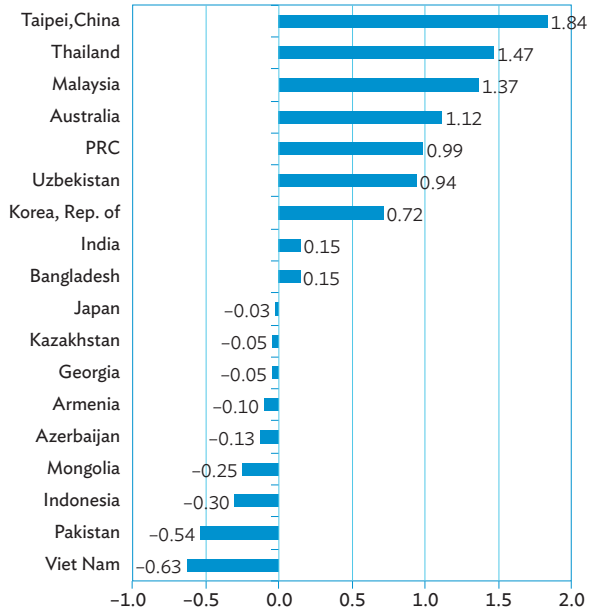


Source: Table 5.3.

The region's rail networks are heavily concentrated in three economies—the PRC, India, and Japan. The PRC invested heavily in railways between 1990 and 2012, extending its rail network density, defined in Table 5.4 as kilometers of rail lines per 1,000 square kilometers, by 24.2%, making its network the largest in the region. India, with the region's largest rail network in 1990 and second-largest in 2012, expanded its rail lines by 3.4% between 1990 and 2012.

Among all regional members, Taipei,China and Thailand extended the length of their rail systems the most extensively between 1990 and 2012 in percentage terms, with increases of 59.7% and 38.0%, respectively, on annual average increases of 1.8% in

Figure 5.4: Average Annual Percentage Increase in Rail Network Density, 1990–2012



PRC = People's Republic of China.
Source: Table 5.4.

5 Asian Development Bank. 2012. *Road Safety Action Plan*. Manila.

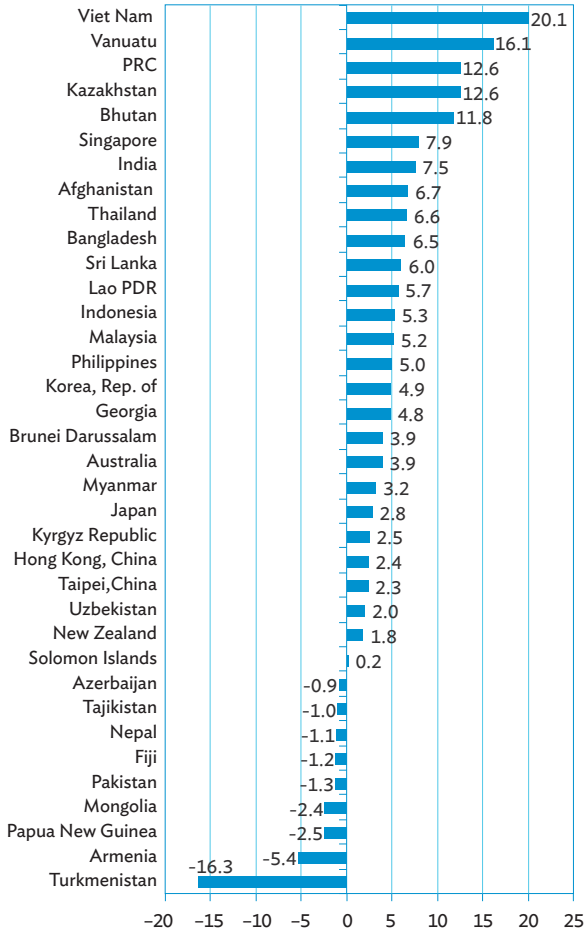
Taipei,China and 1.5% in Thailand (Figure 5.4). Over the same period, the length of rail networks declined in Armenia, Azerbaijan, Georgia, Indonesia, Japan, Kazakhstan, Mongolia, Pakistan, and Viet Nam.

While air traffic has increased significantly in much of East, South, and Southeast Asia since 1990, smaller increases, and even some declines, have been observed in Central and West Asia and the Pacific. The PRC experienced a significant increase in air carrier departures between 1990 and 2014, with the total number of takeoffs rising from 196,000 to 3.4 million (Table 5.6). On an annual average basis, this represented growth of 12.6% per year (Figure 5.5). Only Viet Nam (20.1%) and Vanuatu (16.1%) experienced more rapid annual increases in the total number of takeoffs over this period. At the other end of the spectrum, Mongolia, Nepal, and several economies in both Central and West Asia (Armenia, Azerbaijan, Pakistan, Tajikistan, and Turkmenistan) and the Pacific (Fiji and Papua New Guinea) had lower levels of air traffic in 2014 than in 1990.

The PRC accounted for nearly half of all container port traffic in Asia and the Pacific in 2013. At 174.1 million twenty-foot equivalent units (teu), container port traffic in the PRC in 2013 was nearly equal to the sum of all such traffic in the rest of Asia and the Pacific combined (Figure 5.6). The next largest amounts were in Singapore (33.5 million teu) and the Republic of Korea (22.6 million teu). Between 2000 and 2013, container port traffic rose in all 14 economies for which data are available.

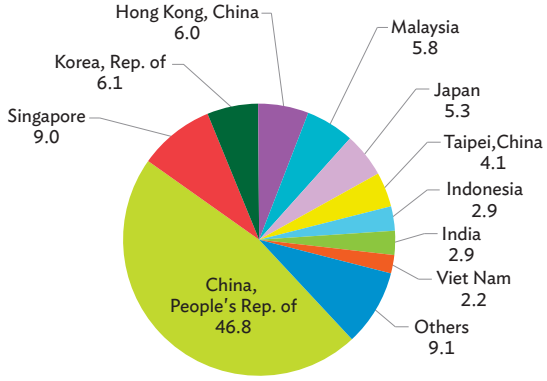
The number of mobile phone subscriptions per 100 people rose in all but three economies in Asia and the Pacific between 2010 and 2014. Figure 5.7 shows very high levels of mobile phone subscriptions per 100 people in Hong Kong, China (239); the Maldives (189); and Kazakhstan (169). Twenty-three out of 44 economies had a ratio of mobile phone subscriptions per 100 people greater

Figure 5.5: Average Annual Percentage Increase in Air Carrier Departures, 1990–2014[a]
(%)



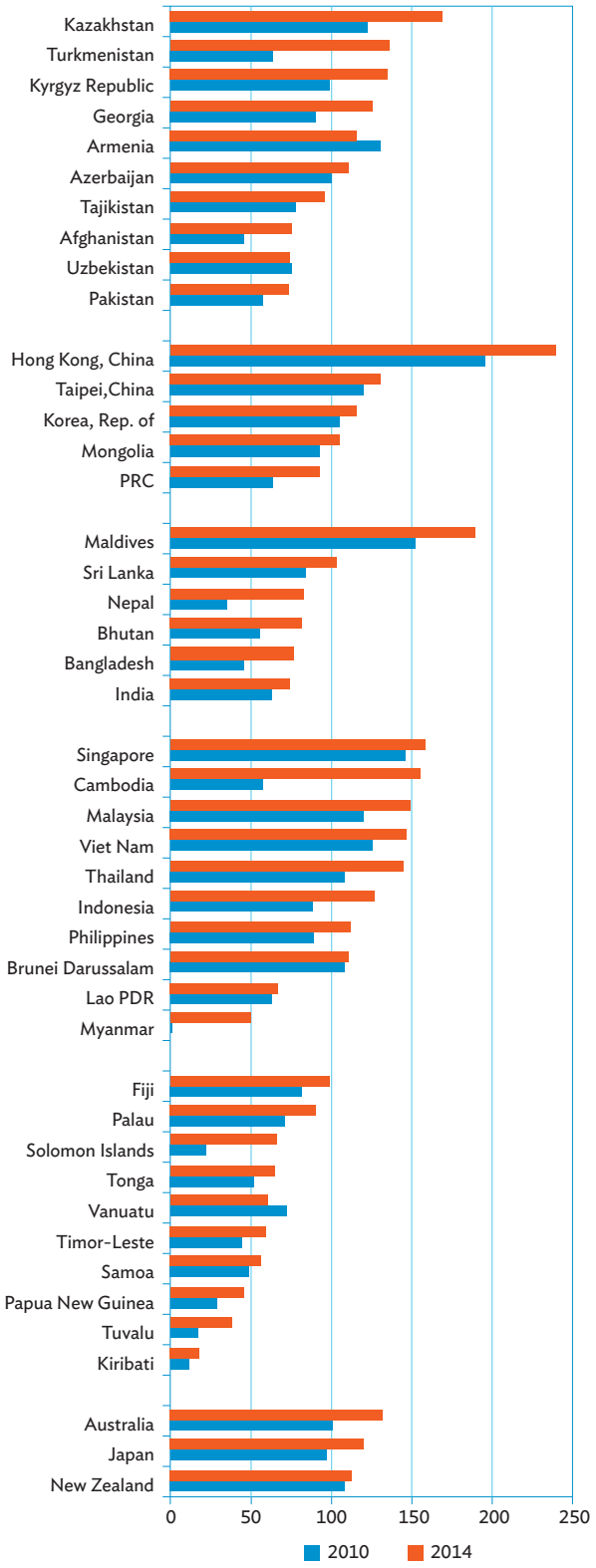
Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
[a] Refer to Table 5.6 for the specific time period in each developing member country.
Source: Table 5.6.

Figure 5.6: Share of Container Port Traffic in Asia and the Pacific, 2013
(%)



Source: Table 5.7.

Figure 5.7: Mobile Phone Subscriptions per 100 People, 2010 and 2014



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 5.9.

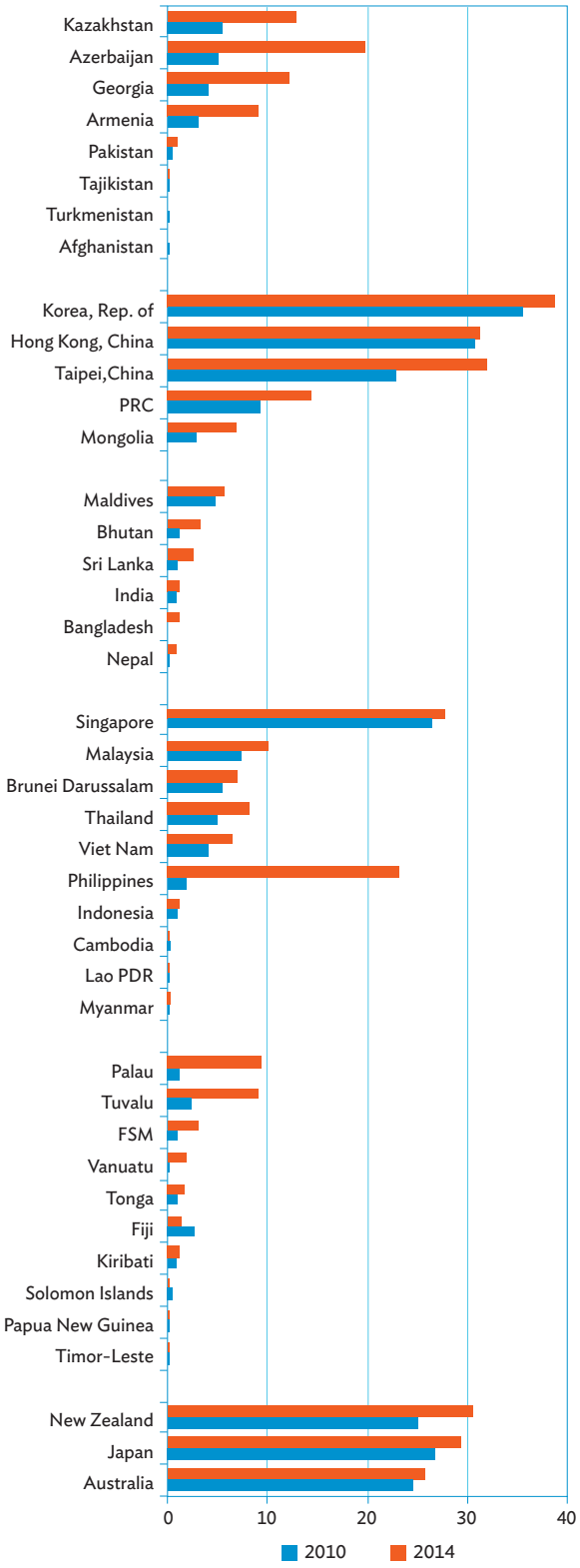
than 1:1. In terms of percentage increase in mobile phone subscriptions between 2010 and 2014, Myanmar, coming from a very low base, exceeded all other economies by a wide margin (4,225.1%), followed by the Solomon Islands (199.7%) and Cambodia (173.4%) (Table 5.9). The only economies to experience a decline in mobile phone subscription rates between 2010 and 2014 were Vanuatu (–16.0%), Armenia (–11.1%), and Uzbekistan (–2.2%)

Fixed broadband internet penetration rates have increased throughout the region, but remain low in many economies. Although the number of fixed broadband internet subscriptions per 100 people soared in many economies between 2010 and 2014, the average penetration level in 2014 among developing member economies of 7.3 was below the global average of 10.8 (Table 5.9).[6] While all of the region's high-income economies except Brunei Darussalam had penetration levels above 25.0, over half of developing economies in Asia and the Pacific still had penetration levels below 5.0.

Fixed telephone line penetration rates fell in 60% of economies in Asia and the Pacific between 2010 and 2014 as mobile phones became more widely available. Between 2010 and 2014, the number of fixed-line phones per 100 people increased rapidly in the Lao People's Democratic Republic (728%) and Afghanistan (457%), though in both cases these gains occurred from a very low base. In a majority of the region's economies, fixed telephone line penetration rates have declined as mobile phones become more ubiquitous. The most significant declines were seen in Viet Nam (–62.8%), Tonga (–61.9%), Fiji (–44.2%), and Brunei Darussalam (–42.8%) (Table 5.9).

[6] International Telecommunication Union. *ICT Facts in Figures: The World in 2015*. Available online: http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf.

Figure 5.8: Fixed Broadband Internet Subscriptions per 100 People, 2010 and 2014



FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 5.9.

Data issues and comparability

Recent and complete data for all types of road indicators are scarce. Consequently, writers can describe but not draw analytical results that may be needed to convince policy makers to adopt corrective measures. The most recent data are usually 2–3 years lagged. Some subregions, especially the Pacific, have incomplete or no data. The problems with the data organization, collection, compilation, and dissemination pose a continuing challenge and affect the availability, quality, and timeliness of road statistics.

Most data on telephone and internet subscriptions come from questionnaires the International Telecommunication Union sent to participating economies. Other information and reports are sourced from the ministries in charge of telecommunications and staff estimates.

Transport

Table 5.1: Road Indicators—Network[a]
(kilometers)

Regional Member	Primary		Class I		Class II		Class III		Below III		Other		Total[b]	
	2004	2012	2004	2012	2004	2012	2004	2012	2004	2012	2004	2012	2004	2012
Developing Member Economies														
Central and West Asia														
Afghanistan	...	...	...	10	621	2,519	77	...	3,549	1,718	...	...	4,247	4,247
Armenia	...	...	142	147	377	721	479	58	...	40	...	...	998	966
Azerbaijan	...	...	82	290	1,012	1,174	348	...	...	...	228	...	1,670	1,464
Georgia	...	...	8	74	788	897	358	182	...	...	...	...	1,154	1,153
Kazakhstan	...	...	72	557	767	5,407	10,004	6,389	2,346	475	...	...	13,189	12,828
Kyrgyz Republic	...	...	...	...	464	303	511	1,324	720	136	...	...	1,695	1,763
Pakistan	358	357	1,116	1,116	160	254	2,569	2,475	1,174	1,138	...	...	5,377	5,340
Tajikistan	...	...	...	20	289	978	603	...	1,033	914	...	...	1,925	1,912
Turkmenistan	...	...	...	60	...	...	2,180	2,120	24	24	...	...	2,204	2,204
Uzbekistan	...	...	255	1,195	765	1,101	1,618	670	328	...	...	...	2,966	2,966
East Asia														
China, People's Rep. of	4,140	16,554	189	2,659	2,749	6,689	2,008	1,482	1,443	4	15,400	...	25,929	27,389
Hong Kong, China	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Korea, Rep. of	466	457	197	309	244	72	...	...	...	...	...	...	907	838
Mongolia	...	...	...	8	440	1,702	345	158	3,501	2,450	...	...	4,286	4,318
Taipei,China	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Asia														
Bangladesh	...	...	20	72	441	1,553	476	94	868	22	...	...	1,805	1,741
Bhutan	...	...	...	7	6	116	...	...	161	47	...	...	167	170
India	...	90	484	4,069	...	1,675	10,869	5,699	105	117	...	160	11,458	11,810
Maldives	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	...	...	...	...	311	218	1,003	1,082	12	13	...	...	1,326	1,313
Sri Lanka	...	...	...	45	269	525	190	71	191	...	...	...	650	641
Southeast Asia														
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	...	...	398	610	743	1,348	199	...	...	...	1,340	1,958
Indonesia	335	409	18	604	1,600	3,044	1,965	...	...	...	34	34	3,952	4,091
Lao PDR	...	...	...	...	...	357	2,375	2,307	...	193	3	...	2,378	2,857
Malaysia	795	795	67	61	733	817	...	...	...	...	...	...	1,595	1,673
Myanmar	...	...	147	270	144	393	983	1,708	1,729	1,983	...	...	3,003	4,354
Philippines	...	...	17	17	27	27	2,872	2,872	451	451	150	...	3,517	3,367
Singapore	11	11	8	8	...	...	...	...	...	...	...	...	19	19
Thailand	182	182	2,572	3,049	1,226	1,723	1,128	155	...	2	4	...	5,112	5,111
Viet Nam	0	0	408	343	1,915	1,829	104	337	251	76	...	...	2,678	2,585
The Pacific														
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Developed Member Economies														
Australia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Japan	1,111	1,138	...	...	...	...	...	...	...	...	...	...	1,111	1,138
New Zealand	...	...	...	...	...	...	...	...	...	...	...	...	...	...

... = data not available at cutoff date, 0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a The road network refers to the Asian Highway that consists of highway routes of international importance within Asia, including highway routes substantially crossing more than one subregion; highway routes within subregions that connected neighbouring subregions; and highway routes located within member states that provide access to (a) capital cities; (b) main industrial and agricultural centers; (c) major air, sea, and river ports; (d) major container terminals and depots; and (e) major tourist attractions. "Primary" class in the classification is access-controlled motorways. Access-controlled motorways are used exclusively by automobiles. Motorcycles, bicycles, and pedestrians will not be allowed to enter the motorway to ensure traffic safety and the high running speed of automobiles.
Class I refers to asphalt, cement, or concrete roads with four or more lanes.
Class II refers to double bituminous treated roads with two lanes.
Class III is also regarded as the minimum desirable standard usually described as two-lane (narrow) road.
Roads classified below Class III are road sections below the minimum desirable standard.

b Sum of reported available data.

Source: United Nations Economic and Social Commission for Asia and the Pacific. ESCAP Online Statistical Database. http://www.unescap.org/stat/data/statdb/DataExplorer.aspx (accessed 24 June 2015).

Table 5.2: Road Indicators—Vehicles

Regional Member	Number of Registered Vehicles in 2010						
	Total		By Type				
	(thousands)	(per 1,000 people)	Cars and Four-Wheeled	Two- to Three-Wheeled	Heavy Trucks	Buses	Others
Developing Member Economies							
Central and West Asia							
Afghanistan	731.4	28.1	471,804	84,507	120,082	54,644	391
Armenia	300.1	92.3	247,723	28	40,924	11,396	20
Azerbaijan	982.6	108.5	815,683	1,643	118,460	29,569	17,198
Georgia	736.5 (2011)	166.0	610,537	2,585	106,119	17,229	...
Kazakhstan	3,250.0	199.2	2,686,748	64,103	287,509	93,956	117,650
Kyrgyz Republic	430.3	79.4	400,838	7,744	...	21,732	...
Pakistan	7,853.0	45.3	1,849,229	4,506,948	216,119	198,790	1,081,936
Tajikistan	357.9	47.0	297,341	8,480	37,395	14,653	–
Turkmenistan	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...
East Asia							
China, People's Rep. of	207,061.3	155.0	...	...	...	...	...
Hong Kong, China	...	...	...	...	...	...	...
Korea, Rep. of	19,710.8	398.9	13,631,769	1,825,474	3,203,808	1,049,725	–
Mongolia	366.0	133.6	...	...	...	...	...
Taipei,China[a]	21,562.6 (2013)	922.5	6,236,879	14,195,123	1,037,666	31,960	61,017
South Asia		...					
Bangladesh	1,624.9	10.9	529,215	975,682	81,561	38,101	303
Bhutan	57.6 (2011)	81.4	37,538	9,094	7,116	277	3,593
India	114,952.0 (2009)	98.6	15,313,000	82,402,000	6,041,000	1,486,000	9,710,000
Maldives	50.1 (2011)	123.2	6,539	41,095	2,299	119	–
Nepal	1,178.9 (2011)	44.3	133,992	891,018	47,930	35,100	70,871
Sri Lanka	3,954.3	191.5	619,500	2,630,375	296,692	84,280	323,464
Southeast Asia							
Brunei Darussalam	349.3	903.0	...	...	...	...	...
Cambodia[b]	1,652.5	115.5	244,267	1,372,525	32,775	3,240	–
Indonesia	72,693.0	305.9	8,148,330	60,152,752	3,296,315	1,095,554	–
Lao PDR	1,008.8	161.2	167,882	812,629	2,825	25,452	–
Malaysia	20,188.6	706.2	9,114,920	9,441,907	966,177	69,149	596,412
Myanmar	2,326.6 (2011)	38.5	269,423	1,911,040	65,579	21,578	59,019
Philippines	6,634.9	71.9	2,770,591	3,482,149	347,182	34,933	...
Singapore	945.8	186.3	...	...	...	...	...
Thailand	28,484.8	432.1	9,887,706	17,322,538	816,844	137,943	319,798
Viet Nam[c]	33,166.4	381.5	556,945	31,452,503	552,244	97,468	67,607
The Pacific							
Cook Islands	9.4	398.3	4,470	4,849	...	25	95
Fiji	77.6 (2011)	90.9	...	...	...	...	...
Kiribati	1.6	15.7	975	480	...	163	–
Marshall Islands	1.9	34.9	1,715	37	55	85	–
Micronesia, Fed. States of	8.3	81.1	7,356	96	747	138	–
Nauru	...	...	...	...	...	...	...
Palau	5.8	318.7	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...
Samoa	15.0	80.3	13,491	153	1,028	293	–
Solomon Islands	16.8	31.8	...	...	...	...	...
Timor-Leste	9.7	9.1	1,684	7,370	586	20	–
Tonga	5.8	56.5	4,411	62	1,285	48	–
Tuvalu	...	...	...	...	...	...	...
Vanuatu	5.2 (2011)	20.5	3,974	118	227	834	–
Developed Member Economies							
Australia	16,061.1	729.0	14,729,873	660,107	397,871	86,367	186,880
Japan	89,871.1	701.7	...	...	...	...	...
New Zealand	3,227.0	738.8	2,979,000	113,000	112,000	8,300	14,700

... = data not available at cutoff date, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic.

a Combination of trucks and wagon in the category "Heavy Trucks."
b Data for vehicle types do not add up to total.
c Includes 439,644 destroyed or unaccounted vehicles.

Sources: World Health Organization. Global Status Report on Road Safety 2013; ADB estimates; and for Taipei,China: National Development Council.

Table 5.3: Road Indicators—Safety

Regional Members	Estimated Road Traffic Deaths in 2010		Road Users Deaths in 2010 (%)				
	Total	Death Rate (per 100,000 population)	Four-Wheeled Vehicle	Two- to Three-Wheeled Vehicle	Cyclists	Pedestrian	Others
Developing Member Economies							
Central and West Asia							
Afghanistan	...	...	...	...	...	...	...
Armenia	558	18	54.1	...	...	43.9	2.0
Azerbaijan	1,202	13	62.6	...	0.7	36.0	0.8
Georgia	685	16	...	...	0.3	25.0	74.7
Kazakhstan	3,514	22	68.4	2.4	0.4	24.4	4.4
Kyrgyz Republic	1,022	19	21.7	0.6	0.2	17.7	59.8
Pakistan	30,131	17	16.1	38.6	–	40.9	4.4
Tajikistan	1,244	18	53.0	...	4.6	42.1	0.2
Turkmenistan	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...
East Asia							
China, People's Rep. of	275,983	21	22.6	34.5	10.4	25.0	7.6
Hong Kong, China	...	...	...	...	...	...	...
Korea, Rep. of	6,784	14	24.9	19.7	5.3	37.8	12.3
Mongolia	491	18	39.7	18.7	0.2	25.1	16.3
Taipei,China	...	...	...	...	...	...	...
South Asia							
Bangladesh	17,289	12	...	...	...	...	...
Bhutan	96	13	60.8	2.5	–	5.1	31.7
India	231,027	19	15.5	32.4	4.6	8.7	38.7
Maldives	6	2	50.0	33.3	–	16.7	–
Nepal	4,787	16	...	...	...	...	...
Sri Lanka	2,854	14	67.5	...	...	32.5	...
Southeast Asia							
Brunei Darussalam	...	...	...	...	...	...	...
Cambodia	2,431	17	11.8	66.6	4.0	12.0	5.7
Indonesia	42,434	18	6.1	35.7	1.7	21.1	35.4
Lao PDR	1,266	20	14.6	74.4	1.3	6.3	3.4
Malaysia	7,085	25	26.0	58.7	2.8	9.1	3.4
Myanmar	7,177	15	26.2	22.9	8.6	26.5	15.9
Philippines	8,499	9	...	...	...	...	...
Singapore	259	5	8.8	46.1	8.3	28.5	8.3
Thailand	26,312	38	13.3	73.5	3.0	7.8	2.5
Viet Nam	21,651	25	...	...	...	...	...
The Pacific							
Cook Islands	2	10	–	100.0	–	–	–
Fiji	...	...	...	...	...	...	...
Kiribati	6	6	16.7	33.3	–	50.0	–
Marshall Islands	4	7	25.0	–	–	75.0	–
Micronesia, Fed. States of	2	2	...	...	...	...	...
Nauru	...	...	...	...	...	...	...
Palau	3	15	100.0	–	–	–	–
Papua New Guinea	...	...	...	...	...	...	...
Samoa	30	16	...	...	...	...	...
Solomon Islands	79	15	22.2	–	–	44.4	33.3
Timor-Leste	219	20	...	...	...	...	...
Tonga	6	6	50.0	16.7	–	33.3	–
Tuvalu	...	...	...	...	...	...	...
Vanuatu	39	16	33.3	–	–	66.7	–
Developed Member Economies							
Australia	1,363	6	67.9	16.4	2.9	12.8	0.1
Japan	6,625	5	31.2	17.7	16.2	34.6	0.3
New Zealand	398	9	69.1	13.3	2.7	9.3	5.6

... = data not available at cutoff date, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic.

Source: World Health Organization. Global Status Report on Road Safety 2013.

Table 5.4: Rail Indicators

Regional Member	Rail Lines (total route, kilometers)			Rail Network, Length per Land Area (kilometers per thousand square kilometers)		
	1990	2000	2012	1990	2000	2012
Developing Member Economies						
Central and West Asia						
Afghanistan	...	...	...	...	...	...
Armenia	845	842	826	29.7	29.0	29.0
Azerbaijan	2,117 (1998)	2,116	2,068	25.5 (1998)	25.0	25.0
Georgia	1,583	1,562	1,566 (2011)	22.8	22.5	22.5 (2011)
Kazakhstan	14,465	13,545	14,319	5.4	5.3	5.3
Kyrgyz Republic	...	417 (2006)	417	...	2.2 (2006)	2.2
Pakistan	8,775	7,791	7,791	11.4	10.1	10.1
Tajikistan	...	616 (2005)	621	...	4.4 (2005)	4.4
Turkmenistan	...	2,529 (2005)	3,115	...	6.6 (2005)	6.6
Uzbekistan	3,641 (1997)	3,645	4,192	8.6 (1997)	9.9	9.9
East Asia						
China, People's Rep. of	53,378	58,656	66,298	5.7	7.1	7.1
Hong Kong, China	...	...	...	...	...	...
Korea, Rep. of	3,091	3,123	3,650	32.0	37.5	37.5
Mongolia	1,920	1,810	1,818	1.2	1.2	1.2
Taipei,China	1,105	1,190	1,765 (2013)	73.0	109.0	109.0 (2013)
South Asia						
Bangladesh	2,746	2,768	2,835	21.1	21.8	21.8
Bhutan	...	...	...	...	...	...
India	62,367	62,759	64,460	21.0	21.7	21.7
Maldives	...	...	...	...	...	...
Nepal	...	...	...	...	...	...
Sri Lanka	1,453	1,449 (2004)	...	23.2	... (2004)	...
Southeast Asia						
Brunei Darussalam	...	...	...	...	...	...
Cambodia	600	601	...	3.4	...	...
Indonesia	4,992 (1991)	3,370 (2008)	4,684	2.8 (1991)	2.6 (2008)	2.6
Lao PDR	...	...	...	...	...	...
Malaysia	1,668	1,622	2,250	5.1	6.8	6.8
Myanmar	3,336	...	...	5.1	...	...
Philippines	479	491	...	1.6	...	...
Singapore	...	...	...	...	...	...
Thailand	3,861	4,103	5,327	7.6	10.4	10.4
Viet Nam	2,832	3,142	2,347	8.7	7.6	7.6
The Pacific						
Cook Islands	...	...	...	...	...	...
Fiji	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...
Nauru	...	...	...	...	...	...
Palau	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...
Samoa	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...
Timor–Leste	...	...	...	...	...	...
Tonga	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...
Developed Member Economies						
Australia	6,612	9,499	8,615 (2010)	0.9	1.1	1.1 (2010)
Japan	20,254	20,165	20,140	55.6	55.2	55.2
New Zealand	4,029	3,913 (1999)	...	15.3	14.9 (1999)	...

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

Sources: World Bank. World Development Indicators. http://data.worldbank.org/indicator (accessed 15 July 2015); ADB estimates; and for Taipei,China: National Development Council. 2014.

Table 5.5: Railways, Passengers Carried, and Goods Transported

Regional Member	Passenger Carried (million passenger-km)				Goods Transported (million ton-km)			
	1990	2000	2010	2012	1990	2000	2010	2012
Developing Member Economies								
Central and West Asia								
Afghanistan	...	...	...	...	...	...	...	...
Armenia	316	47	50	50	4,884	354	346	346
Azerbaijan	791(1995)	493	917	591	37,288	5,770	8,250	8,212
Georgia	1,969	453	655	...	15,477	3,912	6,228	...
Kazakhstan	19,734	10,215	15,448	18,498	406,963	124,983	213,174	235,846
Kyrgyz Republic	...	45(2006)	99	76	...	715(2006)	738	923
Pakistan	19,964	18,495	24,731	20,619	5,709	3,754	6,187	1,757
Tajikistan	...	50(2005)	33	24	10,657	1,326	808	555
Turkmenistan	...	1,286(2005)	1,811	1,811	...	8,670(2005)	11,992	11,992
Uzbekistan	5,368(1994)	2,163	2,905	3,025	18,868(1994)	15,441	22,282	22,482
East Asia								
China, People's Rep. of	263,530	441,468	791,158	795,639	1,060,100	1,333,606	2,451,185	2,518,310
Hong Kong, China	...	...	...	...	...	...	...	...
Korea, Rep. of	29,863	28,097	33,027	21,603	13,663	10,803	9,452	9,996
Mongolia	570	1,070	1,220	1,399	5,088	4,293	10,287	11,418
Taipei,China	8,323	12,624	20,931	25,323(2013)	1,877	1,179	873	729(2013)
South Asia								
Bangladesh	4,587	3,941	7,305	7,305	651	777	710	710
Bhutan	...	...	...	...	...	...	...	...
India	295,644	430,666	903,465	978,508	235,785	305,201	600,548	625,723
Maldives	...	...	...	...	...	...	...	...
Nepal	...	...	...	...	...	...	...	...
Sri Lanka	2,781	4,627(2003)	...	...	164	88	...	...
Southeast Asia								
Brunei Darussalam	...	...	...	...	...	...	...	...
Cambodia	34	45	...	...	24	92	...	...
Indonesia	9,290	25,535(2005)	20,283(2011)	20,283	3,190	4,698(2005)	7,166(2011)	7,166
Lao PDR	...	...	...	...	...	...	...	...
Malaysia	1,840	1,312	1,527	3,293	1,404	907	1,384	3,071
Myanmar	3,702	4,163(2006)	...	...	388	885(2006)	...	...
Philippines	341	171	...	...	12	1(2003)	...	...
Singapore	...	...	...	...	...	...	...	...
Thailand	11,612	9,935	8,037	7,504	3,291	3,384	3,161	2,455
Viet Nam	1,913	3,200	4,378	4,558	847	1,902	3,901	3,959
The Pacific								
Cook Islands	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...
Developed Member Economies								
Australia	1,093(1997)	1,265	1,500	...	22,579	34,050	64,172	59,649
Japan	237,551	240,793	244,235	244,591	26,803	22,313	20,432	20,255
New Zealand	370(1991)	...	...	...	2,744	4,078	...	...

... = data not available at cutoff date, km = kilometer, Lao PDR = Lao People's Democratic Republic.

Sources: World Bank. World Development Indicators. http://data.worldbank.org/indicator (accessed 4 June 2015); for Taipei,China: Directorate-General of Budget, Accounting and Statistics. 2014.

Table 5.6: Air Transport

Regional Member	Carrier Departure Worldwide (number of takeoffs)			Freight (million ton-km)			Passenger Carried (thousands)		
	1990	2000	2014	1990	2000	2014	1990	2000	2014
Developing Member Economies									
Central and West Asia									
Afghanistan	5,300	3,409	25,389	9.4	7.8	71.9	241	150	2,144
Armenia	2,200(1996)	4,406	857(2013)	11.8 (1996)	8.8	1.0 (2013)	358 (1996)	298	45 (2013)
Azerbaijan	22,200(1993)	8,012	18,356	19.9 (1992)	47.2	31.3	1,455 (1992)	546	1,770
Georgia	1,300(1994)	1,906	3,317	1.8 (1994)	2.0	0.4	170 (1994)	118	197
Kazakhstan	5,900(1993)	8,041	70,810	32.2 (1992)	11.8	45.5	5,273 (1992)	461	4,919
Kyrgyz Republic	10,400(1993)	6,051	17,390	0.7 (1993)	3.7	0.2	464 (1993)	241	712
Pakistan	66,100	63,956	48,395	420.5	340.3	226.8	5,180	5,294	5,560
Tajikistan	3,200(1994)	3,953	2,606	2.5 (1993)	2.0	0.5	783 (1993)	168	313
Turkmenistan	12,500(1994)	21,858	355	2.3 (1993)	11.9	2.1	748 (1993)	1,284	57
Uzbekistan	15,600(1994)	30,075	23,149	36.7 (1992)	79.6	110.2	4,033 (1992)	1,745	2,546
East Asia									
China, People's Rep. of	196,000	572,921	3,356,756	818.3	3,900.1	17,822.6	16,596	61,892	390,879
Hong Kong, China	124,500(1991)	79,182	212,731	2,325.3 (1997)	5,111.5	10,684.2	5,957 (1997)	14,378	37,455
Korea, Rep. of	120,100	226,910	377,749	2,459.4	7,651.3	11,047.2	15,685	34,331	59,067
Mongolia	9,800(1991)	6,200	5,600	1.2 (1991)	8.4	8.4	616 (1991)	254	683
Taipei,China	251,823	586,560	426,635(2013)	0.7	1.2	1.1 (2013)	18,723	46,430	46,730 (2013)
South Asia									
Bangladesh	13,000	6,313	58,590	69.5	193.9	260.3	1,044	1,331	3,116
Bhutan	600	1,138	8,769	...	0.2 (2002)	0.9	8	34	302
India	125,800	198,426	720,050	662.9	547.7	1,739.0	10,862	17,299	82,752
Maldives	800	5,970	...	0.2 (1994)	13.2	...	9	315	...
Nepal	25,800	12,130	19,568	11.2	17.0	4.6	679	643	518
Sri Lanka	7,900	5,206	32,097	93.4	255.7	384.5	892	1,756	4,756
Southeast Asia									
Brunei Darussalam	4,400	12,739	11,123	9.9	140.2	121.8	307	864	1,088
Cambodia	...	4,648(2002)	10,812	...	4.1 (2002)	0.8	...	125 (2002)	1,090
Indonesia	205,400	159,027	703,721	458.6	408.5	886.8	9,223	9,916	94,504
Lao PDR	3,400	6,411	12,724	0.8	1.7	1.4	115	211	1,310
Malaysia	130,500	169,263	438,624	574.2	1,863.8	2,160.2	10,242	16,561	47,556
Myanmar	13,800	10,329	29,358	1.1	0.8	4.0	319	438	1,272
Philippines	70,100	44,547	225,350	316.0	289.9	344.3	5,639	5,756	30,933
Singapore	30,500	71,042	189,110	1,652.5	6,004.9	6,335.8	7,046	16,704	32,883
Thailand	69,500	101,591	322,950	661.0	1,712.9	2,530.2	8,201	17,392	44,039
Viet Nam	1,800	28,999	144,630	82.9 (1996)	117.3	587.5	89	2,878	24,704
The Pacific									
Cook Islands	...	...	...	...	...	...	...	...	...
Fiji	23,500	57,776	17,519	5.1	90.8	71.7	433	586	1,249
Kiribati	2,900	...	...	0.8	...	...	25	...	...
Marshall Islands	3,300	2,324	...	2.5	0.2	...	66	16	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...
Papua New Guinea	62,400	27,512	34,065	14.8	22.3	33.4	931	1,100	2,074
Samoa	6,500(1996)	10,877	...	1.5 (1996)	2.2	...	270 (1996)	164	...
Solomon Islands	11,100	11,481	11,529	1.2 (1993)	1.0	3.2	69	75	330
Timor-Leste	...	...	...	...	...	...	...	...	...
Tonga	4,300	3,814	...	...	0.0	...	35	52	...
Tuvalu	...	...	...	...	...	...	...	...	...
Vanuatu	300	1,402	10,856	0.1	1.8	1.9	19	102	320
Developed Member Economies									
Australia	255,900	382,514	644,940	1,222.3	1,730.7	1,909.3	17,553	32,578	67,687
Japan	476,000	645,087	927,667	5,068.8	8,672.0	8,661.8	76,224	109,123	110,544
New Zealand	128,300	240,046	199,128	325.1	817.1	951.5	5,866	10,781	15,051

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, km = kilometer, Lao PDR = Lao People's Democratic Republic.

Sources: World Bank. World Development Indicators. http://data.worldbank.org/indicator (accessed 11 August 2015); for Taipei,China: Directorate-General of Budget, Accounting and Statistics. 2014.

Table 5.7: Container Port Traffic
(thousands)

Regional Member	Container Port Traffic (thousand teu)									
	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Developing Member Economies										
Central and West Asia										
Afghanistan	...	...	...	...	...	...	...	...	...	...
Armenia	...	...	...	...	...	...	...	...	...	...
Azerbaijan	...	...	...	...	...	...	...	...	...	...
Georgia	...	...	...	185	254	182	226	239	257	277
Kazakhstan	...	...	...	...	...	...	...	...	...	...
Kyrgyz Republic	...	...	...	...	...	...	...	...	...	...
Pakistan	...	1,686	1,777	1,936	1,938	2,058	2,149	2,193	2,375	2,563
Tajikistan	...	...	...	...	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...
East Asia										
China, People's Rep. of	41,000	67,245	84,811	103,823	115,942	108,800	130,290	144,642	160,059	174,080
Hong Kong, China	...	22,602	23,539	23,998	24,494	21,040	23,699	24,384	23,117	22,352
Korea, Rep. of	9,030	15,113	15,514	17,086	17,418	15,700	18,543	20,834	21,610	22,583
Mongolia	...	...	...	...	...	...	...	...	...	...
Taipei,China	...	12,791	13,102	13,720	12,971	11,352	12,737	14,076	14,976	15,353
South Asia										
Bangladesh	456	809	902	978	1,091	1,182	1,356	1,432	1,436	1,571
Bhutan	...	...	...	...	...	...	...	...	...	...
India	2,451	4,982	6,141	7,398	7,672	8,014	9,753	10,285	10,290	10,653
Maldives	...	...	...	48	54	56	65	69	74	80
Nepal	...	...	...	...	...	...	...	...	...	...
Sri Lanka	1,733	2,455	3,079	3,687	3,687	3,464	4,000	4,263	4,180	4,306
Southeast Asia										
Brunei Darussalam	...	...	...	...	90	86	99	105	113	122
Cambodia	...	...	...	253	259	208	224	237	255	275
Indonesia	3,798	5,503	4,316	6,583	7,405	7,255	8,483	8,966	9,639	10,790
Lao PDR	...	...	...	...	...	...	...	...	...	...
Malaysia	4,642	12,198	13,419	14,829	16,094	15,923	18,267	20,139	20,898	21,427
Myanmar	...	...	...	170	180	164	190	201	216	233
Philippines	3,032	3,634	3,676	4,351	4,471	4,307	4,947	5,289	5,686	5,860
Singapore	17,100	23,192	24,792	28,768	30,891	26,593	29,179	30,728	32,499	33,516
Thailand	3,179	5,115	5,574	6,339	6,726	5,898	6,649	7,171	7,469	7,702
Viet Nam	1,190	2,537	3,000	4,009	4,394	4,937	5,984	6,930	2,937	8,121
The Pacific										
Cook Islands	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	282	255	262	295	314	337	364
Samoa	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...	...
Developed Member Economies										
Australia	3,543	5,191	5,742	6,290	6,102	6,200	6,668	7,012	7,259	7,313
Japan	13,100	17,055	18,470	19,165	18,944	16,286	18,098	19,422	20,115	19,688
New Zealand	1,067	1,603	1,807	2,312	2,318	2,325	2,463	2,517	2,867	3,093

... = data not available at cutoff date, teu = twenty foot equivalent units, Lao PDR = Lao People's Democratic Republic.

Source: World Bank. World Development Indicators. http://data.worldbank.org/indicator (accessed 4 June 2015); For Taipei,China from 2005–2007: United Nations Conference on Trade and Development (UNCTAD). UNCTAD Review of Maritime Statistics 2008 and 2010; from 2008–2013: UNCTAD. UNCTADstat. http://unctadstat.unctad.org/EN/ (accessed 18 June 2015).

Table 5.8: Telephone and Internet Subscriptions

Regional Member	Fixed Telephone Lines (thousands)		Mobile Phone (thousands)		Fixed Broadband Internet (thousands)	
	2000	2014	2000	2014	2000	2014
Developing Member Economies						
Central and West Asia						
Afghanistan	29.0	101.9	25.0(2002)	23,423.7	0.2 (2004)	1.5
Armenia	533.4	564.5	17.5	3,459.1	0.0 (2001)	272.5
Azerbaijan	801.2	1,795.4	420.4	10,552.5	1.0 (2002)	1,887.1
Georgia	508.8	1,097.4	194.7	5,400.8	0.4 (2001)	525.4
Kazakhstan	1,834.2	4,338.2	197.3	28,003.0	1.0 (2003)	2,148.0
Kyrgyz Republic	376.1	443.1	9.0	7,563.4	0.0 (2002)	233.9
Pakistan	3,053.5	4,897.8	306.5	135,762.0	14.6 (2005)	2,008.7
Tajikistan	218.5	440.7	1.2	7,999.1	0.0 (2003)	6.1
Turkmenistan	364.4	624.4	7.5	7,206.1	0.1 (2008)	2.3
Uzbekistan	1,655.0	2,507.7	53.1	21,639.2	2.8 (2003)	389.0
East Asia						
China, People's Rep. of	144,829.0	249,430.0	85,260.0	1,286,093.0	22.7	200,483.0
Hong Kong, China	3,925.8	4,434.8	5,447.3	17,372.0	444.5	2,268.6
Korea, Rep. of	25,863.0	29,481.2	26,816.4	57,208.0	3,870.0	19,198.9
Mongolia	117.5	228.3	154.6	3,027.2	0.0 (2001)	197.2
Taipei,China	12,642.2	14,044.6	17,873.8	30,358.4	229.0	7,436.6
South Asia						
Bangladesh	491.3	1,086.5	279.0	120,350.5	43.7 (2007)	1,893.2
Bhutan	14.1	23.8	19.1(2003)	628.3	2.1 (2008)	25.0
India	32,436.1	27,000.1	3,577.1	944,008.7	50.0 (2001)	15,745.5
Maldives	24.4	21.5	7.6	665.8	0.2 (2002)	19.8
Nepal	266.9	838.9	10.2	23,196.0	1.0 (2006)	228.1
Sri Lanka	767.4	2,678.7	430.2	22,123.0	0.3 (2001)	567.6
Southeast Asia						
Brunei Darussalam	80.5	48.2	95.0	465.8	1.9 (2001)	30.3
Cambodia	30.9	438.1	130.5	23,900.0	0.1 (2002)	31.9
Indonesia	6,662.6	29,637.6	3,669.3	319,000.0	4.0	3,009.2
Lao PDR	40.9	920.8	12.7	4,618.6	0.0 (2003)	11.3
Malaysia	4,628.0	4,410.2	5,121.7	44,928.6	4.0 (2001)	3,061.0
Myanmar	271.4	526.8	13.4	26,575.7	0.2 (2005)	143.6
Philippines	3,061.4	3,093.2	6,454.4	111,326.0	10.0 (2001)	23,241.7
Singapore	1,946.0	1,959.8	2,747.4	8,724.2	69.0	1,533.0
Thailand	5,591.1	5,690.0	3,056.0	97,096.0	1.6 (2001)	5,517.4
Viet Nam	2,542.7	5,562.2	788.6	136,148.1	1.1 (2002)	6,000.5
The Pacific						
Cook Islands	...	...	...	...	...	...
Fiji	86.4	74.7	55.1	876.2	7.0 (2005)	12.4
Kiribati	3.4	9.2	0.3	18.1	0.3 (2005)	1.2
Marshall Islands	4.0	2.4	0.4	15.5	...	1.4
Micronesia, Fed. States of	9.6	7.0	0.1(2002)	31.4(2013)	0.0 (2003)	3.1
Nauru	1.8	1.9(2009)	1.2	6.8(2012)	...	1.0 (2010)
Palau	7.8 (2004)	7.1	3.9(2004)	19.1	0.1 (2004)	2.0
Papua New Guinea	64.8	145.1	8.6	3,358.9	3.0 (2008)	13.2
Samoa	8.5	11.8	2.5	106.5	0.0 (2004)	2.0
Solomon Islands	7.7	7.5	1.2	376.7	0.2 (2004)	1.3
Timor-Leste	2.0 (2003)	3.0	20.1(2003)	676.9	0.0 (2003)	0.8
Tonga	9.7	12.0	0.2	68.0	0.0 (2002)	1.8
Tuvalu	0.7	1.5	0.5(2004)	3.8	0.1 (2004)	0.9
Vanuatu	6.6	5.7	0.4	156.1	0.0 (2003)	4.6
Developed Member Economies						
Australia	10,050.0	9,190.0	8,562.0	31,010.0	122.8 (2001)	6,086.0
Japan	61,957.1	63,610.2	66,784.4	152,695.7	854.7	37,224.7
New Zealand	1,831.0	1,850.0	1,542.0	5,100.0	4.7	1,386.0

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

Source: International Telecommunication Union. International Telecommunication Union World Telecommunication/ICT Indicators Database. http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx (accessed 9 July 2015).

Communications

Table 5.9: Telephone and Internet Subscriptions
(per 100 people)

Regional Member	Telephone Subscribers				Mobile Phone Subscribers				Internet Users			
	1990	2000	2010	2014	1990	2000	2010	2014	1990	2000	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	0.3	0.1	0.1	0.3	–	–	45.8	74.9	–	...	0.0	0.0
Armenia	15.8	17.3	20.0	18.9	–	0.6	130.4	115.9	–	...	3.2	9.1
Azerbaijan	8.6	9.9	16.6	18.9	–	5.2	100.1	110.9	–	...	5.2	19.8
Georgia	9.9	10.7	25.3	25.4	–	4.1	90.6	124.9	–	...	4.2	12.2
Kazakhstan	8.1	12.6	25.5	26.1	–	1.4	121.9	168.6	–	...	5.5	12.9
Kyrgyz Republic	7.2	7.6	9.2	7.9	–	0.2	98.9	134.5	–	...	...	4.2
Pakistan	0.8	2.1	3.5	2.6	–	0.2	57.3	73.3	–	...	0.5	1.1
Tajikistan	4.5	3.5	4.8	5.2	–	0.0	77.9	95.1	–	...	0.1	0.1
Turkmenistan	6.0	8.1	10.3	11.8	–	0.2	63.4	135.8	–	...	0.0	0.0
Uzbekistan	6.8	6.7	6.8	8.6	–	0.2	75.5	73.8	–	...	...	1.3
East Asia												
China, People's Rep. of	0.6	11.3	21.6	17.9	–	6.7	63.2	92.3	–	0.0	9.3	14.4
Hong Kong, China	42.7	57.4	61.9	61.1	2.3	79.7	195.7	239.3	–	6.5	30.7	31.2
Korea, Rep. of	30.9	56.3	58.9	59.5	0.2	58.3	104.8	115.5	–	8.4	35.5	38.8
Mongolia	3.0	4.9	7.1	7.9	–	6.4	92.5	105.1	–	...	2.8	6.8
Taipei,China	31.1	57.6	70.8	60.2	0.4	81.5	119.9	130.2	...	1.0	22.9	31.9
South Asia												
Bangladesh	0.2	0.4	0.8	0.7	–	0.2	44.9	75.9	–	...	...	1.2
Bhutan	0.3	2.5	3.7	3.1	–	–	55.0	82.1	–	...	1.2	3.3
India	0.6	3.1	2.9	2.1	–	0.3	62.4	74.5	–	...	0.9	1.2
Maldives	2.8	9.0	8.7	6.1	–	2.8	151.8	189.4	–	...	4.8	5.6
Nepal	0.3	1.2	3.1	3.0	–	0.0	34.3	82.5	–	...	0.2	0.8
Sri Lanka	0.7	4.1	17.2	12.5	–	2.3	83.6	103.2	–	...	1.1	2.6
Southeast Asia												
Brunei Darussalam	13.9	24.3	19.9	11.4	0.7	28.6	108.6	110.1	–	...	5.4	7.1
Cambodia	0.0	0.3	2.5	2.8	–	1.1	56.7	155.1	–	...	0.2	0.2
Indonesia	0.6	3.2	17.0	11.7	0.0	1.8	87.8	126.2	–	0.0	0.9	1.2
Lao PDR	0.2	0.8	1.6	13.4	–	0.2	62.6	67.0	–	...	0.1	0.2
Malaysia	8.7	19.8	16.3	14.6	0.5	21.9	119.7	148.8	–	...	7.4	10.1
Myanmar	0.2	0.6	0.9	1.0	–	0.0	1.1	49.5	–	...	0.0	0.3
Philippines	1.0	3.9	3.6	3.1	–	8.3	89.0	111.2	–	...	1.8	23.2
Singapore	34.9	49.7	39.3	35.5	1.7	70.1	145.4	158.1	–	1.8	26.4	27.8
Thailand	2.3	9.0	10.3	8.5	0.1	4.9	108.0	144.4	–	...	4.9	8.2
Viet Nam	0.2	3.1	16.1	6.0	–	1.0	125.3	147.1	–	...	4.1	6.5
The Pacific												
Cook Islands	17.0	31.9	35.6	...	–	3.1	38.5	...	–	15.7	35.7	...
Fiji	5.8	10.6	15.1	8.4	–	6.8	81.1	98.8	–	...	2.7	1.4
Kiribati	1.7	4.1	8.6	8.9	–	0.4	10.8	17.4	–	–	0.9	1.2
Marshall Islands	1.1	7.7	...	4.5	–	0.9	...	29.4	–	...	...	2.6
Micronesia, Fed. States of	2.5	9.0	8.2	6.8	–	–	26.6	...	–	...	1.0	3.0
Nauru	13.1	17.9	–	–	–	11.9	61.8	...	–	–	4.0	...
Palau	...	–	34.1	33.9	...	–	70.9	90.6	–	–	1.2	9.4
Papua New Guinea	0.7	1.2	1.8	1.9	–	0.2	27.8	44.9	–	–	0.1	0.2
Samoa	2.5	4.9	4.3	6.1	–	1.4	48.4	55.5	–	...	...	1.1
Solomon Islands	1.5	1.9	1.6	1.3	–	0.3	21.9	65.8	–	–	0.5	0.2
Timor-Leste	...	–	0.3	0.3	–	–	43.8	58.7	–	–	0.0	0.1
Tonga	4.6	9.9	29.8	11.3	–	0.2	52.2	64.3	–	–	1.1	1.7
Tuvalu	1.3	7.0	12.2	15.2	–	–	16.3	38.4	–	–	2.4	9.1
Vanuatu	1.8	3.6	3.0	2.2	–	0.2	71.9	60.4	–	–	0.2	1.8
Developed Member Economies												
Australia	45.6	52.2	47.4	38.9	1.1	44.5	100.4	131.2	0.6	–	24.6	25.8
Japan	44.6	49.3	51.5	50.1	0.7	53.1	96.8	120.2	0.0	0.7	26.8	29.3
New Zealand	43.2	47.5	43.0	40.6	1.6	40.0	107.8	112.1	–	0.1	25.0	30.5

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic.

Source: International Telecommunication Union. International Telecommunication Union World Telecommunication/ICT Indicators Database. http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx (accessed 9 July 2015).

Energy and electricity

Snapshots

- Per capita electricity consumption rose by at least 200% in 16 developing member economies between 1990 and 2012, or the first and last years for which data are available.
- Since 1990, two-thirds of the region's top 10 electricity producers have become more reliant on coal to generate electricity.
- Asia and the Pacific accounts for more than 40% of global energy demand.
- Most economies in the region rely on energy imports. The four biggest energy users—the People's Republic of China, India, Japan, and the Republic of Korea—have all increased their dependence on energy imports since 2000.
- Thirteen of the region's economies have energy exports that exceed their total energy use.
- Six economies in Asia subsidize fossil fuels by more than 25% of the supply cost. At the same time, energy efficiency—as measured by gross domestic product per unit of energy use—improved in 24 out of 30 economies between 2000 and 2012.

Key trends

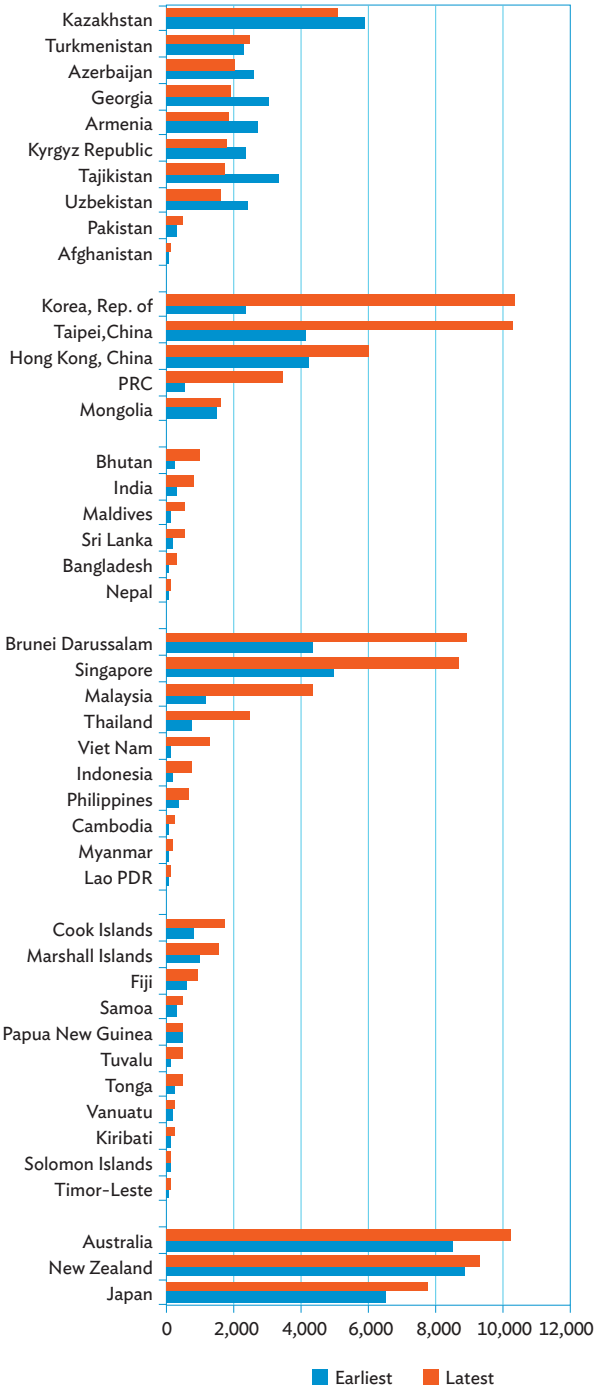
Per capita electricity consumption rose by at least 200% in 16 developing member economies between 1990, or the first year for which data are available, and 2012, or the latest year for which data are available. Figure 6.1 shows that per capita electricity consumption has significantly increased, albeit from a low base, in a number of lower- and lower-middle-income economies. At the same time, per capita electricity consumption levels in high-income economies—such as the Republic of Korea and Taipei,China—still far outstrip those in lower- and lower-middle-income economies, suggesting that the latter may continue to experience increasing demand. Large price increases for power led to a reduction in per capita electricity consumption in seven out of 10 economies in Central and West Asia between 1990 and 2012.

Since 1990, two-thirds of the region's top 10 electricity producers have become more reliant on coal to generate electricity. Figure 6.2 shows the sources of electricity production for the region's 10 largest producers. Seven of these 10 economies—Australia; the People's Republic of China (PRC); India; Indonesia; the Republic of Korea; Malaysia; and Taipei,China—use coal, the most polluting carbon fuel, for at least 40% of their power generation. Moreover, coal increased its share of power generation in the PRC; India; Indonesia; Japan; the Republic of Korea; Malaysia; and Taipei,China between 1990 and 2012 (Table 6.1).

Burning coal contributes to air pollution, which the Organisation for Economic Co-operation and Development (OECD) predicts will become the main environmental cause of mortality worldwide by 2050, ahead of unclean water and lack of sanitation. The OECD predicts that premature deaths from exposure to air pollutants could more than double to 3.6 million a year globally in 2050, with more than one-third of all deaths coming from the PRC and India.[1]

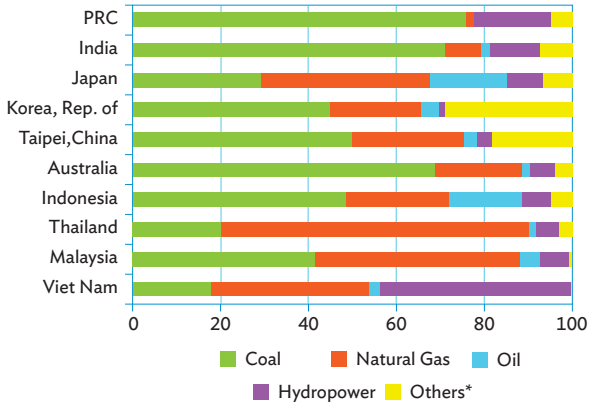
[1] Organisation for Economic Co-operation and Development. 2012. *OECD Environmental Outlook to 2050: The Consequences of Inaction. Paris.* http://www.oecd-ilibrary.org/environment/oecd-environmental-outlook-to-2050_9789264122246-en

Figure 6.1: Per Capita Electric Power Consumption, Earliest to Latest Year
(kWh)



kWh = kilowatt-hour, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Notes: Earliest year is 1990 except for Cambodia (2005), Timor-Leste (2006) and Afghanistan (2001). Latest year is 2012, except for Cook Islands; Fiji; Maldives; Solomon Islands; Tonga; Timor-Leste; and Vanuatu (2014); Afghanistan (2013); Tuvalu (2011); Marshall Islands (2006); Bhutan (2005); and Lao PDR (1997).
Source: Table 6.2

Figure 6.2: Sources of Electricity (Top Producers), 2012
(%)



PRC = People's Republic of China.
* Computed as residual that includes combustible renewables and waste; and generation by nuclear power, geothermal, solar, wind, and tide and wave energy.
Source: Table 6.1.

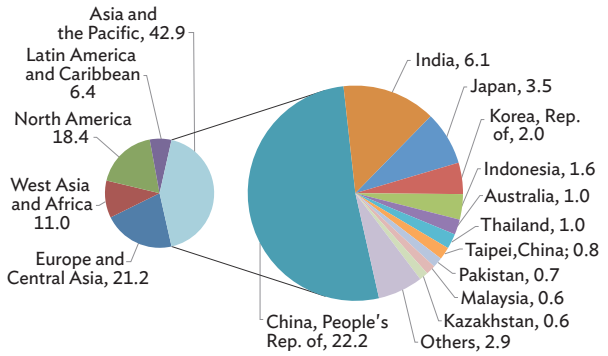
The expansion of industry and electrification of households has spurred huge demand for electricity in Asia and the Pacific. Electricity output in the PRC reached 4,994 billion kilowatt-hours (kWh) in 2012, exceeding the combined total of the rest of Asia and Pacific (Table 6.1). Electricity production increased more than fivefold in a number of fast-growing high- and upper-middle- income economies in the region between 1990 and 2012, including the PRC, the Republic of Korea, Malaysia, and the Maldives. Over the same period, electricity production more than quadrupled, albeit from a low base, in lower- and lower-middle-income economies such as Bangladesh, Cambodia, Indonesia, the Lao People's Democratic Republic, Myanmar, Nepal, Timor-Leste, and Viet Nam.[2]

The region accounted for almost 43% of global energy demand in 2012. Asia and the Pacific's share of global energy demand far exceeds the shares of Europe and Central Asia, and North America, which were 21.2% and 18.4%, respectively, in 2012 (Figure 6.3). Due to population growth and

[2] Income levels are based on World Bank classification according to gross national income per capita. http://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD

rapidly rising incomes in the PRC over the last 2 decades, its share of energy use in Asia and Pacific now exceeds 50%.

Figure 6.3: Energy Use by Global Region and by Economy in Asia and the Pacific, 2012
(kilotons of oil equivalent, %)

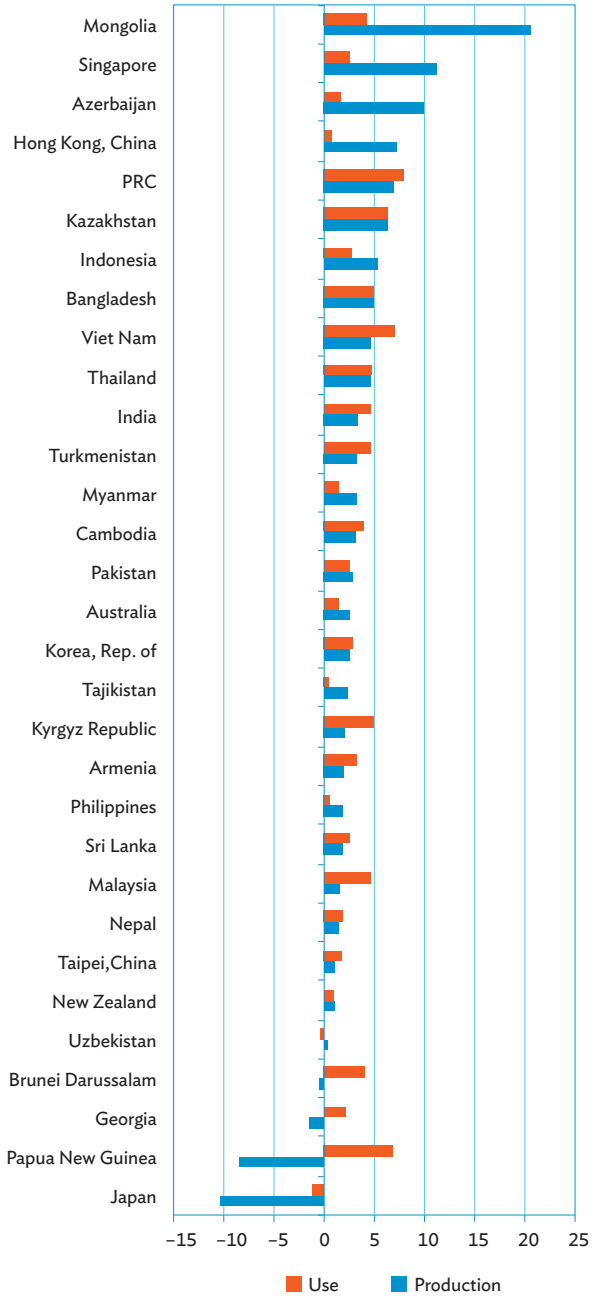


Sources: Table 6.3 and International Energy Agency.

Figure 6.4 shows the average annual percentage growth of energy use and production of 31 regional economies between 2000 and 2012. The PRC recorded the highest average annual growth rate in energy use at 7.9%, followed by Viet Nam at 7.0% and Papua New Guinea at 6.9%. On the production side, energy output increased in Mongolia, a producer and exporter of coal, by 20.5% annually between 2000 and 2012. Singapore, which is almost wholly dependent upon natural gas imports, boosted its energy production by 11.2% annually over the same period. Azerbaijan, an exporter of oil and natural gas, experienced an average annual growth rate of 10.0% in its energy production between 2000 and 2012.

Most Asian economies require imports to meet energy demand. The four biggest energy users in Asia and the Pacific—the PRC, India, Japan, and the Republic of Korea—account for almost 80% of the region's total energy use. All four have increased their import dependence since 2000. In Japan, demand for energy imports jumped to 93.7% of total energy use in 2012 from 80.1% only 2 years earlier as domestic energy production fell more than 70% due to the shutdown of most of Japan's nuclear plants in the aftermath of the 2011 earthquake and tsunami (Table 6.4).

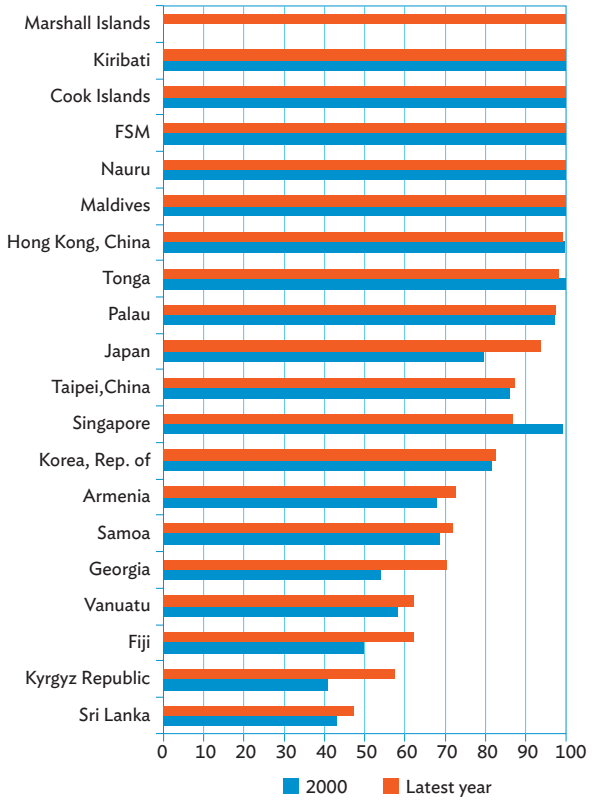
Figure 6.4: Average Annual Growth of Energy Production and Energy Use, 2000–2012
(kilotons of oil equivalent, %)



PRC = People's Republic of China.
Note: Growth rates are computed only for economies with complete annual data from 2000 to 2012.
Sources: Tables 6.3 and 6.4.

Figure 6.5a shows energy imports as a percentage of an economy's domestic energy use in 2000 and 2012, or the latest year for which data are available, among the region's 20 most energy-import-dependent economies. Four of the region's most dynamic developing economies—Hong Kong, China; the Republic of Korea; Singapore; and Taipei,China—are reliant on imports to meet more than 80% their energy requirements. Among Pacific economies, dependence upon energy imports is widespread, with oil imports comprising as much as 29% of gross domestic product (GDP) in the Cook Islands, 15% in Tonga, and 9% in Samoa.[3]

Figure 6.5a: Net Energy Imports as Share of Energy Use, 2000 and Latest Year *(%)*

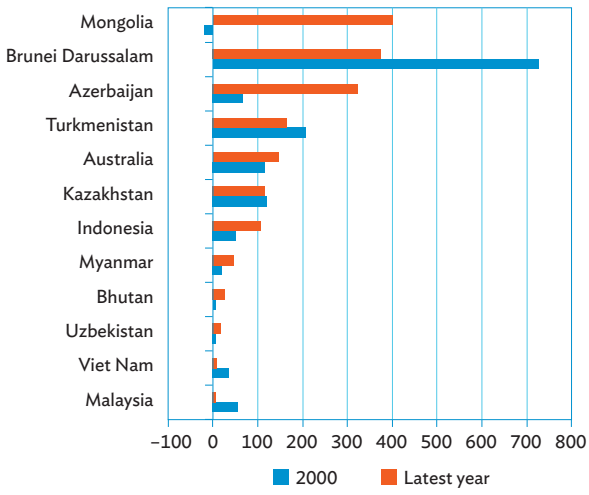


FSM = Federated States of Micronesia.
Notes: Economies included in the chart are the region's 20 most energy import-dependent economies. Latest year is 2008 for the Cook Islands, Fiji, Kiribati, the Maldives, the Marshall Islands, the FSM, Nauru, Samoa, Tonga, and Vanuatu. Latest year is 2012 for the rest of the economies.
Source: Table 6.4.

On current demand trends, regional oil imports could nearly triple from 11 million barrels a day to more than 30 million barrels a day by 2035, given that Asia only has an estimated 16% of the world's proven conventional gas reserves and 15% of technically recoverable oil and gas liquids.[4] Thus, the region is vulnerable to interruptions to global supplies. Decreasing dependence on imports can be achieved through measures such as reducing energy subsidies, investing in green urban development and transport, tapping more energy from renewable and local sources, and fostering regional cooperation and integration on energy issues.

Thirteen of the region's economies have energy exports that exceed their total energy use. Led by Timor-Leste, whose ratio of energy exports to energy use was too large to be included in Figure 6.5b, a number of the region's economies export energy—primarily coal, natural gas, and oil—at levels that are greater than the equivalent value of the total amount of energy consumed in the domestic economy. These

Figure 6.5b: Net Energy Exports as Share of Energy Use, 2000 and Latest Year *(%)*



Notes: Economies included in the chart are the region's net energy exporters in 2012. Latest year for Bhutan is 2008; all other economies is 2012. Timor-Leste is excluded from the graph due to its extremely large ratio.
Source: Table 6.4.

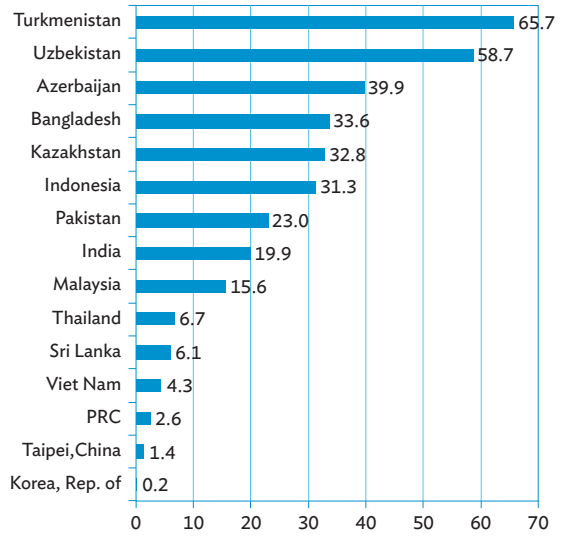
[3] Linda Hutchinson-Jafar. 2014. Small Island States Seek to End Their Dependence on Imported Oil. http://www.trust.org/item/?map=small-island-states-seek-to-end-dependence-on-imported-oil

[4] ADB. 2013. *Asia's Energy Challenge: Economic Trends and Prospects in Developing Asia*. Manila.

economies generally derive significant revenue from such exports and therefore may face fiscal strains amid plummeting global prices for oil and other energy commodities.

Six economies in Asia subsidize fossil fuels by more than 25% of the supply cost. Figure 6.6 shows to what extent 15 regional economies have lowered end-use prices for fossil fuels to levels below the full cost of supply. In Turkmenistan and Uzbekistan, consumers pay less than half of the actual cost of fuel. Such subsidies have several drawbacks. They encourage consumption while ignoring the negative externalities to the environment. By underpricing fossil fuels, subsidies distort resource allocation and deter investment and innovation in cleaner energy sources. Subsidies can stimulate fuel imports and reduce exports, hurting national trade balances and draining government resources that could be used for social and economic development. Moreover, unless subsidies are well-targeted, they can benefit the relatively rich more than the poor since energy use rises with income.

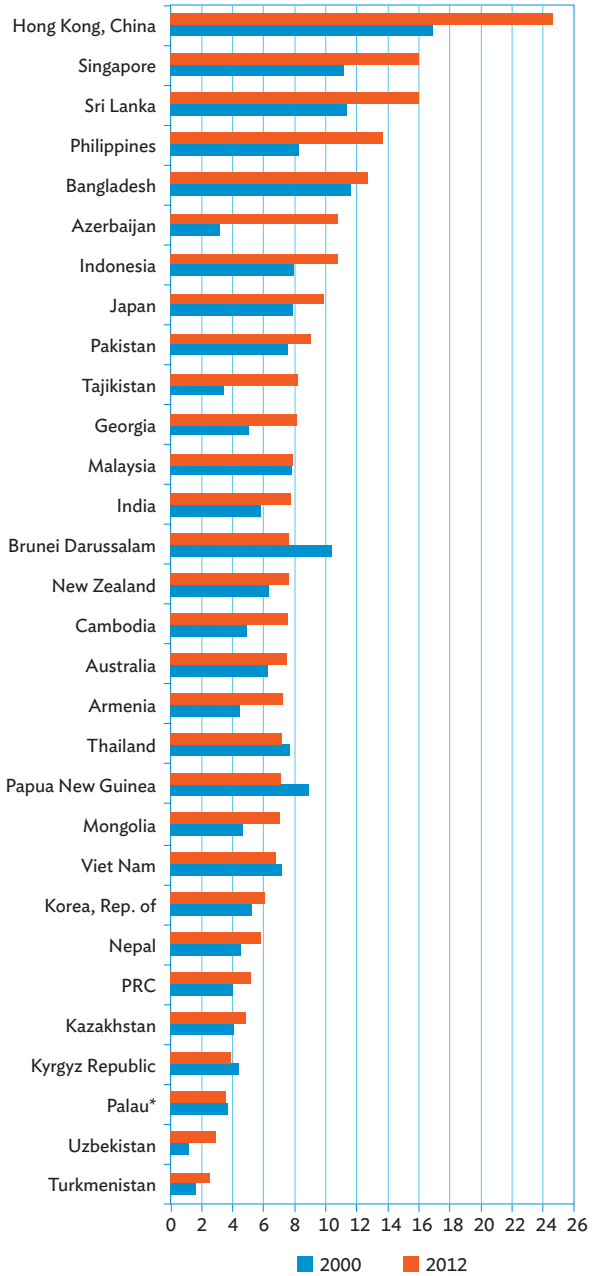
Figure 6.6: Fossil-Fuel Consumption Subsidy as Share of Supply Cost, 2013
(%)



PRC = People's Republic of China.
Source: International Energy Agency. Fossil Fuel Subsidy Database. http://www.worldenergyoutlook.org/resources/energysubsidies/fossilfuelsubsidydatabase/ (accessed 13 August 2015).

Energy efficiency has improved in most regional economies. Efficiency in energy use is influenced by several factors, including changes in industrial structure, technology, and energy mix. Figure 6.7 shows the changes in GDP per unit of energy use between 2000 and 2012. Many of the region's

Figure 6.7: GDP Per Unit Use of Energy, 2000 and 2012
(constant 2011 PPP $ per kilogram of oil equivalent)



PPP = purchasing power parity, PRC = People's Republic of China.
* Refers to 2000 and 2012 data.
Source: Table 6.3.

economies that realized the largest efficiency gains over this period previously had access to cheap energy as the republics of the former Soviet Union, including Armenia, Azerbaijan, Georgia, Tajikistan, Turkmenistan, and Uzbekistan. Inefficient energy use continued after independence until rising energy prices spurred increased energy efficiency in recent years.

Elsewhere in Asia and the Pacific, energy efficiency improvements of at least 30% between 2000 and 2012 were observed in Cambodia; Hong Kong, China; India; Indonesia; Mongolia; the Philippines; Singapore; and Sri Lanka. Table 6.3 shows that in 2012, 17 of the 30 economies for which data are available had an energy efficiency rating—measured in terms of GDP per unit of energy use—in excess of the global average of 7.3.

Data issues and comparability

Most of the energy data are compiled by the International Energy Agency using standard procedures and conversion factors. Data for the indicator on the household electrification rate are lacking. Rather than having data for one starting and one ending year, data for each are posted over a different range of years depending on data availability; thus, the data may not be comparable. This could indicate infrequent or irregular timing in the generation of data, making data inconsistent and limiting possibilities for analysis.

Similarly, data on the sources of electricity are incomplete. The Pacific island economies, which have limited resources for power generation, provide no data on the source of their electricity generated.

Table 6.1: Electricity Production and Sources

Regional Member	Total Electricity Production (billion kWh)		Sources of Electricity (% of total)									
			Coal		Natural Gas		Oil		Hydropower		Others[a]	
	1990	2012	1990	2012	1990	2012	1990	2012	1990	2012	1990	2012
Developing Member Economies												
Central and West Asia												
Afghanistan	1.1	1.0(2014)	...	...	...	...	...	...	...	...	...	...
Armenia	10.4	8.0	–	–	16.4	42.3	68.6	–	15.0	28.9	–	28.8
Azerbaijan	23.2	23.0	–	–	58.4	89.9	34.4	2.2	7.2	7.9	–	–
Georgia	13.7	9.7	–	–	15.6	25.5	29.2	–	55.2	74.5	–	–
Kazakhstan	87.4	91.2	71.1	76.1	10.5	14.7	10.0	0.8	8.4	8.4	–	–
Kyrgyz Republic	15.7	15.2	13.1	4.8	23.5	0.5	–	1.2	63.5	93.5	–	–
Pakistan	37.7	96.1	0.1	0.1	33.6	28.2	20.6	35.9	44.9	31.1	0.8	4.7
Tajikistan	18.1	17.0	–	–	9.1	0.4	–	–	90.9	99.6	–	–
Turkmenistan	14.6	17.8	–	–	95.2	100.0	–	–	4.8	–	–	–
Uzbekistan	56.3	52.5	7.4	4.1	76.4	73.8	4.4	0.7	11.8	21.4	–	–
East Asia												
China, People's Rep. of	621.2	4,994.1	71.3	75.8	0.4	1.7	7.9	0.1	20.4	17.5	0.0	4.9
Hong Kong, China	28.9	38.8	98.2	70.3	–	27.3	1.8	2.1	–	–	–	0.2
Korea, Rep. of	105.4	534.6	16.8	44.8	9.1	20.9	17.9	4.0	6.0	1.4	50.2	28.9
Mongolia	3.3	4.8	92.1	94.7	–	–	7.9	5.3	–	–	–	–
Taipei,China	90.2	250.3	27.1	49.9	1.4	25.4	26.0	3.1	9.1	3.4	36.4	18.2
South Asia												
Bangladesh	7.7	49.0	–	1.8	84.3	85.1	4.3	11.5	11.4	1.6	–	–
Bhutan	1.6	6.8	...	...	...	...	...	...	...	...	...	...
India	292.7	1,127.6	65.5	71.1	3.4	8.3	4.5	2.0	24.5	11.2	2.1	7.4
Maldives	0.0	0.3(2014)	...	...	...	...	...	...	...	...	...	...
Nepal	0.9	3.6	–	–	–	–	0.1	0.5	99.9	99.5	–	–
Sri Lanka	3.2	11.9	–	11.8	–	–	0.2	59.0	99.8	27.7	–	1.6
Southeast Asia												
Brunei Darussalam	1.2	3.9	–	–	99.1	99.0	0.9	0.9	–	–	–	0.1
Cambodia	0.2(1995)	1.4	–	2.6	–	–	100.0	59.8	–	36.1	–	1.6
Indonesia	32.7	195.9	29.9	48.7	2.2	23.2	46.9	16.7	17.5	6.5	3.4	4.9
Lao PDR	0.8	14.9(2014)	...	...	...	...	...	...	...	...	...	...
Malaysia	23.0	134.4	12.7	41.5	24.1	46.6	45.9	4.5	17.3	6.7	–	0.7
Myanmar	2.5	10.7	1.6	7.2	39.3	20.0	10.9	0.5	48.1	72.4	–	–
Philippines	26.3	72.9	7.3	38.8	–	26.9	47.2	5.8	23.0	14.1	22.4	14.4
Singapore	15.7	46.9	–	–	–	84.3	98.9	13.0	–	–	1.1	2.7
Thailand	44.2	166.6	25.0	20.0	40.2	70.3	23.5	1.5	11.3	5.3	0.0	3.0
Viet Nam	8.7	122.8	23.1	17.9	0.1	35.8	15.0	2.7	61.8	43.5	–	0.1
The Pacific												
Cook Islands	0.0	0.0(2014)	...	...	...	...	...	...	...	...	...	...
Fiji	0.4	0.8(2014)	...	...	...	...	...	...	...	...	...	...
Kiribati	0.0	0.0	...	...	...	...	...	...	...	...	...	...
Marshall Islands	0.0	0.1(2006)	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	0.1(1995)	0.1(2011)	...	...	...	...	...	...	...	...	...	...
Nauru	0.0	0.0(2007)	...	...	...	...	...	...	...	...	...	...
Palau	0.2(1992)	0.1(2011)	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	1.8	3.4	...	...	...	...	...	...	...	...	...	...
Samoa	0.1	0.1(2014)	...	...	...	...	...	...	...	...	...	...
Solomon Islands	0.0	0.1(2014)	...	...	...	...	...	...	...	...	...	...
Timor-Leste	0.1(2006)	0.3(2014)	...	...	...	...	...	...	...	...	...	...
Tonga	0.0	0.1(2014)	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	0.0	0.1(2013)	...	...	...	...	...	...	...	...	...	...
Developed Member Economies												
Australia	155.0	248.9	78.4	68.8	9.3	19.9	2.3	1.6	9.6	5.7	0.5	4.0
Japan	842.0	1,034.3	13.8	29.3	21.2	38.4	28.1	17.5	11.4	8.1	25.5	6.7
New Zealand	32.3	44.3	2.1	8.0	17.7	20.1	0.0	0.0	71.9	51.7	8.4	20.2

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, – = magnitude equals zero, kWh = kilowatt-hour, Lao PDR = Lao People's Democratic Republic.

a Computed as residual that includes combustible renewables and waste; and generation by nuclear power, geothermal, solar, wind, and tide and wave energy.

Sources: International Energy Agency; economy sources for Afghanistan; Bhutan; the Lao PDR; the Maldives; and the Pacific economies.

Electricity

Table 6.2: Electric Power Consumption and Electrification

Regional Member	Electric Power Consumption (per capita kWh)		Household Electrification Rate (% of households)	
	1990	2012	Earliest Year	Latest Year
Developing Member Economies				
Central and West Asia				
Afghanistan	21 (2001)	81 (2013)	...	25.0 (2005)
Armenia	2,720	1,840	98.9 (2000)	99.8 (2010)
Azerbaijan	2,580	2,050	...	99.5 (2006)
Georgia	3,040	1,930	...	...
Kazakhstan	5,910	5,090	99.9 (1995)	97.0 (1999)
Kyrgyz Republic	2,330	1,810	99.8 (1997)	99.8 (2012)
Pakistan	270	450	59.6 (1990)	93.6 (2012)
Tajikistan	3,350	1,730	97.0 (1999)	99.1 (2012)
Turkmenistan	2,290	2,480	...	99.6 (2000)
Uzbekistan	2,380	1,610	99.6 (1996)	99.7 (2002)
East Asia				
China, People's Rep. of	510	3,480	...	...
Hong Kong, China	4,180	6,030	...	...
Korea, Rep. of	2,370	10,350	...	...
Mongolia	1,490	1,600	67.3 (2000)	86.2 (2005)
Taipei,China	4,160	10,280	...	...
South Asia				
Bangladesh	50	280	17.8 (1993)	59.6 (2011)
Bhutan	254	977 (2005)	41.1 (2003)	72.0 (2007)
India	270	760	50.9 (1992)	67.9 (2005)
Maldives	113	531 (2014)	83.8 (2000)	99.8 (2009)
Nepal	40	120	17.9 (1996)	76.3 (2011)
Sri Lanka	150	530	...	80.7 (2002)
Southeast Asia				
Brunei Darussalam	4,350	8,950	...	...
Cambodia	10 (1995)	210	16.6 (2000)	31.1 (2010)
Indonesia	170	730	48.9 (1991)	96.0 (2012)
Lao PDR	64	103 (1997)	...	46.3 (2002)
Malaysia	1,150	4,310	...	...
Myanmar	40	150	...	47.0 (2002)
Philippines	360	670	65.4 (1993)	87.5 (2013)
Singapore	4,980	8,690	...	...
Thailand	710	2,480	...	...
Viet Nam	100	1,270	78.4 (1997)	96.1 (2005)
The Pacific				
Cook Islands	775	1,709 (2014)	97.0 (2006)	99.0 (2010)
Fiji	607	917 (2014)	...	84.0 (2008)
Kiribati	109	211	...	62.0 (2010)
Marshall Islands	961	1,516 (2006)	72.0 (2007)	90.0 (2011)
Micronesia, Fed. States of	...	...	46.0 (2000)	65.0 (2010)
Nauru	...	...	100.0 (2002)	100.0 (2011)
Palau	...	...	99.0 (2005)	98.0 (2012)
Papua New Guinea	485	477	12.0 (2006)	19.5 (2010)
Samoa	312	491	98.0 (2006)	96.4 (2011)
Solomon Islands	102	112 (2014)	14.0 (2005)	21.0 (2009)
Timor-Leste	27 (2006)	103 (2014)	27.0 (2002)	38.0 (2009)
Tonga	250	461 (2014)	89.0 (2006)	97.0 (2011)
Tuvalu	124	472 (2011)	94.0 (2005)	98.0 (2012)
Vanuatu	177	226 (2014)	...	33.0 (2009)
Developed Member Economies				
Australia	8,480	10,220	...	...
Japan	6,480	7,750	...	...
New Zealand	8,860	9,300	...	...

... = data not available at cutoff date, kWh = kilowatt-hour, Lao PDR = Lao People's Democratic Republic.

Sources: For electric power consumption: International Energy Agency; Economy sources for Afghanistan, Bhutan, the Lao PDR, the Maldives, and Pacific economies. For household electrification rate: International Development Association (IDA). Results Measurement System Online. http://data.worldbank.org/data-catalog/IDA-results-measurement (accessed 27 July 2015). The Demographic and Health Survey Program STAT compiler. http://www.statcompiler.com/ (accessed 28 July 2015); Pacific Regional Information System. National Minimum Development Indicators. http://www.spc.int/nmdi/MdiHome.aspx (accessed 28 July 2015).

Table 6.3: Use of Energy

Regional Member	GDP per Unit Use of Energy (constant 2011 PPP $ per kilogram of oil equivalent)						Energy Use (kilotons of oil equivalent)					
	1990	1995	2000	2005	2010[a]	2012[b]	1990	1995	2000	2005	2010[a]	2012[b]
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	1.7	4.3	4.5	6.4	7.8	7.3	7,708	1,645	2,015	2,512	2,483	2,971
Azerbaijan	2.7	1.8	3.2	5.0	12.5	10.8	22,662	13,903	11,296	13,427	11,586	13,692
Georgia	3.1	2.9	5.0	7.2	8.5	8.1	12,416	3,725	2,869	2,841	3,122	3,706
Kazakhstan	2.8	2.4	4.0	4.7	4.3	4.8	73,449	52,243	35,679	50,805	74,443	74,853
Kyrgyz Republic	2.0	3.2	4.4	4.9	5.4	3.9	7,486	2,384	2,317	2,497	2,805	4,132
Pakistan	7.7	7.7	7.6	8.1	8.7	9.1	42,857	53,538	64,067	76,227	84,311	85,758
Tajikistan	3.6	3.3	3.4	5.0	6.8	8.2	5,308	2,225	2,149	2,342	2,370	2,267
Turkmenistan	1.7	1.4	1.6	1.6	2.2	2.5	17,518	13,692	14,871	19,166	22,675	25,570
Uzbekistan	1.3	1.2	1.2	1.7	2.7	2.9	46,368	42,650	50,757	46,965	43,747	48,284
East Asia												
China, People's Rep. of	2.0	2.9	4.0	4.2	5.0	5.1	870,667	1,044,455	1,161,353	1,775,677	2,516,731	2,894,285
Hong Kong, China	17.8	18.7	16.9	22.0	24.4	24.6	8,658	10,650	13,392	12,664	13,838	14,633
Korea, Rep. of	5.6	5.2	5.2	5.8	6.0	6.1	93,087	144,756	188,161	210,176	249,964	263,442
Mongolia	3.3	3.6	4.7	5.8	6.1	7.0	3,408	2,695	2,397	2,625	3,454	3,943
Taipei,China	...	...	...	...	...	...	47,813	63,615	84,880	102,451	109,607	104,678
South Asia												
Bangladesh	10.7	10.7	11.6	11.6	12.1	12.7	12,736	15,897	18,591	23,868	30,756	33,172
Bhutan	1.4	1.6	1.9	2.4	2.9	...	900	940	1,066	1,233	1,366	...
India	4.9	5.1	5.8	6.8	7.6	7.8	316,743	384,285	457,198	539,388	723,743	788,126
Maldives	...	...	...	12.1	12.9	...	48	85	158	212	292	...
Nepal	3.9	4.3	4.5	4.7	5.3	5.8	5,789	6,712	8,108	9,132	10,218	10,100
Sri Lanka	10.3	12.4	11.3	12.8	15.9	16.0	5,516	5,949	8,327	9,001	9,844	11,268
Southeast Asia												
Brunei Darussalam	11.5	10.3	10.4	12.4	8.7	7.6	1,727	2,247	2,385	2,217	3,240	3,863
Cambodia	...	4.1	4.9	7.6	7.2	7.6	...	2,837	3,412	3,436	5,024	5,482
Indonesia	8.2	9.1	7.9	8.6	9.7	10.8	98,623	130,817	154,768	179,461	211,296	213,587
Lao PDR	5.7	6.7	7.6	8.6	8.9	...	1,199	1,396	1,654	1,962	2,594	...
Malaysia	8.6	8.6	7.8	7.3	7.9	7.9	21,549	33,882	47,110	63,507	72,645	81,234
Myanmar	...	...	...	...	...	...	10,679	11,809	12,841	14,817	13,997	15,270
Philippines	8.7	8.2	8.3	10.6	12.9	13.6	28,616	33,541	39,872	38,756	40,512	42,551
Singapore	9.1	8.4	11.1	12.0	10.7	16.0	11,515	18,811	18,692	21,947	34,280	25,053
Thailand	8.6	8.8	7.7	7.2	7.3	7.2	41,944	61,924	72,284	99,166	117,429	126,557
Viet Nam	5.5	6.7	7.2	6.9	6.6	6.7	17,866	21,885	28,736	41,455	58,912	64,855
The Pacific												
Cook Islands	...	...	...	...	...	...	7	7	9	20	24	...
Fiji	8.4	7.9	9.8	7.6	9.5	...	491	600	534	776	635	...
Kiribati	14.7	15.7	13.6	20.3	17.1	...	7	7	11	8	10	...
Marshall Islands	...	...	...	5.0	5.3	...	...	...	...	34	33	...
Micronesia, Fed. States of	...	...	7.6	9.2	8.1	...	...	...	45	38	41	...
Nauru	...	...	...	...	...	...	43	45	44	46	47	...
Palau	...	3.8	3.7	4.4	3.4	3.6	...	63	67	66	74	75
Papua New Guinea	7.7	11.0	8.9	6.4	6.7	7.1	864	921	1,123	1,742	2,208	2,501
Samoa	9.7	10.0	11.3	13.0	14.0	...	61	63	67	74	75	...
Solomon Islands	4.3	6.3	5.3	5.4	6.6	...	130	131	134	138	141	...
Timor-Leste	...	...	...	20.6	21.3	...	...	...	...	62	72	...
Tonga	13.1	11.1	11.0	8.7	6.8	...	26	37	41	58	72	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	12.9	15.7	10.9	14.0	12.5	...	29	28	48	39	53	...
Developed Member Economies												
Australia	5.7	5.9	6.2	7.0	7.4	7.5	86,226	92,559	108,110	113,503	122,512	128,274
Japan	8.3	7.9	7.9	8.3	8.8	9.9	439,325	496,262	518,964	520,541	499,092	452,281
New Zealand	6.2	6.3	6.3	7.8	7.6	7.6	12,868	14,890	17,056	16,846	18,287	18,961
WORLD	**5.3**	**5.6**	**6.2**	**6.5**	**7.0**	**7.3**						

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PPP = purchasing power parity.

a Refers to 2008 data for Bhutan, the Cook Islands, Fiji, Kiribati, the Maldives, the Marshall Islands, the Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Timor-Leste, Tonga, and Vanuatu; refers to 2009 data for the Lao PDR.

b Refers to 2011 data for Palau.

Sources: For GDP per unit use of energy: ADB estimates. For energy use: International Energy Agency. http://www.iea.org/statistics/statisticssearch/ (accessed 29 July 2015); for Papua New Guinea: Asia Pacific Economic Cooperation Energy Database. http://www.ieej.or.jp/egeda/database/database-top.html (accessed 29 July 2015); for Bhutan, the Lao PDR, the Maldives, and the Pacific economies except Papua New Guinea: Asian Development Bank. *Energy Statistics in Asia and the Pacific 1990–2009*; for 2010 and 2011 data of Palau: United Nation Statistical Division. *2011 Energy Statistics Yearbook*.

Table 6.4: Energy Production and Imports

Regional Member	Production (kiloton of oil equivalent)						Energy Imports, Net (% of energy use)					
	1990	1995	2000[a]	2005	2010[b]	2012[c]	1990	1995	2000[a]	2005	2010[b]	2012[c]
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	149	258	643	869	878	811	98.1	84.3	68.1	65.4	64.6	72.7
Azerbaijan	20,775	14,742	18,808	27,253	65,515	58,732	8.3	−6.0	−66.5	−103.0	−465.5	−329.0
Georgia	2,016	1,194	1,324	980	1,312	1,099	83.8	67.9	53.8	65.5	58.0	70.3
Kazakhstan	90,975	63,850	78,575	118,570	156,750	164,638	−23.9	−22.2	−120.2	−133.4	−110.6	−119.9
Kyrgyz Republic	2,502	1,259	1,368	1,334	1,273	1,749	66.6	47.2	41.0	46.6	54.6	57.7
Pakistan	34,178	41,045	46,895	60,719	64,303	65,992	20.3	23.3	26.8	20.3	23.7	23.0
Tajikistan	2,026	1,329	1,264	1,546	1,509	1,672	61.8	40.3	41.2	34.0	36.3	26.2
Turkmenistan	73,005	32,836	45,967	61,601	47,244	68,028	−316.8	−139.8	−209.1	−221.4	−108.4	−166.0
Uzbekistan	38,646	48,668	54,962	56,405	55,107	56,748	16.7	−14.1	−8.3	−20.1	−26.0	−17.5
East Asia												
China, People's Rep. of	880,835	1,064,500	1,129,801	1,701,392	2,262,039	2,525,275	−1.2	−1.9	2.7	4.2	10.1	12.7
Hong Kong, China	43	47	50	51	53	115	99.5	99.6	99.6	99.6	99.6	99.2
Korea, Rep. of	22,623	21,148	34,445	42,982	44,922	46,215	75.7	85.4	81.7	79.5	82.0	82.5
Mongolia	2,741	2,247	1,949	3,476	14,686	18,328	19.6	16.6	18.7	−32.4	−325.2	−364.8
Taipei,China	10,649	10,626	11,793	12,485	12,955	13,307	77.7	83.3	86.1	87.8	88.2	87.3
South Asia												
Bangladesh	10,758	12,777	15,144	19,269	25,760	27,187	15.5	19.6	18.5	19.3	16.2	18.0
Bhutan	980	1,036	1,115	1,284	1,720	...	−8.9	−10.2	−4.6	−4.1	−25.9	...
India	291,816	335,773	366,389	423,857	531,304	544,554	7.9	12.6	19.9	21.4	26.6	30.9
Maldives	–	–	–	–	–	...	100.0	100.0	100.0	100.0	100.0	...
Nepal	5,501	6,138	7,138	8,152	8,878	8,511	5.0	8.5	12.0	10.7	13.1	15.7
Sri Lanka	4,191	4,022	4,748	4,920	5,544	5,930	24.0	32.4	43.0	45.3	43.7	47.4
Southeast Asia												
Brunei Darussalam	15,642	18,241	19,684	21,060	18,573	18,520	−805.8	−711.8	−725.5	−850.0	−473.2	−379.4
Cambodia	...	2,325	2,718	2,496	3,621	3,936	...	18.0	20.3	27.4	27.9	28.2
Indonesia	168,509	214,479	236,618	279,941	381,429	440,251	−70.9	−64.0	−52.9	−56.0	−80.5	−106.1
Lao PDR	1,085	1,244	1,678	1,934	2,368	...	9.5	10.9	−1.5	1.4	14.2	...
Malaysia	47,341	62,372	74,298	91,385	85,878	88,799	−119.7	−84.1	−57.7	−43.9	−18.2	−9.3
Myanmar	10,654	10,999	15,418	22,193	22,530	22,511	0.2	6.9	−20.1	−49.8	−61.0	−47.4
Philippines	17,225	15,820	19,549	21,396	23,416	24,433	39.8	52.8	51.0	44.8	42.2	42.6
Singapore	58	168	168	329	842	603	99.5	99.1	99.1	98.5	97.5	86.8
Thailand	26,576	33,193	43,948	55,188	70,559	75,730	36.6	46.4	39.2	44.3	39.9	40.2
Viet Nam	18,280	26,432	39,919	60,759	66,388	69,334	−2.3	−20.8	−38.9	−46.6	−12.7	−6.9
The Pacific												
Cook Islands	–	–	–	–	–	...	100.0	100.0	100.0	100.0	100.0	...
Fiji	235	321	269	250	240	...	52.1	46.5	49.6	67.8	62.2	...
Kiribati	–	–	–	–	–	...	100.0	100.0	100.0	100.0	100.0	...
Marshall Islands	...	...	...	–	–	...	...	...	...	100.0	100.0	...
Micronesia, Fed. States of	...	...	–	–	–	...	...	...	100.0	100.0	100.0	...
Nauru	–	–	–	–	–	...	100.0	100.0	100.0	100.0	100.0	...
Palau	...	2	2	2	2	2	...	96.8	97.0	97.0	97.3	97.3
Papua New Guinea	4,611	4,897	3,866	2,778	1,428	1,341	−433.7	−431.7	−244.3	−59.5	35.3	46.4
Samoa	18	19	21	21	21	...	70.5	69.8	68.7	71.6	72.0	...
Solomon Islands	75	77	79	79	76	...	42.3	41.2	41.0	42.8	46.1	...
Timor-Leste	...	...	7,242	7,318	7,369	...	...	...	−11,580.6	−11,703.2	−10,134.7	...
Tonga	–	–	–	1	1	...	100.0	100.0	100.0	98.3	98.3	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	5	5	20	20	20	...	82.8	82.1	58.3	48.7	62.3	...
Developed Member Economies												
Australia	157,523	186,897	233,552	265,161	308,573	317,386	−82.7	−101.9	−116.0	−133.6	−151.9	−147.4
Japan	75,211	98,567	105,841	100,533	99,514	28,317	82.9	80.1	79.6	80.7	80.1	93.7
New Zealand	11,522	12,648	14,286	12,855	16,880	16,044	10.5	15.1	16.2	23.7	7.7	15.4

... = data not available at cutoff date, – = magnitude equals zero, Lao PDR = Lao People's Democratic Republic.

a Refers to 2002 data for Timor-Leste.
b Refers to 2008 data for Bhutan, the Cook Islands, Fiji, Kiribati, the Maldives, the Marshall Islands, the Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Timor-Leste, Tonga, and Vanuatu; refers to 2009 data for the Lao PDR.
c Refers to 2011 data for Palau.

Sources: For production: World Bank. World Development Indicators Online. http://databank.worldbank.org/data/home.aspx (accessed 10 July 2014); International Energy Agency. http://www.iea.org/statistics/statisticssearch/ (accessed 29 July 2015); for Papua New Guinea: Asia Pacific Economic Cooperation Energy Database. http://www.ieej.or.jp/egeda/database/database-top.html (accessed 29 July 2015); for Bhutan, the Lao PDR, the Maldives, and the Pacific economies except Papua New Guinea: Asian Development Bank. *Energy Statistics in Asia and the Pacific 1990–2009*; for 2010 and 2012 data of Palau: United Nation Statistical Division. *2011 Energy Statistics Yearbook*.
For net energy imports as % of energy use: World Bank. World Development Indicators Online. http://databank.worldbank.org/data/home.aspx (accessed 27 July 2015; ADB estimates.

Table 6.5: Retail Prices of Fuel Energy

($ per liter)

Regional Member	Gasoline Premium						Diesel					
	1990	1995	2000	2005[a]	2010[b]	2014[c]	1990	1995	2000	2005[d]	2010[e]	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	0.39	0.51	0.73	1.01	1.13	...	...	0.34	0.60	0.92	1.11
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...
Georgia	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	0.30	0.35	0.47	0.58	0.76	...	...	0.30	0.39	0.53	0.60
Kyrgyz Republic	...	...	...	...	...	...	...	...	...	...	...	...
Pakistan	...	0.47	0.48	0.82	0.80	1.09	...	0.20	0.22	0.54	0.83	1.13
Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	0.42	0.44	0.33	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of	...	...	...	...	...	...	...	...	...	...	...	...
Hong Kong, China	0.82	1.14	1.32	1.60	1.75	2.01	0.57	0.75	0.80	1.00	1.25	1.62
Korea, Rep. of	0.54	0.78	1.10	1.40	1.48	1.74	0.25	0.30	0.54	1.05	1.30	1.55
Mongolia	...	...	0.33	0.56	1.01	0.85	...	...	0.38	0.81	0.96	0.98
Taipei,China	0.69	0.59	0.57	0.73	0.94	1.06	0.48	0.45	0.44	0.60	0.82	1.02
South Asia												
Bangladesh	...	...	...	...	...	...	...	...	...	...	...	...
Bhutan	...	...	...	...	...	...	...	...	...	...	...	...
India	0.56	0.52	0.58	0.86	1.05	1.18	0.23	0.22	0.32	0.64	0.83	0.91
Maldives	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	0.65	0.52	0.58	0.87	1.22	1.30	0.31	0.21	0.33	0.58	0.95	1.08
Sri Lanka	0.75	0.78	0.65	0.80	1.02	1.15	0.27	0.24	0.32	0.50	0.65	0.85
Southeast Asia												
Brunei Darussalam	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	0.24	0.31	0.14	0.46	0.62	...	0.13	0.16	0.07	0.53	0.66	...
Lao PDR	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	0.40	0.44	0.29	0.40	0.67	0.85	0.22	0.26	0.18	0.29	0.57	0.63
Myanmar	0.01	0.01	...	...	1.41	1.09	0.00	0.01	...	...	1.37	1.08
Philippines	0.40	0.35	0.37	0.57	0.96	...	0.25	0.27	0.28	0.51	0.76	...
Singapore	0.61	0.85	0.81	0.83	...	...	0.28	0.33	0.33	0.56	0.89	1.18
Thailand	0.36	0.36	0.39	0.59	1.12	...	0.26	0.30	0.32	0.50	0.90	0.92
Viet Nam	...	...	...	...	...	...	...	...	...	...	...	...
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	0.74	0.84	0.78	1.23	1.50	1.84	...	...	...	...	...	...
Developed Member Economies												
Australia	0.51	0.56	0.49	0.89	1.09	1.25	...	...	...	0.95	1.09	1.27
Japan	0.98	1.40	1.05	1.23	1.64	1.64	0.52	0.85	0.76	0.91	1.28	1.34
New Zealand	0.57	0.62	0.51	0.97	1.34	1.83	0.42	0.33	0.33	0.64	0.85	1.17

...= data not available at cutoff date, 0.00 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Refers to 2004 data for Singapore and Uzbekistan.
b Refers to 2008 data for Indonesia and 2009 for Thailand.
c Refers to 2013 data for Kazakhstan and Vanuatu.
d Refers to 2006 data for Mongolia.
e Refers to 2008 data for Indonesia.

Source: Economy sources.

Environment

Snapshots

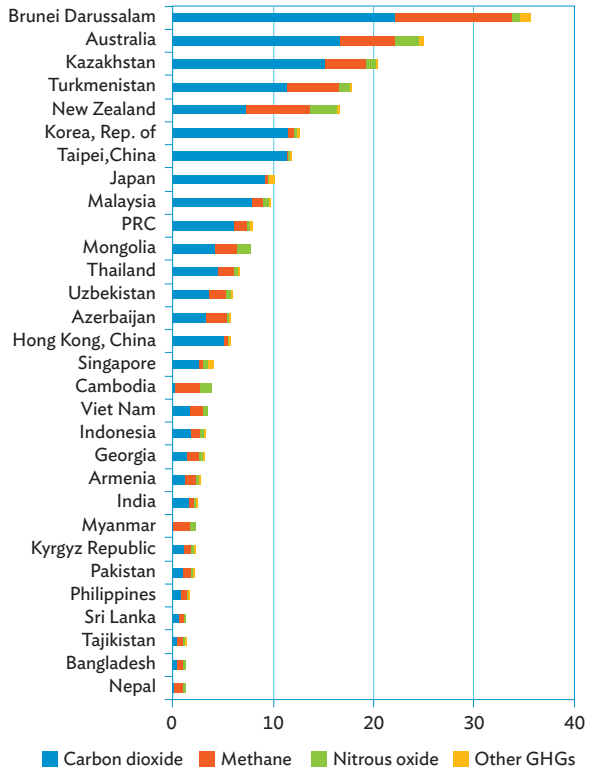
- Asia's economic development has led to increased emissions of greenhouse gases.
- Between 2000 and 2012, almost half of the economies in the region expanded the amount of land devoted to agriculture.
- Four of the 10 economies with the highest rates of deforestation in 2012 were located in Southeast Asia.
- The management of limited freshwater resources amid population growth is a challenge facing many Asia and Pacific economies.
- The percentage of agricultural nitrous oxide emissions as a share of total nitrous oxide emissions increased in nearly two-thirds of the region's economies between 1990 and 2010.
- The percentage of agricultural methane emissions as a share of total methane emissions decreased in three-quarters of the region's economies between 1990 and 2010.

Key trends

Asia's economic development has led to increased emissions of greenhouse gases. Greenhouse gas (GHG) emissions contribute to global climate change, which is expected to cause rising sea levels and more severe storms, droughts, heat waves, and floods. Between 2000 and 2010, Asia's GHG emissions increased in both absolute terms and as a share of the global total.[1] Figure 7.1 presents per capita emissions in 2010 of carbon dioxide and the carbon dioxide equivalents of nitrous oxide; methane gas; and other GHGs including hydrofluoro-carbons, perfluoro-carbons, and sulphur hexafluoride. The highest per capita emitters among Asia and Pacific economies in 2010 were Brunei Darussalam, Australia, and Kazakhstan.

Between 2000 and 2012, almost half of Asia and Pacific economies expanded the amount of land devoted to agriculture. Changes in dietary preferences is one of the factors that has stimulated the expansion of land used for crops and pastures as

Figure 7.1: Per Capita Emissions of Carbon Dioxide. Methane, Nitrous Oxide, and Other Greenhouse Gases, 2010
(tons)



GHG = greenhouse gas, PRC = People's Republic of China.
Sources: Table 1.1, Table 7.2, United Nations: *Millenium Development Goals Indicators*. http://mdgs.un.org/unsd/mdg/Data.aspx; and for Taipei,China, Directorate-General of Budget, Accounting and Statistics. *Statistical Yearbook 2014*. http://eng.dgbas.gov.tw

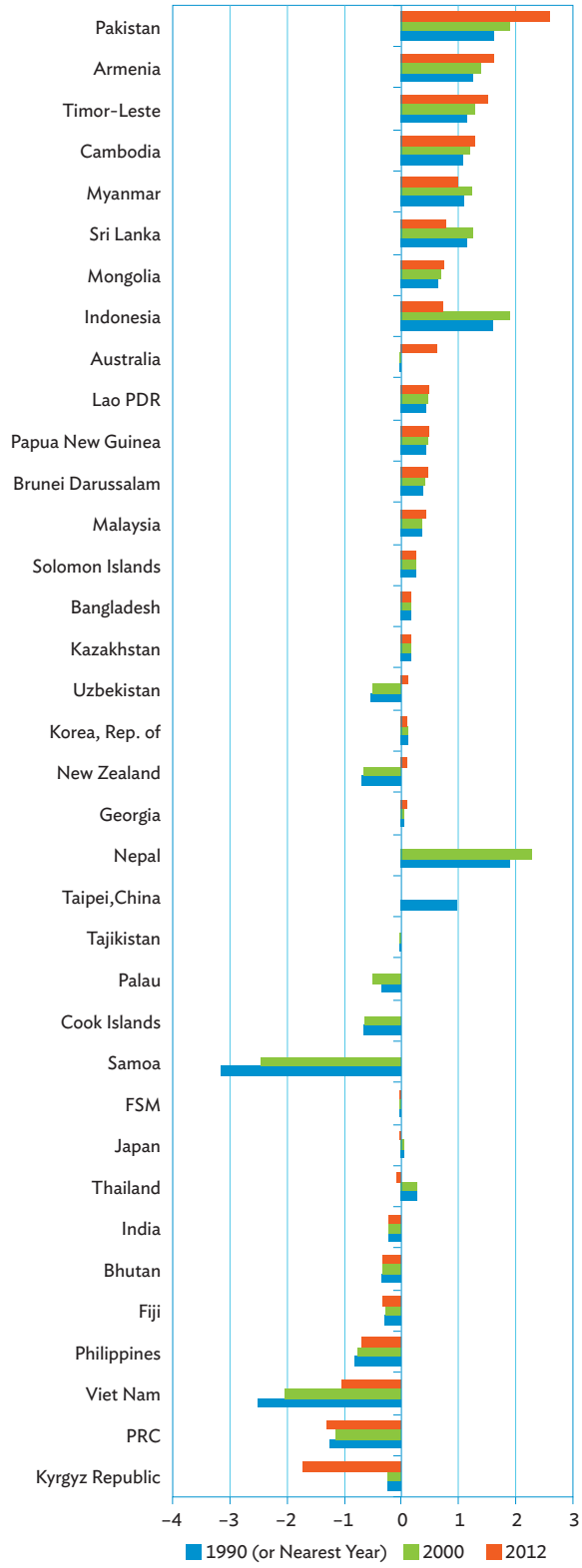
[1] United States Environmental Protection Agency. Climate Change. http://www3.epa.gov/climatechange/science/indicators/ghg/global-ghg-emissions.html.

a percentage of total land area.[2] In Southeast Asia, nine of the subregion's 10 economies experienced an increase in the percentage of land devoted to agriculture between 2000 and 2012 (Table 7.1). Conversely, all five economies in East Asia and all but two of South Asia's six economies saw a decline in the amount of land used for agriculture over the same period.

Four of the 10 economies in the region with the highest rates of deforestation in 2012 were in Southeast Asia. Between 1990 and 2012, 11 Asia and Pacific economies expanded their forested area, 12 had no net change, and 25 experienced a decline.[3] The loss of forest resources negatively impacts biodiversity, exacerbates climate change, and threatens the livelihoods of the rural poor. Figure 7.2 presents deforestation rates for 36 of the region's economies in 1990, 2000, and 2012. Four of the top 10 deforestation rates in 2012 belonged to economies in Southeast Asia—Cambodia, Indonesia, the Lao People's Democratic Republic, and Myanmar. At the same time, two Southeast Asian economies, the Philippines and Viet Nam, had negative deforestation rates (reforestation) in 1990, 2000, and 2012, while Indonesia saw the most significant decline in its deforestation rate between 2000 and 2012.

The management of limited freshwater resources amid population growth is a challenge facing many Asia and Pacific economies. While the earth's endowment of freshwater remains constant, human appropriation of water, already estimated at 50% of the total supply, is expected to increase given population growth and expanding preferences for meat-based diets.[4] Figure 7.3 presents the per capita freshwater resources of Asia and Pacific economies

Figure 7.2: Deforestation Rates, 1990 (or Nearest Year), 2000, and 2012
(%)



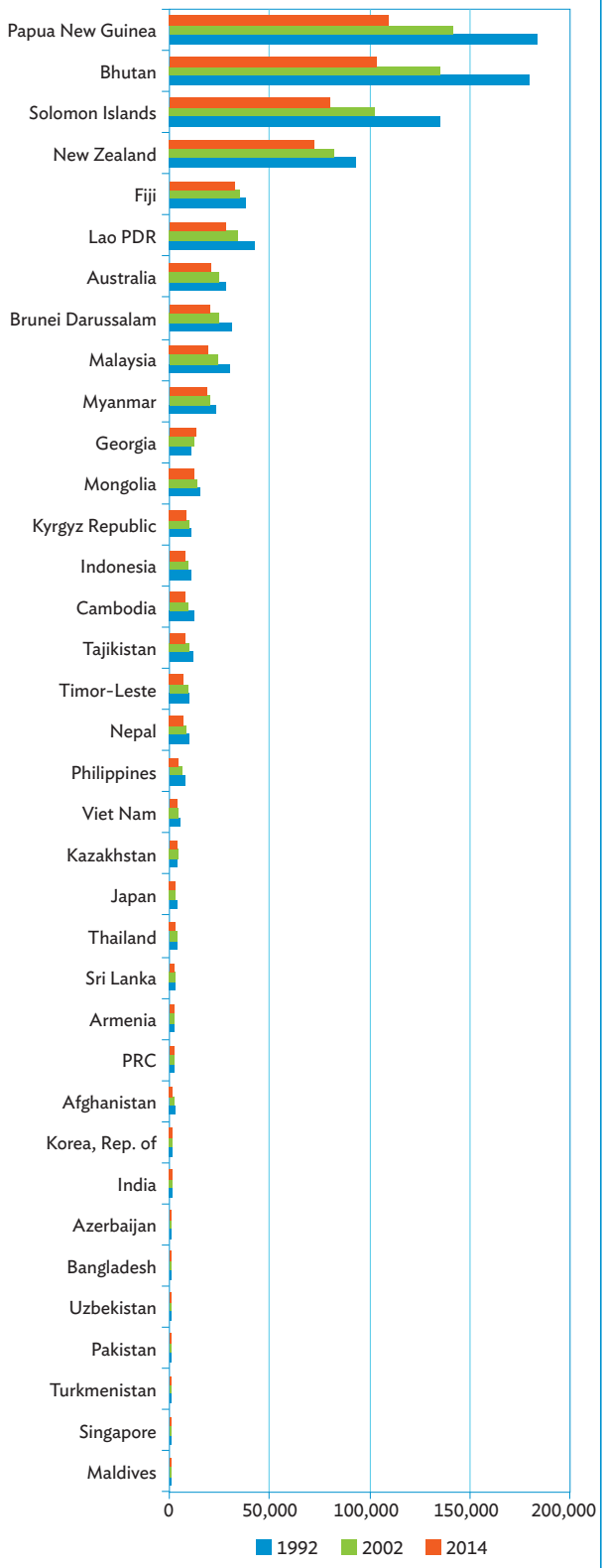
FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 7.2.

[2] U. Chakravorty, M. Moreaux, and L. Nostbakken. 2010. Will Biofuel Mandates Raise Food Prices. *TSE Working Papers* Nos. 10–212. Toulouse, France: Toulouse School of Economics.

[3] Food and Agriculture Organization. FAOSTAT Database. http://faostat3.fao.org/download/F/*/E

[4] Pacific Institute. 2014. *The World's Water, Volume 8*. Washington, DC: Island Press.

Figure 7.3: Internal Renewable Freshwater Resources Per Capita
(m^3/year per inhabitant)



m^3 = cubic meter, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 7.3.

in 1992, 2002, and 2014. Between 1992 and 2014, the level of per capita freshwater fell in all but two economies: Armenia and Georgia. Both of these economies have experienced population decline since 1992.

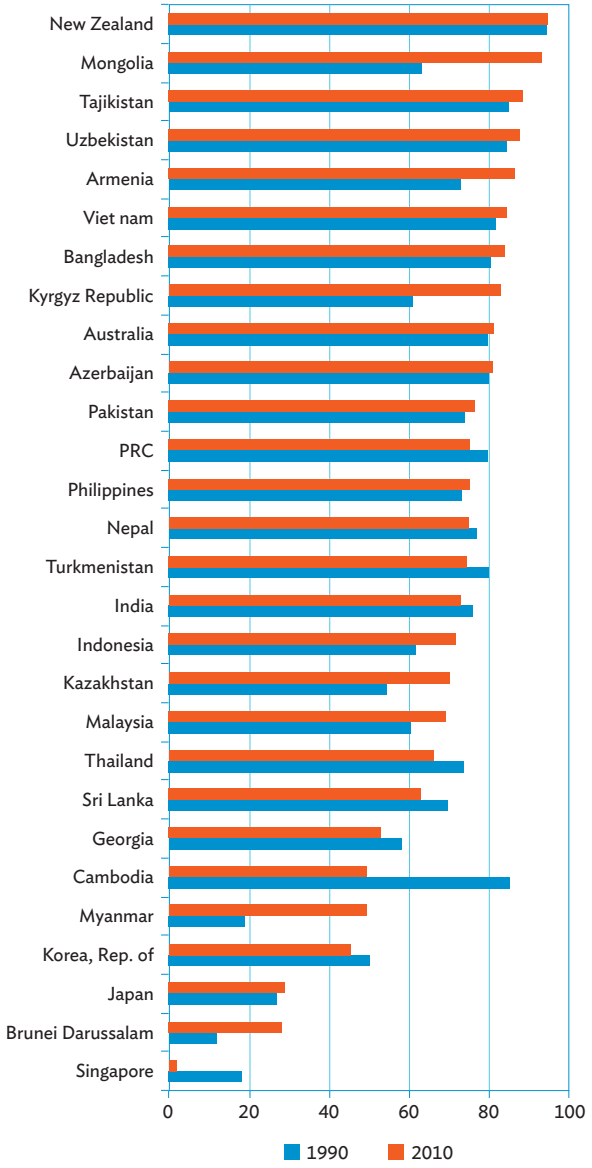
The percentage of agricultural nitrous oxide emissions as a share of total nitrous oxide emissions increased in nearly two-thirds of the region's economies between 1990 and 2010 (Figure 7.4). Human activities such as agriculture, fossil fuel combustion, wastewater management, and industrial processes increase the amount of nitrous oxide, a GHG, in the atmosphere. With regard to agriculture, nitrous oxide is emitted when nitrogen is added to the soil through the use of synthetic fertilizers.[5] The 10 Asia and Pacific economies in which agricultural nitrous oxide emissions account for the largest shares of total nitrous oxide emissions all experienced an increase in the relative contribution of agricultural emissions to total nitrous oxide emissions between 1990 and 2010.

The percentage of agricultural methane emissions as a share of total methane emissions decreased in three-quarters of the region's economies between 1990 and 2010. Methane is emitted by natural sources such as wetlands, as well as human activities such as leakage from natural gas systems and the raising of livestock. Methane's lifetime in the atmosphere is much shorter than carbon dioxide's, but methane is more efficient at trapping radiation than carbon dioxide.[6] Only one-quarter of the 28 Asia and Pacific economies for which data are available experienced an increase in the contribution of agricultural methane emissions as a share of total methane emissions between 1990 and 2010 (Figure 7.5). Of these seven economies, six

5 United States Environmental Protection Agency. Overview of Greenhouse Gases—Nitrous Oxide Emissions. http://epa.gov/climatechange/ghgemissions/gases/n2o.html

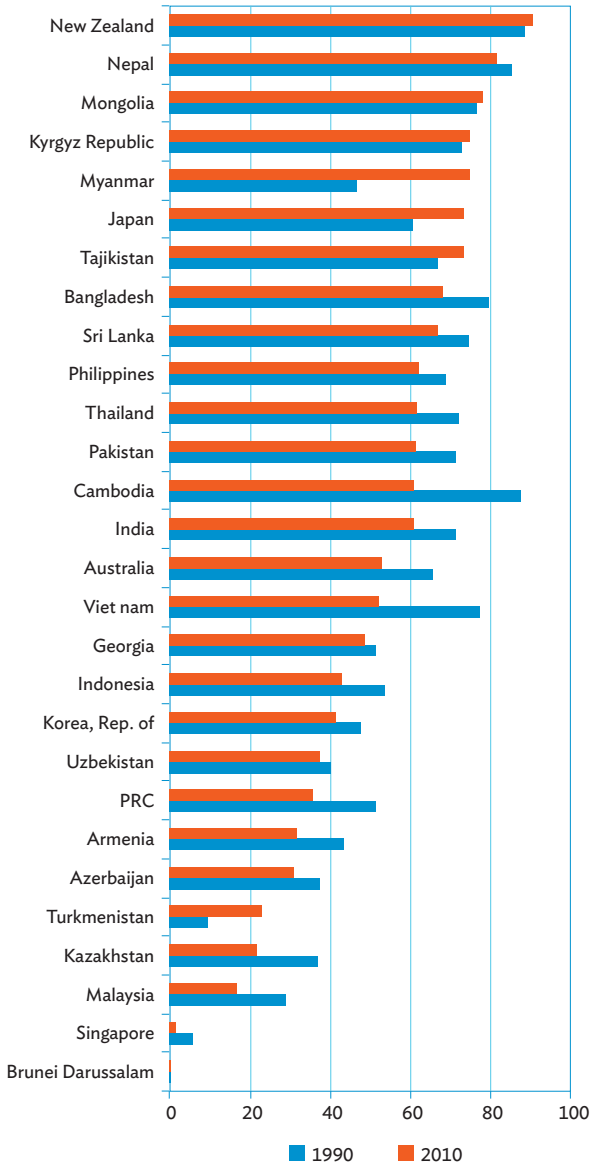
6 United States Environmental Protection Agency. Overview of Greenhouse Gases—Methane Emissions. http://epa.gov/climatechange/ghgemissions/gases/ch4.html

Figure 7.4: Agricultural Nitrous Oxide Emissions
(percent of total)



PRC = People's Republic of China.
Source: Table 7.2.

Figure 7.5: Agricultural Methane Emissions
(percent of total)



PRC = People's Republic of China.
Source: Table 7.2.

were among the region's top 10 in terms of their ratio of agricultural methane emissions to total methane emissions, which likely indicates the significant role of the agriculture sector in these economies.

Data issues and comparability

Most of the energy data are compiled by the International Energy Agency using standard procedures and conversion factors. Statistics on chlorofluoro-carbon consumption are collected by the United Nations Industrial Development Organization as part of the process of monitoring the 2006 Montreal Protocol on limiting chlorofluoro-carbon emissions. Other United Nations agencies monitor outputs of GHGs and other pollutants.

The Food and Agriculture Organization of the United Nations monitors land use and forestry data using country reports and satellite imagery.

Table 7.1: Agriculture Land Use

(% of land area)

Regional Member	Agricultural Land			Arable Land			Permanent Cropland		
	1990	2000	2012	1990	2000	2012	1990	2000	2012
Developing Member Economies									
Central and West Asia									
Afghanistan	58.3	57.8	58.1	12.1	11.8	11.9	0.2	0.1	0.2
Armenia	41.1 (1992)	46.5	59.1	14.9 (1992)	15.8	15.7	2.1 (1992)	1.3	2.0
Azerbaijan	53.4 (1992)	57.4	57.7	20.5 (1992)	22.1	22.9	3.7 (1992)	2.9	2.8
Georgia	46.5 (1992)	43.2	35.5	11.4 (1992)	11.4	5.8	4.8 (1992)	3.9	1.8
Kazakhstan	82.0 (1992)	76.6	77.0	13.0 (1992)	8.0	8.5	0.1 (1992)	0.1	0.0
Kyrgyz Republic	52.6 (1992)	55.9	55.2	6.9 (1992)	7.1	6.7	0.4 (1992)	0.3	0.4
Pakistan	33.6	35.0	35.1	26.6	27.6	27.5	0.6	0.9	1.1
Tajikistan	32.1 (1992)	32.7	34.8	6.1 (1992)	5.6	6.1	0.9 (1992)	0.7	1.0
Turkmenistan	75.2 (1992)	75.5	72.0	3.2 (1992)	4.1	4.1	0.1 (1992)	0.1	0.1
Uzbekistan	65.2 (1992)	64.2	62.7	10.5 (1992)	10.5	10.2	0.9 (1992)	0.8	0.8
East Asia									
China, People's Rep. of	53.9	55.6	54.8	13.2	12.6	11.3	0.8	1.2	1.7
Hong Kong, China	8.1	6.7	4.9	6.1	4.8	3.0	1.0	1.0	1.0
Korea, Rep. of	22.6	20.5	18.4	20.2	17.8	15.6	1.6	2.1	2.1
Mongolia	80.9	84.0	73.0	0.9	0.8	0.4	0.0	0.0	0.0
Taipei,China[a]	24.6	23.5	22.1 (2013)	...	...	...	...	...	...
South Asia									
Bangladesh	79.8	72.2	70.1	72.6	64.1	59.0	2.5	3.5	6.5
Bhutan	9.7	13.3	13.6	2.9	2.7	2.6	0.4	0.5	0.3
India	61.0	60.9	60.3	55.0	54.1	52.5	2.2	3.1	4.3
Maldives	26.7	30.0	23.3	10.0	10.0	10.0	13.3	16.7	10.0
Nepal	29.0	29.6	28.7	16.2	16.4	14.8	0.2	0.8	1.5
Sri Lanka	37.3	37.5	42.9	14.4	14.6	19.9	15.9	15.9	15.9
Southeast Asia									
Brunei Darussalam	2.1	1.9	2.5	0.4	0.4	0.8	0.8	0.8	1.1
Cambodia	25.2	27.0	32.6	20.9	21.0	23.2	0.6	0.8	0.9
Indonesia	24.9	26.0	31.2	11.2	11.3	13.0	6.5	8.6	12.1
Lao PDR	7.2	8.0	10.7	3.5	4.0	6.3	0.3	0.4	0.7
Malaysia	20.8	21.4	23.6	3.1	2.9	2.9	16.9	17.6	19.8
Myanmar	16.0	16.5	19.3	14.6	15.2	16.6	0.8	0.9	2.2
Philippines	37.4	37.7	41.6	18.4	16.9	18.6	14.8	15.8	17.9
Singapore	3.0	1.8	1.0	1.5	1.5	0.9	1.5	0.3	0.1
Thailand	41.9	38.8	42.8	34.2	30.6	32.4	6.1	6.6	8.8
Viet Nam	20.7	28.2	35.0	16.4	19.9	20.6	3.2	6.2	12.3
The Pacific									
Cook Islands	25.0	20.8	8.3	8.3	8.3	4.2	16.7	12.5	4.2
Fiji	22.4	23.4	23.3	8.8	9.3	9.0	4.4	4.5	4.7
Kiribati	48.1	42.0	42.0	2.5	2.5	2.5	45.7	39.5	39.5
Marshall Islands	66.7 (1991)	66.7	72.2	5.6 (1991)	5.6	11.1	44.4 (1991)	44.4	44.4
Micronesia, Fed. States of	32.1 (1991)	32.1	31.4	3.6 (1991)	3.6	2.9	24.3 (1991)	24.3	24.3
Nauru	20.0	20.0	20.0	–	–	–	20.0	20.0	20.0
Palau	10.9 (1991)	10.9	10.9	2.2 (1991)	2.2	2.2	4.3 (1991)	4.3	4.3
Papua New Guinea	1.9	2.2	2.6	0.4	0.5	0.7	1.2	1.4	1.5
Samoa	19.1	17.0	12.4	6.7	4.9	2.8	11.7	11.0	7.8
Solomon Islands	2.4	2.7	3.8	0.4	0.5	0.7	1.9	2.0	2.9
Timor-Leste	21.4	22.7	25.8	7.4	8.1	10.8	3.9	4.5	5.0
Tonga	44.4	41.7	43.1	22.2	20.8	22.2	16.7	15.3	15.3
Tuvalu	66.7	66.7	60.0	–	–	–	66.7	66.7	60.0
Vanuatu	12.5	14.4	15.3	1.6	1.6	1.6	8.0	9.3	10.3
Developed Member Economies									
Australia	60.5	59.3	52.8	6.2	6.2	6.1	0.0	0.0	0.0
Japan	15.6	14.4	12.5	13.1	12.3	11.6	1.3	1.0	0.8
New Zealand	61.5	58.5	42.8	10.0	5.7	2.2	0.2	0.2	0.3

... = data not available at cutoff date, – = magnitude equals zero, 0.0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic Republic.

a Data do not include the counties of Kinmen and Lienchiang.

Sources: Food and Agriculture Organization. FAOSTAT Database. http://www.faostat.fao.org (accessed 18 June 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. *Statistical Yearbook 2014*. http://eng.dgbas.gov.tw/lp.asp?CtNode=2351&CtUnit=1072&BaseDSD=36&mp=2 (accessed 16 June 2015).

Table 7.2: Deforestation and Pollution

Regional Member	Deforestation Rate[a] (average % change)			Nitrous Oxide Emissions (thousand metric tons CO_2 equivalent)			Agricultural Nitrous Oxide Emissions (percent of total)		
	1990[b]	2000	2012	1990	2000	2010	1990	2000	2010
Developing Member Economies									
Central and West Asia									
Afghanistan	–	–	–	...	...	...	...	...	...
Armenia	1.27 (1993)	1.39	1.63	805	462	986	72.8	77.1	86.6
Azerbaijan	– (1993)	–	–	2,666	2,032	2,647	80.2	77.9	80.9
Georgia	0.05 (1993)	0.04	0.09	2,781	1,995	2,267	58.0	57.0	52.7
Kazakhstan	0.17 (1993)	0.17	0.17	33,505	15,965	17,454	54.6	61.7	70.2
Kyrgyz Republic	–0.26 (1993)	–0.26	–1.74	3,587	1,559	1,465	61.0	74.6	82.8
Pakistan	1.63	1.91	2.62	18,442	24,760	30,050	74.1	71.9	76.6
Tajikistan	–0.05 (1993)	–0.05	–	1,377	1,093	1,718	84.7	84.7	88.3
Turkmenistan	– (1993)	–	–	2,225	2,908	4,955	80.2	71.4	74.3
Uzbekistan	–0.54 (1993)	–0.52	0.12	9,196	9,249	11,966	84.7	80.9	87.9
East Asia									
China, People's Rep. of	–1.26	–1.13	–1.32	318,402	392,367	550,297	79.6	77.4	75.4
Hong Kong, China	...	...	...	397	513	467	–	–	–
Korea, Rep. of	0.13	0.13	0.11	9,823	17,958	14,686	50.2	26.4	45.3
Mongolia	0.65	0.69	0.76	5,151	5,107	3,478	63.4	89.7	93.4
Taipei,China	0.97	–	–	...	3,565	3,195 (2012)	...	...	...
South Asia									
Bangladesh	0.17	0.18	0.18	15,151	19,614	26,160	80.6	82.8	84.0
Bhutan	–0.35	–0.34	–0.33	...	...	...	...	...	...
India	–0.23	–0.22	–0.21	159,463	199,496	234,136	76.0	75.1	72.8
Maldives	–	–	–	...	...	...	...	...	...
Nepal	1.90	2.30	–	3,591	4,232	4,508	76.9	76.7	75.0
Sri Lanka	1.14	1.27	0.79	1,759	2,045	2,132	69.8	66.8	62.8
Southeast Asia									
Brunei Darussalam	0.39	0.40	0.48	571	395	336	11.9	20.9	28.0
Cambodia	1.08	1.20	1.28	3,888	3,295	16,358	85.1	80.3	49.3
Indonesia	1.61	1.89	0.73	88,950	90,677	91,313	61.7	66.1	71.8
Lao PDR	0.45	0.47	0.50	...	...	...	...	...	...
Malaysia	0.35	0.36	0.43	13,596	12,944	15,010	60.4	64.9	69.2
Myanmar	1.11	1.23	0.98	44,216	31,194	26,266	19.1	32.0	49.2
Philippines	–0.83	–0.77	–0.71	9,683	12,219	12,512	73.2	72.5	75.4
Singapore	–	–	–	403	6,007	1,871	18.2	0.7	1.8
Thailand	0.28	0.29	–0.08	19,479	20,065	30,245	73.7	67.2	66.1
Viet Nam	–2.52	–2.06	–1.03	11,577	19,627	33,818	81.9	84.6	84.6
The Pacific									
Cook Islands	–0.67	–0.65	–	...	...	...	...	...	...
Fiji	–0.29	–0.28	–0.33	...	...	...	...	...	...
Kiribati	–	–	–	...	...	...	...	...	...
Marshall Islands	– (1992)	–	–	...	...	...	...	...	...
Micronesia, Fed. States of	–0.05 (1992)	–0.05	–0.03	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...
Palau	–0.37 (1992)	–0.51	–	...	...	...	...	...	...
Papua New Guinea	0.44	0.46	0.50	...	...	...	...	...	...
Samoa	–3.15	–2.46	–	...	...	...	...	...	...
Solomon Islands	0.24	0.25	0.25	...	...	...	...	...	...
Timor-Leste	1.16	1.29	1.53	...	...	...	...	...	...
Tonga	–	–	–	...	...	...	...	...	...
Tuvalu	–	–	–	...	...	...	...	...	...
Vanuatu	–	–	–	...	...	...	...	...	...
Developed Member Economies									
Australia	–0.03	–0.03	0.62	63,067	75,584	51,462	79.9	74.9	81.3
Japan	0.03	0.03	–0.04	36,175	31,996	25,740	26.8	27.1	29.1
New Zealand	–0.71	–0.66	0.10	10,496	11,499	11,334	94.5	93.8	94.9

continued

Table 7.2: Deforestation and Pollution *(continued)*

Regional Member	Methane Emissions (thousand metric tons CO_2 equivalent)			Agricultural Methane Emissions (percent of total)			Other Greenhouse Gases[c] (thousand metric tons CO_2 equivalent)		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
Developing Member Economies									
Central and West Asia									
Afghanistan	...	...	...	...	...	...	...	...	...
Armenia	2,891	2,565	3,329	43.3	35.2	31.6	–	42	565
Azerbaijan	11,418	9,951	18,401	37.3	41.4	30.9	176	41	283
Georgia	5,037	4,137	4,864	51.3	51.8	48.6	–	3	20
Kazakhstan	69,233	38,574	67,542	36.9	24.4	21.8	–	58	584
Kyrgyz Republic	5,823	3,486	3,968	73.1	71.4	75.1	–	8	42
Pakistan	90,807	117,129	155,236	71.1	65.7	61.2	1,009	347	1,036
Tajikistan	4,299	3,304	4,943	66.9	65.0	73.2	2,806	798	361
Turkmenistan	29,846	21,217	26,546	9.4	19.7	22.9	–	11	139
Uzbekistan	32,947	37,079	46,862	40.0	29.7	37.2	–	192	981
East Asia									
China, People's Rep. of	1,016,932	1,043,425	1,642,258	51.5	46.5	35.9	12,353	56,882	249,362
Hong Kong, China	1,532	2,695	3,086	–	–	–	379	155	150
Korea, Rep. of	31,306	30,925	31,984	47.8	40.5	41.3	6,157	14,587	10,905
Mongolia	8,301	9,218	6,134	76.7	92.2	78.1	–	–	–
Taipei,China	...	10,750	2,604 (2012)	...	...	...	...	1,833	3,917 (2011)
South Asia									
Bangladesh	87,090	89,243	103,080	79.6	73.6	68.3	–	–	–
Bhutan	...	...	...	...	...	...	...	...	...
India	513,639	561,558	621,480	71.4	67.0	60.8	9,564	13,551	20,937
Maldives	...	...	...	...	...	...	...	...	...
Nepal	20,286	21,206	23,512	85.1	83.0	81.6	–	–	–
Sri Lanka	11,514	9,607	11,631	74.4	64.1	66.9	–	–	–
Southeast Asia									
Brunei Darussalam	3,592	3,858	4,450	0.3	0.4	0.3	–	101	427
Cambodia	15,116	14,985	35,211	87.7	83.1	60.9	–	–	–
Indonesia	152,210	167,822	218,929	53.9	47.0	43.1	1,721	997	1,241
Lao PDR	...	...	...	...	...	...	...	...	...
Malaysia	23,625	29,242	33,599	29.0	19.1	16.5	598	526	1,195
Myanmar	83,993	66,941	79,131	46.4	66.1	75.0	–	–	–
Philippines	41,552	49,915	56,049	68.9	63.1	61.9	162	221	459
Singapore	987	1,691	2,339	5.6	1.4	1.6	502	1,410	3,296
Thailand	84,956	83,448	104,411	72.2	65.3	61.5	1,430	453	1,388
Viet Nam	60,474	75,418	111,338	77.5	68.1	52.1	–	–	–
The Pacific									
Cook Islands	...	...	...	...	...	...	...	...	...
Fiji	...	...	...	...	...	...	...	...	...
Kiribati	...	...	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...	...
Samoa	...	...	...	...	...	...	...	...	...
Solomon Islands	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	...	...	...	...	...	...	...
Tonga	...	...	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...	...	...
Developed Member Economies									
Australia	115,048	127,730	122,549	65.7	61.5	53.0	4,873	4,198	9,051
Japan	66,928	47,484	40,262	60.5	67.0	73.4	28,280	50,326	70,793
New Zealand	26,681	26,570	28,133	88.5	88.6	90.3	941	758	1,475

... = data not available at cutoff date, – = magnitude equals zero, CO_2 = carbon dioxide, Lao PDR = Lao People's Democratic.

a A negative value indicates that deforestation rate is decreasing (i.e., reforestation).
b Values represent the change in forest cover from 1990 to 1991.
c Other greenhouse gas emissions refer to hydrofluoro-carbons, perfluoro-carbons, and sulphur hexafluoride.

Sources: Food and Agriculture Organization. FAOSTAT Database. http://faostat3.fao.org/download/F/*/E (accessed 18 June 2015); World Bank. World Development Indicators Online. http://data.worldbank.org/indicator (accessed 16 June 2015); and for Taipei,China: Directorate-General of Budget, Accounting and Statistics. *Statistical Yearbook 2014*. http://eng.dgbas.gov.tw/lp.asp?CtNode=2351&CtUnit=1072&BaseDSD=36&xq_xCat=18 (accessed 16 June 2015).

Freshwater

Table 7.3: Freshwater Resources

Regional Member	Internal Renewable Freshwater Resources (billion cubic meters per year) 2014	Internal Renewable Freshwater Resources (cubic meters per inhabitant per year) 1992	2002	2012	2014	Annual Freshwater Withdrawals (billion cubic meters)	Water Productivity[a] 2013
Developing Member Economies							
Central and West Asia							
Afghanistan	47	3,414	2,124	1,581	1,543	20 (2000)	1
Armenia	7	1,989	2,251	2,310	2,304	3 (2012)	2
Azerbaijan	8	1,089	980	872	862	12 (2012)	3
Georgia	58	10,874	12,577	13,339	13,391	2 (2008)	5
Kazakhstan	64	4,004	4,401	3,955	3,914	20 (2010)	4
Kyrgyz Republic	49	10,932	9,780	8,939	8,819	8 (2006)	0
Pakistan	55	469	367	307	302	184 (2008)	1
Tajikistan	63	11,490	9,909	7,924	7,731	11 (2006)	0
Turkmenistan	1	362	305	272	268	28 (2004)	1
Uzbekistan	16	759	645	573	565	49 (2005)	0
East Asia							
China, People's Rep. of	2,813	2,295	2,123	1,998	1,986	554 (2005)	9
Hong Kong, China	...	...	...	...	...	...	...
Korea, Rep. of	65	1,483	1,398	1,323	1,316	25 (2002)	47
Mongolia	35	15,508	14,245	12,446	12,258	1 (2009)	9
Taipei,China	...	...	...	...	...	...	...
South Asia							
Bangladesh	105	934	766	679	671	36 (2008)	3
Bhutan	78	179,924	135,452	105,121	103,448	0 (2008)	4
India	1,446	1,600	1,343	1,169	1,155	648 (2010)	2
Maldives	0	132	106	89	87	0 (2008)	288
Nepal	198	10,404	8,223	7,214	7,130	9 (2006)	1
Sri Lanka	53	2,977	2,741	2,503	2,482	13 (2005)	3
Southeast Asia							
Brunei Darussalam	9	31,250	24,566	20,631	20,335	0 (1994)	110
Cambodia	121	12,405	9,489	8,113	7,968	2 (2006)	5
Indonesia	2,019	10,918	9,389	8,179	8,080	113 (2000)	4
Lao PDR	190	42,330	34,337	28,649	28,124	3 (2005)	1
Malaysia	580	30,200	23,757	19,836	19,517	11 (2005)	19
Myanmar	1,003	23,099	20,361	18,997	18,832	33 (2000)	...
Philippines	479	7,370	5,917	4,953	4,868	82 (2009)	2
Singapore	1	188	145	113	111	...	1,049
Thailand	225	3,893	3,519	3,362	3,350	57 (2007)	4
Viet Nam	359	4,999	4,354	3,958	3,920	82 (2005)	1
The Pacific							
Cook Islands	...	...	...	...	...	...	...
Fiji	29	38,374	34,988	32,629	32,406	0 (2000)	41
Kiribati	...	...	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...
Papua New Guinea	801	183,337	141,519	111,762	109,411	0 (2005)	21
Samoa	...	...	...	...	...	...	...
Solomon Islands	45	135,455	102,759	81,273	79,679	...	...
Timor-Leste	8	10,205	9,138	7,374	7,251	1 (2004)	...
Tonga	...	...	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...
Vanuatu	...	...	...	...	...	...	...
Developed Member Economies							
Australia	492	28,068	24,956	21,345	21,077	19 (2013)	38
Japan	430	3,491	3,406	3,379	3,382	90 (2001)	53
New Zealand	327	93,349	82,534	73,318	72,570	5 (2002)	27

... = data not available at cutoff date, 0 = magnitude is less than half of unit employed, Lao PDR = Lao People's Democratic.

a Gross domestic product in constant 2005 $ per cubic meter of total freshwater withdrawal.

Sources: Food and Agriculture Organization. AQUASTAT Database. http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en (accessed 8 June 2015); and World Bank. World Development Indicators Online. http://data.worldbank.org/indicator (accessed 8 June 2015).

Government and Governance

Snapshots

- All economies in Southeast Asia, a majority of economies in South Asia and Central and West Asia, and about half of the economies in East Asia and the Pacific ran fiscal deficits in 2014.
- Tax revenue and total government revenue as a share of gross domestic product (GDP) showed little significant change in most economies in 2014.
- Government expenditure decreased relative to GDP in the majority of economies in East Asia, South Asia, and Southeast Asia in 2014; and increased in the majority of economies in the Pacific and all but one economy in Central and West Asia.
- Government spending on health and social security and welfare increased as a percentage of GDP in most economies between 2000 and 2014. Governments in the region generally spent more on education than on health.
- Nearly all of the region's economies have reduced, often significantly, the time required to start a business. Among developing member economies, the average start-up time has fallen from 47 days in 2005 to 26 days in 2014. The average cost of starting a business among all developing member economies—in terms of per capita gross national income—was more than halved between 2005 and 2014.
- Only eight out of the 32 developing member economies in Asia scored 50 or higher on a scale of 0 (highly corrupt) to 100 (very clean) in Transparency International's 2014 Corruption Perceptions Index.

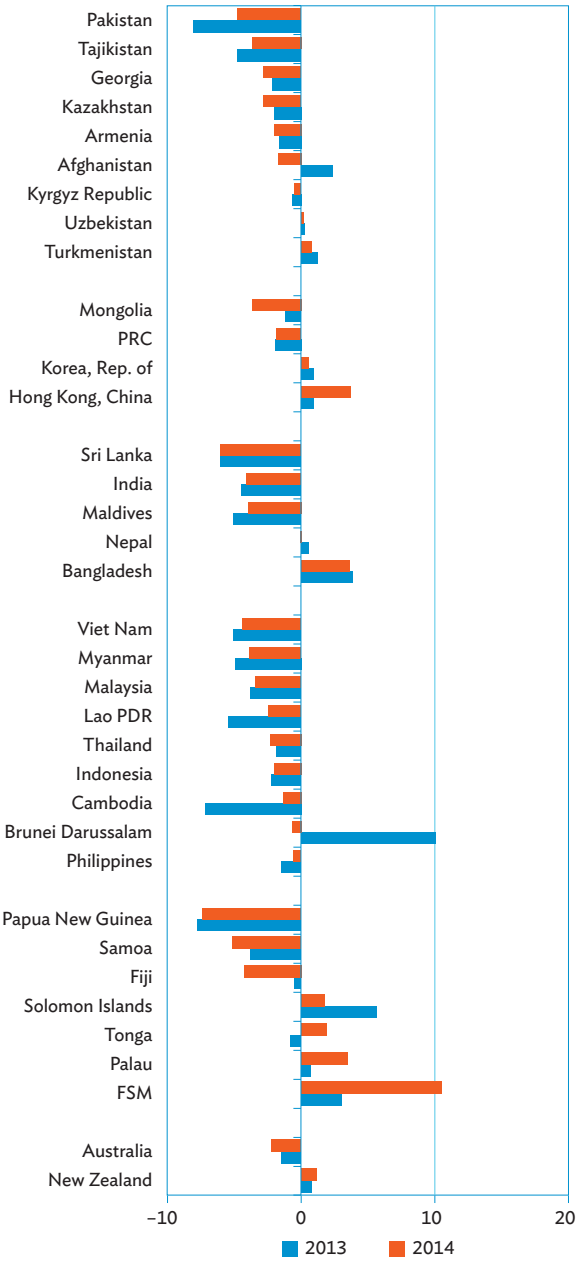
Key trends

All economies in Southeast Asia, a majority of economies in South Asia and Central and West Asia, and about half of the economies in East Asia and the Pacific ran fiscal deficits in 2014. Figure 8.1 shows fiscal balances—the difference between total government revenue and expenditure—in 2013 and 2014. Deficits as a share of gross domestic product (GDP) exceeded –4.0% in 2014 in Papua New Guinea (–7.3%), Sri Lanka (–6.0%), Samoa (–5.1%), Pakistan (–4.8%), Viet Nam (–4.4%), Fiji (–4.2%), and India (–4.1%). The largest fiscal surpluses as a share of GDP in 2014 were in the Federated States of Micronesia (10.5%); Hong Kong, China (3.7%); Bangladesh (3.6%); and Palau (3.5%). Notable adjustments in fiscal positions between 2013 and 2014 occurred in Brunei Darussalam (from 10.1% to –0.7%), the Federated States of Micronesia (from 3.0% to 10.5%), Cambodia (from –7.1% to –1.4%), and Afghanistan (from 2.3% to –1.7%).

Tax revenue relative to GDP rose in slightly more than half of the region's economies in 2014. Increases of more than 2 percentage points were recorded in the Federated States of Micronesia (from 12.2% to 19.7%); Myanmar (from 6.3% to 9.2%); and Hong Kong, China (from 13.5% to 15.7%) (Figure 8.2). Decreases of more than 2 percentage points occurred in Mongolia (26.5% to 23.7%), New Zealand (from 29.2% to 26.9%), and Solomon Islands (from 37.2% to 35.0%). Economies with the highest tax revenue-to-GDP ratios in 2014 were Solomon Islands (35.0%), New Zealand (26.9%), the Maldives (26.4%), and Fiji (26.3%). Those with the lowest ratios included Afghanistan (6.5%), India (7.2%), Bangladesh (8.6%), and Myanmar (9.2%).

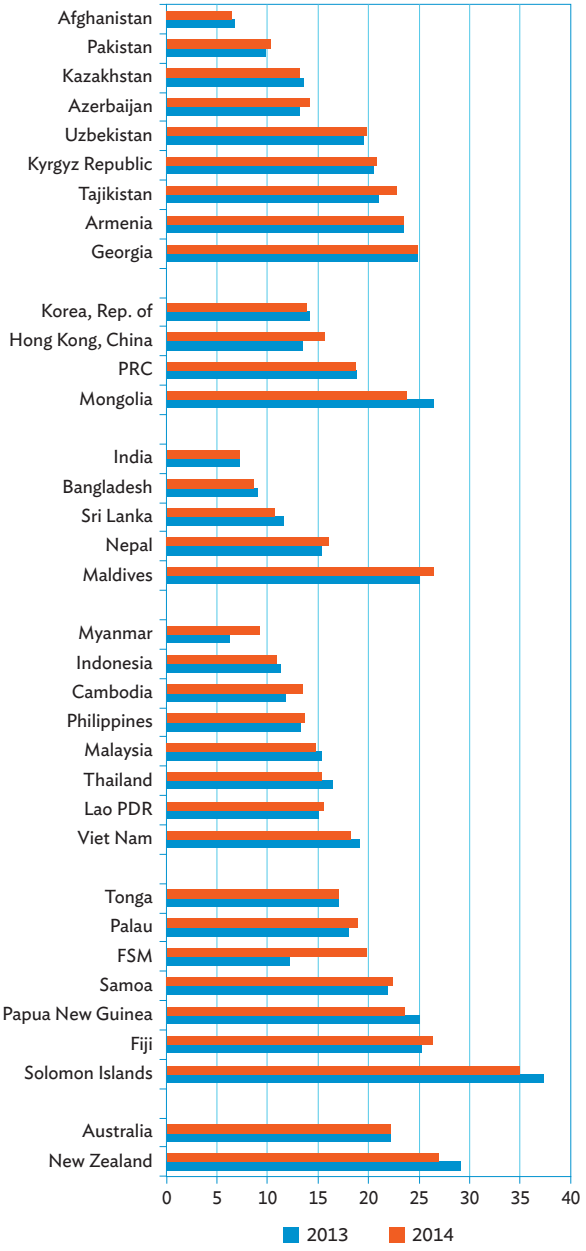
Total government revenue as a share of GDP followed a similar pattern, rising in about half of developing member economies in Asia and the Pacific between 2013 and 2014, while falling in the

Figure 8.1: Fiscal Balance as a Share of GDP, 2013 and 2014



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 8.1.

Figure 8.2: Tax Revenue as a Share of GDP, 2013 and 2014



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 8.2.

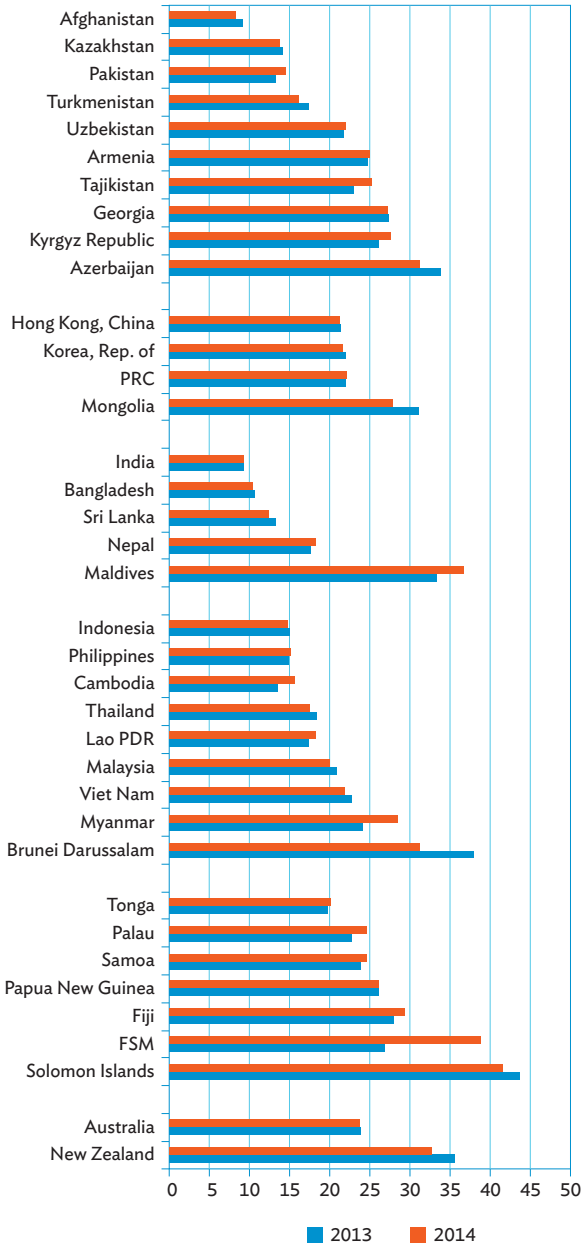
other half. Among developing member economies, noticeable increases were seen in the Federated States of Micronesia (from 26.8% to 38.8%), Myanmar (from 24.1% to 28.5%), and the Maldives (from 33.2% to 36.7%) (Figure 8.3). The largest declines in the ratio of government revenue-to-GDP in developing members occurred in Brunei Darussalam (from 37.9% to 31.1%), Mongolia (from 31.0% to 27.8%), and Azerbaijan (from 33.8% to 31.2%), all three of which are energy-producing economies that have been impacted by declining commodity prices.

Government expenditure decreased relative to GDP in the majority of economies in East Asia, South Asia, and Southeast Asia in 2014; and increased in the majority of economies in the Pacific and all but one

economy in Central and West Asia. Increased public spending is one measure to address widening inequality in the region's economies. Among developing members, public spending as a share of GDP declined most notably in Cambodia (from 20.6% to 17.0%); Viet Nam (from 28.8% to 25.6%); and Hong Kong, China (from 20.3% to 17.6%) (Figure 8.4). The largest increases occurred in Fiji (from 28.7% to 33.3%), Brunei Darussalam (from 27.8% to 31.8%), and Samoa (from 30.1% to 34.0%). Among developed member economies, New Zealand experienced the most significant drop in public spending as a share of GDP between 2013 and 2014 (from 35.8% to 32.8%).

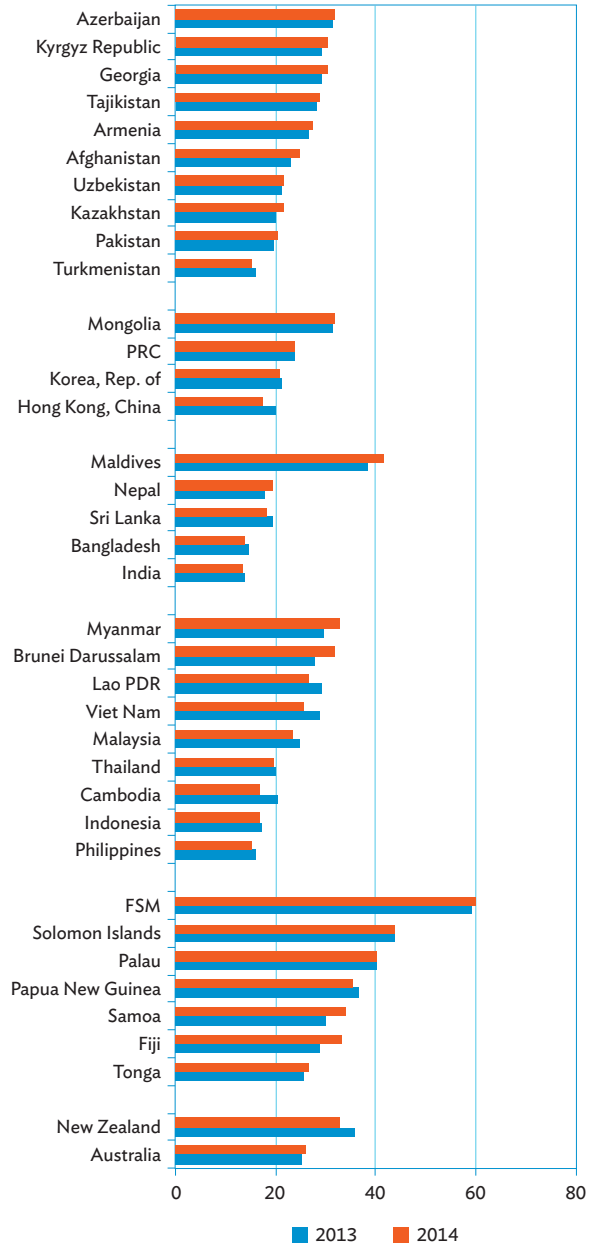
Government spending on health has increased as a percentage of GDP in about three-quarters of the region's economies since 2000. During the

Figure 8.3: Total Government Revenue as a Share of GDP, 2013 and 2014



FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 8.3.

Figure 8.4: Total Government Expenditure as a Share of GDP, 2013 and 2014



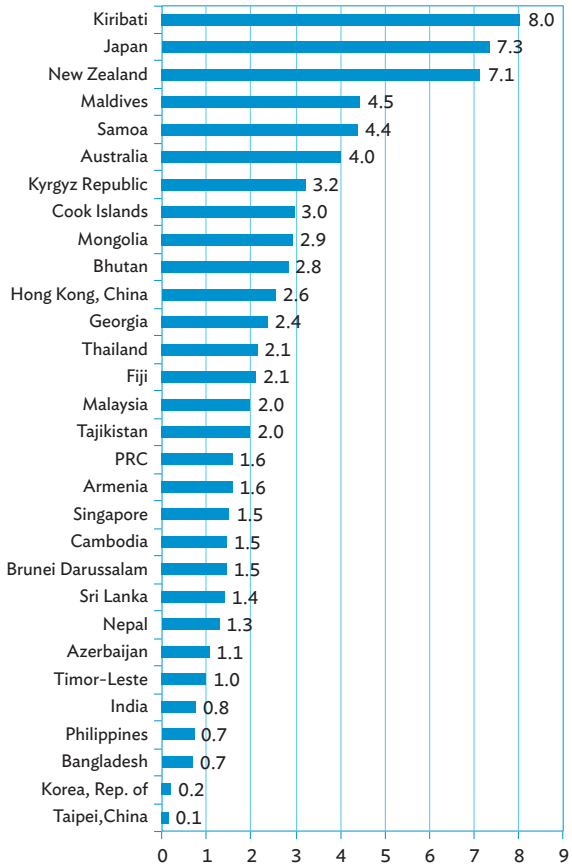
FSM = Federated States of Micronesia, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 8.4.

period 2000–2014, health spending as a share of GDP increased steadily in many of the region's developing economies, led by Georgia (from 0.6% to 2.4%), the Kyrgyz Republic (from 2.0% to 3.2%), and Tajikistan (from 0.9% to 2.0%) (Table 8.5). In all three economies, declining spending on health as a share of GDP in the aftermath of the former Soviet Union's breakup was followed by increased spending around the first decade of 2000s. In 2014 or the latest year for which data are available, spending on health was equivalent to 2.0% or less of GDP in nearly 60% of the region's developing economies (Figure 8.5). For comparison, health spending as a share of GDP was 7.3% in Japan (2013), 7.1% in New Zealand (2013), and 4.0% in Australia (2014). The higher ratios in developed economies, particularly with respect to Japan, are partially a function of the additional health care requirements of an older population.

Social safety nets continue to expand in most developing Asian economies. Increases in spending on social security and welfare between 2010 and 2014, or the latest year for which data were observed in about two-thirds of developing economies, are continuing a trend in place in most economies in the region since 2000 (Table 8.5). However, the share of social spending as a percentage of GDP in 2014 remained at 2.0% or less in the majority of developing member economies (Figure 8.6). For comparison, social security and welfare spending as a share of GDP was 17.8% in Japan (2013), 8.9% in Australia (2014), and 5.7% in New Zealand (2013). As with health spending, the higher ratios in developed economies are related to the needs of an older population.

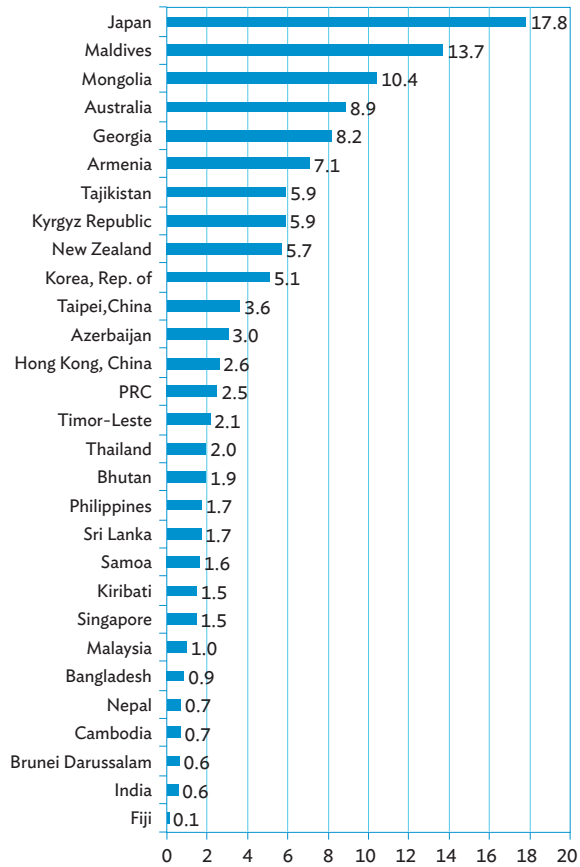
Governments in the region generally spend more on education than on health. Spending

Figure 8.5: Government Expenditure on Health as a Share of GDP, 2014 or Latest Available Data



GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 8.5.

Figure 8.6: Government Expenditure on Social Security and Welfare as a Share of GDP, 2014 or Latest Available Data

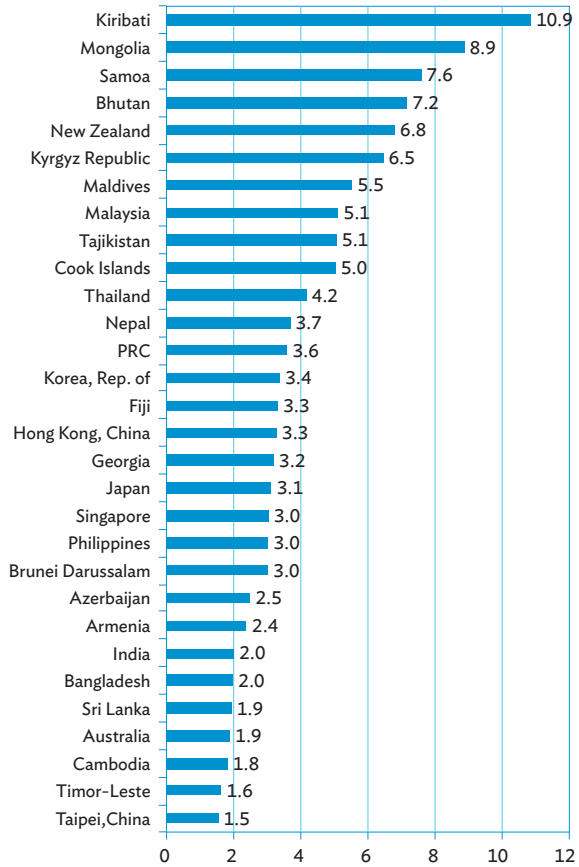


GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 8.5.

on education by governments exceeded 2.0% of GDP in more than three-quarters of the region's developing economies in 2014 or the latest year for which data are available (Figure 8.7). Furthermore, the governments of many developing members spent more on education relative to GDP than those of developed members Australia (1.9%) and Japan (3.1%). Since 2000, about 44% of the region's governments have increased spending on education as a share of GDP, while about 56% have reduced their ratio of education spending to GDP (Table 8.5).

Nearly all of the region's economies have reduced, often significantly, the time required to start a business; among developing members, the average fell from 47 days in 2005 to 26 days in 2014. According to the subregional averages included in the World Bank's *Doing Business* survey, the least amount of time required to start a business in 2014 was in Central and West Asia (11 days) and the most amount of time required was in Southeast Asia (52 days) (Figure 8.8). For comparison, the global average in 2014 was 22 days (Table 8.6).

Figure 8.7: Government Expenditure on Education as a Share of GDP, 2014 or Latest Available Data



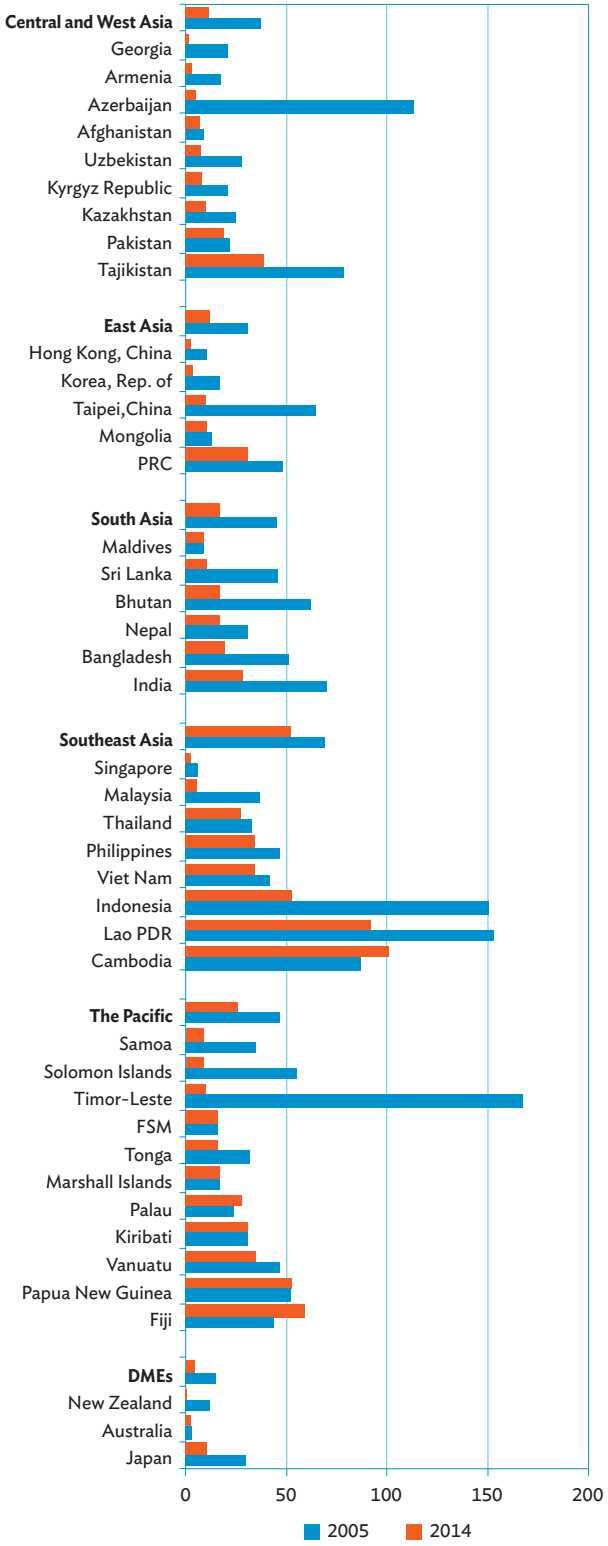
GDP = gross domestic product, PRC = People's Republic of China.
Source: Table 8.5.

Governments can accelerate the process of starting a business by offering online business registration, establishing a single office to handle business start-ups, and reducing minimum capital requirements. Between 2005 and 2014, the economies that most sharply lowered the time it takes to start a business were Timor-Leste (from 167 days to 10 days), Azerbaijan (from 113 days to 5 days), and Indonesia (from 151 days to 53 days). Timor-Leste experienced a significant decline from 94 days to 10 days in a single year between 2013 and 2014.

With the exception of Southeast Asia, nearly three-quarters of the region's developing economies had business start-up periods of 20 days or less. In Southeast Asia, only two out of 10 economies (Malaysia and Singapore) had business start-up periods of less than 20 days. The developing economies with the most expedient registration procedures (3 days or less) were Armenia; Georgia; Hong Kong, China; and Singapore. At the other end of the scale, it took 101 days to start a business in Cambodia and Brunei Darussalam, and 92 days in the Lao People's Democratic Republic.

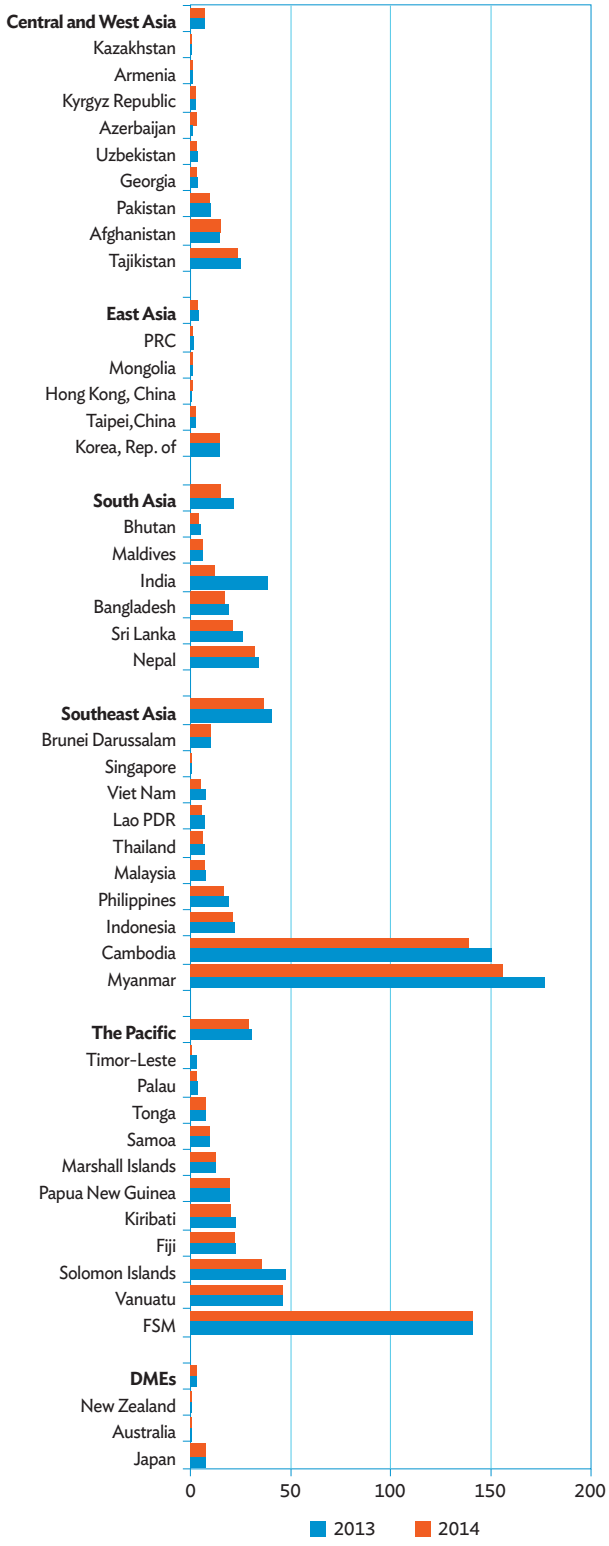
The average cost of starting a business among all reporting developing member economies fell from 43.5% of per capita gross national income (GNI) in 2005 to 21.0% in 2014 (Table 8.6). Between 2013 and 2014, average business start-up costs as a share of per capita GNI fell in every Asian subregion, with the biggest declines in South Asia (from 21.6% to 15.4%) and Southeast Asia (from 40.7% to 36.9%) (Figure 8.9). Meanwhile, the average for all developing member economies fell from 23.4% to 21.0%. While starting a business is becoming less expensive in most economies in the region, start-up costs remained prohibitively high (exceeding 100% of GNI per capita) in Cambodia, the Federated States of Micronesia, and Myanmar.

Figure 8.8: Days Required to Start Up a Business, 2005 and 2014



DME = developed member economy, FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 8.6.

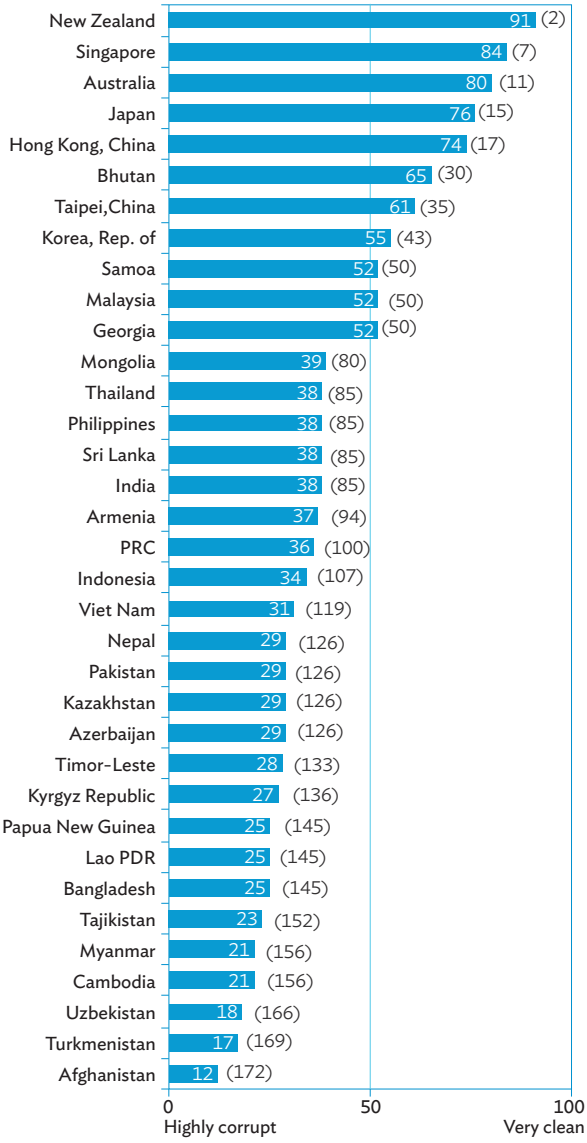
Figure 8.9: Cost of Business Start-up Procedure, 2013 and 2014
(% of GNI per capita)



DME = developed member economy, FSM = Federated States of Micronesia, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 8.6.

Only eight out of 32 developing member economies in Asia scored 50 or higher on a scale of 0 (highly corrupt) to 100 (very clean) in Transparency International's 2014 Corruption Perceptions Index (Figure 8.10). By comparison, the developed member economies of Australia, Japan, and New Zealand earned scores of 80, 76, and 91, respectively. One-half of the region's developing economies ranked among the bottom one-third of the 175 economies comprising Transparency International's survey of public sector corruption. Three developing Asian economies improved their global ranking from the previous year by 10 places or more (Kazakhstan, the Kyrgyz Republic, and Thailand), while three economies fell 10 or more places in the rankings (the People's Republic of China, Timor-Leste, and Nepal) (Table 8.7). Among those rising in the rankings between 2013 and 2014, Kazakhstan improved from a ranking of 140th to 126th, the Kyrgyz Republic from 150th to 136th, and Thailand from 102nd to 85th. Among those dropping in the rankings, the People's Republic of China fell from 80th to 100th, Timor-Leste from 119th to 133rd, and Nepal from 116th to 126th.

Figure 8.10: Corruption Perceptions Scores and Global Rank, 2014



Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: Table 8.7.

Data issues and comparability

Data on government expenditures and revenue are from country sources. The coverage of the budget data is not standard throughout the region. Data from different economies refer only to the central government, except for Bangladesh, Georgia, Kiribati, the Kyrgyz Republic, Mongolia, Pakistan, and Tajikistan, where data refer to consolidated government or general government. Most economies try to follow the International Monetary Fund's Government Finance Statistics guidelines; some economies are still using the 1986 version while others have switched to the 2001 guidelines. Most economies record their transactions on a cash basis; a few, on accrual.

Statistics on the time and cost for registering new businesses and on perceived corruption are taken from nonofficial sources. Common procedures are used in all economies and the researchers producing these data have refined their procedures over several surveys. However, because of the subjective nature of many of the data, they can only be used to give a broad idea of trends, levels, and rankings and small changes from 1 year to the next should be taken with caution.

Government Finance

Table 8.1: Fiscal Balance[a]
(% of GDP)

Regional Member	1990	1995	2000	2005	2010	2011	2012	2013	2014
Developing Member Economies									
Central and West Asia									
Afghanistan	...	...	...	−4.5	2.5	−0.2	−0.5	2.3	−1.7
Armenia	...	−5.9	−4.9	−1.9	−5.0	−2.8	−1.5	−1.7	−2.0
Azerbaijan	...	−5.2	−1.0	−0.7	−0.9	0.6	−0.2	0.6	...
Georgia	...	...	−1.3	1.2	−5.6	−2.1	−1.7	−2.1	−2.8
Kazakhstan	...	−4.0	−0.1	0.6	−2.4	−2.1	−2.9	−2.0	−2.8
Kyrgyz Republic	−8.1	−11.5	−2.2	0.2	−4.9	−4.8	−6.5	−0.7	−0.5
Pakistan	−6.5	−5.6	−5.4	−3.0	−5.9	−6.3	−8.6	−8.1	−4.8
Tajikistan	...	−7.4	−0.6	0.2	−7.1	−5.8	−3.1	−4.8	−3.7
Turkmenistan	...	0.4	−0.3	0.8	2.0	3.6	6.3	1.3	0.8
Uzbekistan	...	−2.9	−1.0	0.1	0.3	0.4	0.4	0.3	0.2
East Asia									
China, People's Rep. of	−2.8	...	−2.8	−1.2	−1.7	−1.1	−1.6	−1.9	−1.8
Hong Kong, China	0.7	−0.3	−0.6	1.0	4.2	3.8	3.2	1.0	3.7
Korea, Rep. of	−0.6	0.3	1.0	0.4	1.3	1.4	1.3	1.0	0.6
Mongolia	−11.0	−1.3	−6.4	2.4	0.4	−5.8	−6.8	−1.2	−3.7
Taipei,China	1.8	−1.0	−4.5	−0.3	−2.6	−1.5	−2.8	−1.0	...
South Asia									
Bangladesh	−5.7	−2.2	−4.5	−3.7	3.2	3.9	3.6	3.9	3.6
Bhutan	−7.4	0.1	−3.9	−6.6	1.5	−2.0	−1.1	−4.1	...
India	−6.6	−4.2	−5.5	−4.0	−4.8	−5.8	−4.9	−4.4	−4.1
Maldives	...	−6.4	−4.4	−8.2	−15.6	−7.5	−8.7	−5.0	−4.0
Nepal	−7.6	−4.5	−4.3	−2.4	−1.9	−2.4	−2.2	0.6	−0.1
Sri Lanka	−7.9	−8.8	−9.3	−7.0	−8.0	−6.9	−6.5	−5.9	−6.0
Southeast Asia									
Brunei Darussalam	−0.3	15.1	10.9	21.1	15.6	25.6	15.7	10.1	−0.7
Cambodia	−4.5	−7.2	−2.1	−0.7	−8.8	−7.6	−6.8	−7.1	−1.4
Indonesia	−0.8	3.0	−1.1	−0.5	−0.7	−1.1	−1.8	−2.2	−2.1
Lao PDR	−9.7	−12.9	−4.6	−4.5	−2.2	−1.6	−1.2	−5.4	−2.4
Malaysia	−2.9	0.8	−5.5	−3.4	−5.3	−4.7	−4.3	−3.8	−3.4
Myanmar	−2.8	−3.2	0.7	...	−4.6	−3.8	−3.2	−5.0	−3.9
Philippines	−3.5	0.6	−3.7	−2.6	−3.5	−2.0	−2.3	−1.4	−0.6
Singapore	10.2	14.0	9.7	6.4	7.4	9.1	8.5	8.1	...
Thailand	4.6	2.6	−2.8	0.1	−2.9	−1.6	−2.2	−1.8	−2.3
Viet Nam[b]	−7.2	−1.3	−4.3	−1.0	−2.1	−0.5	−3.4	−5.0	−4.4
The Pacific									
Cook Islands	...	−2.8	−1.5	2.1	6.4	3.7	4.1	2.6	...
Fiji	−1.8	−0.3	−3.1	−3.3	−2.2	−1.4	−1.1	−0.5	−4.2
Kiribati	30.9	16.4	42.3	7.3	...	...	...	...	...
Marshall Islands	1.9	−27.2	8.1	−22.3	3.5	2.1	−0.7	0.7	...
Micronesia, Fed. States of	11.1	−0.4	−3.5	−5.6	0.8	0.0	1.1	3.0	10.5
Nauru	...	...	...	4.3	0.1	...	...	...	...
Palau	...	...	−12.8	1.5	−1.0	1.3	1.0	0.7	3.5
Papua New Guinea	−3.3	−0.5	−2.0	0.1	0.7	−0.2	−4.3	−7.8	−7.3
Samoa	−3.7	−7.2	−0.7	2.0	−5.6	−5.1	−7.2	−3.7	−5.1
Solomon Islands	−5.3	−4.6	−0.6	−0.9	8.3	6.4	2.4	5.6	1.8
Timor-Leste	...	...	...	3.9	3.7	−11.5	−30.9	−29.7	...
Tonga	0.7	1.0	−0.3	3.0	−2.7	−7.6	−7.1	−0.8	1.9
Tuvalu	...	...	−2.0	−7.7	−0.1	0.1	0.1	...	...
Vanuatu	−8.2	−2.7	−6.2	2.9	−2.0	−2.3	1.6	0.9	...
Developed Member Economies									
Australia	1.7	−2.9	1.8	1.3	−4.1	−3.8	−3.1	−1.4	−2.2
Japan	−0.5	−3.9	−6.3	−4.1	−6.7	−8.2	−7.8	−7.2	...
New Zealand[c]	−4.5	2.9	1.9	5.9	1.3	1.8	1.0	0.8	1.2

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Data refer to central government, except for Bangladesh, Georgia, Kiribati, the Kyrgyz Republic, Mongolia, Pakistan, and Tajikistan, where data refer to consolidated government or general government.
b Tax revenue includes local government taxes.
c Data for 1990–2005 are based on fiscal year ending March 31, while data for 2010 on are based on fiscal year ending June 30.

Source: Economy sources.

Table 8.2: Tax Revenue[a]
(% of GDP)

Regional Member	1990	1995	2000	2005	2010	2011	2012	2013	2014
Developing Member Economies									
Central and West Asia									
Afghanistan	...	...	...	3.8	8.9	8.4	5.5	6.7	6.5
Armenia	...	10.6	14.8	14.3	20.2	20.6	22.0	23.4	23.5
Azerbaijan	...	10.8	12.2	14.0	12.4	12.3	12.7	13.3	14.2
Georgia	...	...	14.6	20.8	23.5	25.2	25.5	24.8	24.8
Kazakhstan	...	15.8	20.2	26.3	13.4	14.4	13.5	13.5	13.2
Kyrgyz Republic	25.7	15.1	11.7	16.2	17.9	18.5	20.6	20.5	20.8
Pakistan	14.0	13.8	10.6	10.1	9.9	9.3	10.2	9.8	10.2
Tajikistan	...	8.4	13.1	16.5	18.0	19.5	19.9	21.0	22.8
Turkmenistan	...	...	23.0	...	...	...	...	...	...
Uzbekistan	...	27.8	...	21.5	20.0	19.5	19.6	19.6	19.7
East Asia									
China, People's Rep. of	15.1	9.9	12.7	15.6	17.9	18.5	18.8	18.8	18.7
Hong Kong, China	10.2	11.2	9.7	12.3	13.6	14.2	13.7	13.5	15.7
Korea, Rep. of	14.8	15.2	17.0	13.9	14.0	14.4	14.7	14.1	13.8
Mongolia	44.6	16.2	21.3	22.8	27.6	27.8	25.0	26.5	23.7
Taipei,China	12.7	10.3	13.3	9.1	7.6	8.4	8.3	8.0	...
South Asia									
Bangladesh	5.8	7.9	6.8	8.6	7.8	8.7	9.0	9.0	8.6
Bhutan	4.4	6.6	10.0	9.4	13.3	13.6	15.1	14.8	...
India	7.5	6.9	6.3	7.3	7.3	7.1	7.4	7.2	7.2
Maldives	...	13.6	13.8	13.6	10.7	15.5	20.1	25.0	26.4
Nepal	6.6	8.4	8.1	9.2	13.4	13.0	13.9	15.3	16.1
Sri Lanka	19.3	17.9	14.2	13.7	12.9	12.9	12.0	11.6	10.7
Southeast Asia									
Brunei Darussalam	...	18.4	23.4	33.1	...	...	...	...	...
Cambodia	2.2	5.3	7.3	7.7	10.1	10.2	11.4	11.7	13.4
Indonesia	17.8	16.0	8.3	12.5	10.5	11.2	11.4	11.3	10.9
Lao PDR	6.1	9.4	10.6	9.7	13.5	14.1	15.0	15.0	15.5
Malaysia	17.8	18.7	13.2	14.8	13.3	14.8	15.6	15.3	14.8
Myanmar	6.2	3.7	2.0	...	3.2	3.7	3.8	6.3	9.2
Philippines	14.1	16.3	12.8	12.4	12.1	12.4	12.9	13.3	13.6
Singapore	14.8	15.9	14.9	11.6	12.6	13.1	13.7	13.4	...
Thailand	16.0	16.4	12.8	15.2	14.6	15.9	15.1	16.5	15.3
Viet Nam[b]	11.5	19.1	18.0	21.0	22.4	22.3	19.0	19.1	18.2
The Pacific									
Cook Islands	...	37.5	22.3	25.3	25.5	25.1	23.6	25.5	...
Fiji	22.3	21.9	19.9	21.0	21.6	24.3	25.0	25.3	26.3
Kiribati	30.4	22.3	21.5	22.0	17.0	16.0	15.7	...	...
Marshall Islands	17.9	16.5	15.4	18.3	17.2	16.8	15.9	15.9	...
Micronesia, Fed. States of	8.8	9.5	11.9	11.8	12.1	12.1	11.6	12.2	19.7
Nauru	...	...	...	...	...	...	...	...	...
Palau	...	...	16.1	16.4	17.0	17.6	17.9	18.1	18.9
Papua New Guinea	19.5	19.5	23.8	24.8	24.4	25.8	25.4	25.0	23.5
Samoa	35.4	22.5	20.6	20.6	20.9	18.8	19.7	21.8	22.4
Solomon Islands	22.9	21.4	19.1	24.3	34.0	36.9	37.3	37.2	35.0
Timor-Leste	...	...	...	1.5	1.2	2.0	3.4	4.8	...
Tonga	18.3	13.4	15.8	19.2	16.1	17.0	15.9	17.0	17.0
Tuvalu	...	18.7	21.6	21.3	16.2	18.9	19.3	...	...
Vanuatu	22.6	19.6	15.7	16.4	16.0	16.3	16.6	17.2	...
Developed Member Economies									
Australia	22.4	21.2	23.2	24.9	20.7	20.5	21.3	22.2	22.2
Japan	13.9	10.7	10.4	10.2	8.9	9.4	9.8	10.5	...
New Zealand[c]	34.3	33.3	30.9	33.9	27.7	27.3	28.1	29.2	26.9

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Data refer to central government, except for Bangladesh, Georgia, Kiribati, the Kyrgyz Republic, Mongolia, Pakistan, and Tajikistan, where data refer to consolidated government or general government.
b Tax revenue includes local government taxes.
c Data for 1990–2005 are based on fiscal year ending March 31, while data for 2010 on are based on fiscal year ending June 30.

Source: Economy sources.

Government Finance

Table 8.3: Total Government Revenue[a]
(% of GDP)

Regional Member	1990	1995	2000	2005	2010	2011	2012	2013	2014
Developing Member Economies									
Central and West Asia									
Afghanistan	...	...	...	6.9	10.8	11.1	7.5	9.2	8.3
Armenia	...	14.4	15.9	16.2	21.7	21.8	23.3	24.8	25.0
Azerbaijan	34.1	11.8	14.7	16.3	26.8	30.1	31.6	33.8	31.2
Georgia	...	...	15.5	27.1	27.1	28.9	28.9	27.3	27.3
Kazakhstan	...	19.6	22.9	27.6	14.2	15.1	14.6	14.1	13.9
Kyrgyz Republic	26.8	16.7	14.2	19.8	23.1	24.2	26.2	26.1	27.6
Pakistan	19.3	17.3	13.4	13.8	14.0	12.3	12.8	13.3	14.5
Tajikistan	...	10.0	14.1	19.2	19.3	21.1	21.7	23.0	25.3
Turkmenistan	...	20.5	23.5	20.5	16.1	18.3	21.0	17.4	16.2
Uzbekistan	...	29.7	28.0	22.6	21.8	21.7	21.7	21.7	21.9
East Asia									
China, People's Rep. of	15.7	10.3	13.5	17.1	20.3	21.5	22.0	22.0	22.1
Hong Kong, China	14.9	16.1	16.8	17.5	21.2	22.6	21.7	21.3	21.2
Korea, Rep. of	16.8	17.8	21.4	20.8	21.4	21.9	22.6	22.0	21.6
Mongolia	50.9	20.8	28.3	27.4	31.6	32.1	29.0	31.0	27.8
Taipei,China	16.3	13.3	18.0	14.8	10.7	11.8	11.0	11.5	...
South Asia									
Bangladesh	6.8	9.8	8.5	10.6	9.5	10.2	10.9	10.7	10.4
Bhutan	18.8	19.1	23.2	17.0	27.4	20.8	20.7	20.2	...
India	10.7	9.9	9.8	9.7	10.6	8.8	9.0	9.3	9.3
Maldives	...	25.8	30.0	29.8	23.4	29.0	28.6	33.2	36.7
Nepal	8.4	10.4	10.5	11.9	14.9	14.5	16.0	17.6	18.3
Sri Lanka	21.4	20.6	16.4	15.5	14.9	15.0	14.1	13.3	12.3
Southeast Asia									
Brunei Darussalam	42.4	36.5	49.1	53.2	49.0	55.3	46.8	37.9	31.1
Cambodia	3.9	7.6	10.0	10.6	12.6	12.4	14.4	13.5	15.6
Indonesia	18.8	17.7	14.7	17.8	14.5	15.4	15.5	15.0	14.7
Lao PDR	9.9	11.1	13.1	11.7	15.3	15.7	17.1	17.4	18.3
Malaysia	24.8	22.9	17.4	19.6	19.4	20.3	21.4	20.9	19.9
Myanmar	9.6	6.5	4.2	...	14.2	14.7	22.9	24.1	28.5
Philippines	16.6	18.9	14.3	14.4	13.4	14.0	14.5	14.9	15.1
Singapore	30.7	34.8	29.3	20.9	21.5	23.6	22.7	21.9	...
Thailand	17.5	18.1	14.7	17.3	16.8	17.8	17.1	18.4	17.5
Viet Nam[b]	14.7	21.9	20.1	25.7	26.7	25.5	22.3	22.8	21.8
The Pacific									
Cook Islands	...	39.8	27.0	29.3	34.1	35.1	33.4	35.3	...
Fiji	28.1	25.5	25.4	23.9	25.4	27.5	27.9	28.0	29.3
Kiribati	112.0	81.8	94.4	68.8	57.3	48.1	73.8	...	...
Marshall Islands	31.3	29.6	22.0	22.1	20.0	20.0	19.3	21.4	...
Micronesia, Fed. States of	27.3	26.4	22.5	19.8	21.6	20.8	22.9	26.8	38.8
Nauru	...	...	...	33.1	39.2	...	...	...	...
Palau	...	...	22.8	19.6	20.4	21.4	22.5	22.7	24.6
Papua New Guinea	24.9	24.0	25.7	26.8	26.1	27.0	26.9	26.1	26.1
Samoa	48.5	29.9	25.6	24.1	23.6	21.9	22.7	23.8	24.6
Solomon Islands	26.6	27.7	21.6	26.7	37.0	40.4	42.4	43.7	41.6
Timor-Leste	...	...	...	9.5	22.3	16.6	5.2	6.5	...
Tonga	34.1	25.6	21.1	22.8	20.1	19.6	18.1	19.7	20.1
Tuvalu	...	...	216.4	55.1	51.9	56.3	59.6	...	...
Vanuatu	27.8	24.2	18.7	18.5	17.6	18.0	18.8	19.2	...
Developed Member Economies									
Australia	23.6	22.1	25.3	26.3	22.6	22.0	22.8	23.8	23.7
Japan	15.3	12.2	12.0	11.9	11.2	11.3	11.2	12.1	...
New Zealand[c]	40.9	39.1	35.5	39.6	34.3	36.0	34.6	35.5	32.8

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Data refer to central government, except for Bangladesh, Georgia, Kiribati, the Kyrgyz Republic, Mongolia, Pakistan, and Tajikistan, where data refer to consolidated government or general government.
b Tax revenue includes local government taxes.
c Data for 1990–2005 are based on fiscal year ending March 31, while data for 2010 on are based on fiscal year ending June 30.

Source: Economy sources.

Table 8.4: Total Government Expenditure[a]
(% of GDP)

Regional Member	1990	1995	2000	2005	2010	2011	2012	2013	2014
Developing Member Economies									
Central and West Asia									
Afghanistan	...	...	...	16.5	20.6	22.3	17.4	23.2	24.8
Armenia	...	24.0	20.1	18.0	27.6	26.2	25.2	26.8	27.3
Azerbaijan	...	20.1	16.2	16.8	27.6	29.2	31.6	31.6	31.7
Georgia	...	...	16.3	26.6	34.0	30.7	30.6	29.4	30.3
Kazakhstan	35.6	25.7	22.2	25.6	22.0	21.3	22.0	20.0	21.6
Kyrgyz Republic	37.1	27.8	18.0	20.4	31.2	32.0	34.5	29.3	30.5
Pakistan	25.9	23.0	18.9	18.0	20.2	18.6	21.2	19.8	20.5
Tajikistan	...	17.4	14.7	19.4	25.1	27.4	25.1	28.0	28.9
Turkmenistan	...	20.1	23.9	19.7	14.1	14.6	14.7	16.1	15.4
Uzbekistan	...	32.6	28.9	22.5	21.5	21.2	21.3	21.4	21.7
East Asia									
China, People's Rep. of	18.5	...	16.3	18.3	22.0	22.6	23.6	23.8	23.8
Hong Kong, China	14.3	16.4	17.4	16.5	17.0	18.8	18.5	20.3	17.6
Korea, Rep. of	15.2	15.3	17.2	20.1	19.8	20.2	20.8	21.1	21.0
Mongolia	61.9	19.7	30.0	22.7	29.2	34.3	35.5	31.5	31.8
Taipei,China	14.5	14.3	22.6	15.1	13.3	13.3	13.7	12.6	...
South Asia									
Bangladesh	12.4	14.4	14.5	15.0	12.7	14.0	14.4	14.6	14.0
Bhutan	33.9	37.2	42.2	35.4	35.6	34.8	35.8	35.0	...
India	17.3	14.1	15.5	13.7	15.4	14.5	14.1	14.0	13.4
Maldives	...	36.6	37.3	45.5	40.3	40.1	38.6	38.5	41.7
Nepal	17.7	16.6	16.3	15.3	19.0	18.8	19.3	17.8	19.6
Sri Lanka	28.7	29.6	25.0	23.8	22.8	21.9	20.5	19.2	18.4
Southeast Asia									
Brunei Darussalam	43.7	66.0	40.6	32.1	33.3	29.7	31.0	27.8	31.8
Cambodia	8.4	14.8	14.8	13.2	21.4	20.0	21.2	20.6	17.0
Indonesia	19.6	14.7	15.8	18.4	15.2	16.5	17.3	17.3	16.8
Lao PDR	23.4	26.7	20.8	18.4	24.2	23.3	24.8	29.3	26.9
Malaysia	27.7	22.1	22.9	23.0	24.7	25.0	25.7	24.7	23.3
Myanmar	12.4	9.8	3.5	...	18.9	18.5	27.6	29.8	33.0
Philippines	20.4	18.2	18.1	16.9	16.8	15.9	16.6	16.1	15.6
Singapore	20.2	15.6	18.2	14.5	14.1	14.5	14.2	13.8	...
Thailand	13.2	15.3	16.8	17.2	19.7	19.4	19.4	20.2	19.9
Viet Nam[b]	21.9	23.8	22.6	25.1	27.2	25.4	28.2	28.8	25.6
The Pacific									
Cook Islands	...	48.3	31.0	33.3	33.0	39.7	36.5	41.2	...
Fiji	29.8	26.0	28.5	27.3	27.7	29.0	29.2	28.7	33.3
Kiribati	165.0	89.2	87.4	105.8	54.9	58.8	57.5	...	...
Marshall Islands	92.2	93.1	58.6	85.5	58.2	55.7	52.2	53.2	...
Micronesia, Fed. States of	92.9	77.0	67.2	59.3	67.4	65.0	64.9	59.3	59.9
Nauru	...	...	...	28.5	83.6	...	...	...	...
Palau	...	68.5	56.8	39.2	48.5	43.1	43.9	40.4	40.1
Papua New Guinea	34.2	28.3	32.9	35.2	30.7	30.6	34.1	36.4	35.5
Samoa	70.0	40.5	31.2	32.7	30.0	32.7	32.6	30.1	34.0
Solomon Islands	35.3	32.3	31.6	34.6	39.7	41.2	47.1	43.8	43.9
Timor-Leste	...	...	...	5.6	18.6	28.1	36.2	36.2	...
Tonga	37.1	26.3	22.2	21.2	28.0	32.4	29.5	25.5	26.7
Tuvalu	...	53.2	186.9	77.9	104.1	93.3	79.8	...	...
Vanuatu	37.6	29.3	26.0	18.4	26.3	23.7	23.4	20.7	...
Developed Member Economies									
Australia	21.9	25.0	23.5	25.0	26.7	25.8	25.9	25.2	25.9
Japan	15.7	16.1	18.3	16.0	18.0	19.5	19.0	19.3	...
New Zealand[c]	45.3	36.2	33.7	33.8	36.2	43.0	36.1	35.8	32.8

... = data not available at cutoff date, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Data refer to central government, except for Bangladesh, Georgia, Kiribati, the Kyrgyz Republic, Mongolia, Pakistan, and Tajikistan, where data refer to consolidated government or general government.
b Total expenditure includes local government expenditure.
c Data for 1990–2005 are based on fiscal year ending March 31, while data for 2010 on are based on fiscal year ending June 30.

Source: Economy sources.

Government Finance

Table 8.5: Government Expenditure by Economic Activity[a]
(% of GDP)

Regional Member	Health				Education				Social Security and Welfare			
	1990	2000	2010	2014	1990	2000	2010	2014	1990	2000	2010	2014
Developing Member Economies												
Central and West Asia												
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Armenia	...	1.0	1.6	1.6	...	2.8	2.8	2.4	...	2.1	7.1	7.1
Azerbaijan	2.9	0.9	1.0	1.1	7.7	3.9	2.8	2.5	3.9	3.0	2.6	3.0
Georgia	...	0.6	2.2	2.4	...	2.2	2.9	3.2	...	4.3	6.9	8.2
Kazakhstan	...	...	...	...	...	...	...	...	...	...	...	...
Kyrgyz Republic	3.7	2.0	3.1	3.2	7.5	3.5	5.8	6.5	4.9	1.7	5.0	5.9
Pakistan	...	...	...	...	...	...	...	...	...	...	...	...
Tajikistan[b]	...	0.9	1.4	2.0	...	2.3	4.0	5.1	...	1.8	3.5	5.9
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...
East Asia												
China, People's Rep. of[c]	...	...	1.2	1.6	4.0	...	3.1	3.6	0.3	0.7	2.2	2.5
Hong Kong, China	1.5	2.4	2.2	2.6	2.8	3.9	3.4	3.3	0.9	2.1	2.3	2.6
Korea, Rep. of	...	0.1	0.2	0.2 (2013)	2.9	3.1	3.0	3.4 (2013)	1.3	3.0	4.5	5.1 (2013)
Mongolia	5.5	3.8	2.5	2.9	11.5	6.7	5.1	8.9	7.7	6.2	11.1	10.4
Taipei,China	0.1	0.2	0.2	0.1 (2013)	1.0	2.3	1.7	1.5 (2013)	2.8	5.7	3.1	3.6 (2013)
South Asia												
Bangladesh	0.6	1.0	0.8	0.7	1.4	2.0	2.0	2.0	0.1	0.1	0.9	0.9
Bhutan	...	...	3.0	2.8 (2013)	...	...	6.7	7.2 (2013)	...	...	1.8	1.9 (2013)
India	...	0.7	0.7	0.8 (2013)	...	3.2	1.9	2.0 (2013)	...	0.8	0.4	0.6 (2013)
Maldives	...	4.1	3.6	4.5	...	7.4	6.0	5.5	...	1.0	3.0	13.7
Nepal	0.6	0.8	1.5	1.3 (2013)	1.6	2.3	3.9	3.7 (2013)	1.1	0.8	0.8	0.7 (2013)
Sri Lanka	1.6	1.6	1.3	1.4	3.0	2.4	1.9	1.9	3.8	2.8	1.9	1.7
Southeast Asia												
Brunei Darussalam	1.6	2.1	1.8	1.5 (2012)	4.0	4.2	3.6	3.0 (2012)	1.1	1.2	0.8	0.6 (2012)
Cambodia	1.5	0.9	1.3	1.5 (2013)	0.8	1.3	1.6	1.8 (2013)	...	0.2	0.5	0.7 (2013)
Indonesia	0.4	...	...	...	1.7	...	...	...	...	...	...	...
Lao PDR	0.1	1.0	...	...	0.5	1.0	...	...	...	...	...	...
Malaysia	1.5	1.5	2.0	2.0	5.5	5.6	6.1	5.1	1.2	0.9	1.2	1.0
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...
Philippines	0.7	0.4	0.3	0.7	3.1	3.3	2.5	3.0	0.2	0.7	0.5	1.7
Singapore	0.9	0.9	1.1	1.5 (2013)	4.0	3.9	3.0	3.0 (2013)	0.4	0.6	1.1	1.5 (2013)
Thailand	0.9	1.3	1.9	2.1	2.7	3.9	4.1	4.2	0.5	0.9	1.7	2.0
Viet Nam	...	...	...	...	...	...	...	...	...	...	...	...
The Pacific												
Cook Islands	...	3.1	3.3	3.0 (2013)	...	3.2	4.9	5.0 (2013)	...	...	...	...
Fiji	1.6	2.3	2.1	2.1	3.5	4.2	3.5	3.3	0.0	0.1	0.1	0.1
Kiribati	9.4	7.6	8.6	8.0 (2012)	12.3	11.0	10.1	10.9 (2012)	0.0	0.9	1.6	1.5 (2012)
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	2.9	1.6	...	...	7.3	5.1	...	...	0.3	...	...	...
Samoa	...	4.0	3.7	4.4	...	4.9	4.3	7.6	...	1.1	1.2	1.6
Solomon Islands	...	...	...	...	...	...	...	...	...	...	...	...
Timor-Leste	...	...	0.8	1.0 (2013)	...	...	1.7	1.6 (2013)	...	...	3.4	2.1 (2013)
Tonga	2.8	4.8	...	...	3.9	4.4	...	...	0.4	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	2.6	2.4	...	...	5.0	4.9	...	...	...	...	...	...
Developed Member Economies												
Australia	...	3.9	4.0	4.0	...	1.6	2.8	1.9	...	8.6	8.4	8.9
Japan	4.5	6.3	6.8	7.3 (2013)	3.5	3.9	3.1	3.1 (2013)	7.4	10.6	17.0	17.8 (2013)
New Zealand	...	5.6	7.2	7.1 (2013)	...	5.2	7.5	6.8 (2013)	...	12.4	5.7	5.7 (2013)

... = data not available at cutoff date, 0.0 = magnitude is less than half of unit employed, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic.

a Data refer to central government, except for Bangladesh, Georgia, Kiribati, the Kyrgyz Republic, Mongolia, Pakistan, and Tajikistan, where data refer to consolidated government or general government.
b From 2000 on, includes defense.
c Prior to 2010, education expenditure data include health and education expenditures.

Source: Economy sources.

Table 8.6: Doing Business Start-Up Indicators

Regional Member	Cost of Business Start-Up Procedure (% of GNI per capita)						Time Required to Start Up Business (days)					
	2005	2010	2011	2012	2013	2014	2005	2010	2011	2012	2013	2014
Developing Member Economies												
Central and West Asia[a]	**27.4**	**11.2**	**10.0**	**8.4**	**7.0**	**6.9**	**37**	**13**	**12**	**12**	**11**	**11**
Afghanistan	75.2	26.7	25.8	22.5	14.4	15.1	9	7	7	7	5	7
Armenia	6.1	3.1	2.9	2.5	1.1	1.0	18	14	8	8	4	3
Azerbaijan	12.3	3.1	2.7	2.3	1.0	3.1	113	8	8	8	7	5
Georgia	13.7	5.0	4.3	3.8	3.5	3.4	21	3	2	2	2	2
Kazakhstan	8.6	1.0	0.8	0.7	0.6	0.5	25	19	19	19	12	10
Kyrgyz Republic	10.4	3.7	3.5	2.8	2.7	2.4	21	10	10	10	8	8
Pakistan	23.9	10.7	11.2	9.9	10.4	9.6	22	19	19	19	19	19
Tajikistan	85.1	36.9	33.3	27.1	25.6	23.3	79	27	24	24	33	39
Turkmenistan	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	11.5	10.8	5.3	3.8	3.5	3.3	28	14	13	11	8	8
East Asia[a]	**9.3**	**5.7**	**5.1**	**4.7**	**4.2**	**4.0**	**31**	**17**	**14**	**12**	**12**	**12**
China, People's Rep. of	13.6	4.5	3.6	2.1	1.9	0.9	48	38	38	33	34	31
Hong Kong, China	3.4	2.0	1.9	1.9	0.8	1.4	11	6	3	3	3	3
Korea, Rep. of	15.7	14.7	14.6	14.6	14.6	14.5	17	14	7	4	4	4
Mongolia	9.6	3.2	2.9	2.4	1.5	1.2	13	13	13	12	11	11
Taipei,China	4.4	4.0	2.4	2.4	2.3	2.2	65	15	10	10	10	10
South Asia[a]	**44.4**	**28.0**	**24.0**	**22.4**	**21.6**	**15.4**	**45**	**30**	**27**	**23**	**19**	**17**
Bangladesh	56.1	21.2	19.5	19.6	18.8	16.8	52	27	27	27	22	20
Bhutan	16.9	6.1	6.1	6.0	5.0	4.4	62	46	36	36	32	17
India	62.0	50.5	42.0	43.1	38.9	12.2	70	27	27	25	26	28
Maldives	11.5	9.4	8.9	6.0	6.2	6.2	9	9	9	9	9	9
Nepal	69.9	46.6	37.4	33.0	34.6	32.2	31	31	29	29	17	17
Sri Lanka	50.0	33.9	30.1	26.6	26.1	20.7	46	38	35	11	11	11
Southeast Asia[a]	**60.3**	**26.1**	**22.9**	**37.8**	**40.7**	**36.9**	**70**	**53**	**50**	**52**	**55**	**52**
Brunei Darussalam	...	13.5	11.8	10.7	9.9	10.4	...	105	101	101	101	101
Cambodia	276.1	127.5	109.1	99.9	150.6	139.5	87	102	102	102	101	101
Indonesia	101.7	25.8	23.5	22.7	21.9	21.1	151	49	48	48	76	53
Lao PDR	17.4	8.9	7.6	7.1	6.7	5.7	153	93	93	92	92	92
Malaysia	26.6	17.5	16.4	15.1	7.6	7.2	37	17	5	6	6	6
Myanmar	...	...	...	187.5	176.7	155.9	...	...	...	72	72	72
Philippines	23.9	22.1	19.1	19.2	18.7	16.6	47	37	36	36	36	34
Singapore	0.9	0.7	0.7	0.6	0.6	0.6	6	3	3	3	3	3
Thailand	8.1	6.9	7.0	6.7	6.7	6.6	33	32	29	29	28	28
Viet Nam	27.6	12.1	10.7	8.8	7.7	5.3	42	36	36	32	34	34
The Pacific[a]	**59.4**	**34.9**	**32.7**	**31.0**	**30.6**	**29.0**	**47**	**39**	**35**	**33**	**33**	**26**
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	28.4	23.8	25.1	24.0	23.1	22.5	44	44	44	58	59	59
Kiribati	40.3	22.8	22.2	22.3	22.7	20.5	31	31	31	31	31	31
Marshall Islands	22.4	17.6	17.7	13.5	12.4	12.8	17	17	17	17	17	17
Micronesia, Fed. States of	127.6	137.8	139.0	139.8	141.0	141.2	16	16	16	16	16	16
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	4.7	5.7	5.8	5.2	3.8	3.3	24	28	28	28	28	28
Papua New Guinea	27.7	27.0	23.8	20.7	19.9	19.4	52	52	52	52	53	53
Samoa	46.4	9.8	9.7	9.5	9.6	9.4	35	9	9	9	9	9
Solomon Islands	135.5	78.5	54.5	47.9	47.5	35.5	55	55	41	7	9	9
Timor-Leste	125.4	5.7	5.0	2.9	2.9	0.3	167	110	94	94	94	10
Tonga	11.7	7.0	10.3	8.3	7.7	7.6	32	25	16	16	16	16
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	83.5	48.2	47.1	47.2	46.2	46.2	47	47	33	33	35	35
Developed Member Economies[a]	4.3	2.9	2.9	2.9	2.8	2.8	15	8	5	5	5	5
Australia	1.9	0.7	0.7	0.7	0.7	0.7	3	3	3	3	3	3
Japan	10.7	7.5	7.5	7.5	7.5	7.5	30	22	11	11	11	11
New Zealand	0.2	0.4	0.4	0.4	0.3	0.3	12	1	1	1	1	1
DEVELOPING MEMBER ECONOMIES[a]	**43.5**	**22.9**	**20.6**	**23.2**	**23.4**	**21.0**	**47**	**32**	**29**	**29**	**29**	**26**
REGIONAL MEMBERS[a]	**40.7**	**21.5**	**19.4**	**21.8**	**22.0**	**19.8**	**45**	**31**	**28**	**27**	**27**	**25**
WORLD	**80.2**	**42.8**	**37.6**	**34.1**	**31.9**	**27.8**	**50**	**34**	**30**	**30**	**25**	**22**

... = data not available at cutoff date, GNI = gross national income, Lao PDR = Lao People's Democratic Republic.

a Arithmetic average of reporting economies only.

Source: World Bank. Doing Business Online. http://data.worldbank.org/indicator (accessed 16 June 2015).

Table 8.7: Corruption Perceptions Index[a]

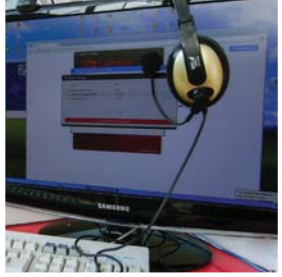
Regional Member	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014	Rank in 2013[b]	Rank in 2014[b]
Developing Member Economies												
Central and West Asia												
Afghanistan	...	2.5	1.8	1.5	1.3	1.4	1.5	8	8	12	175	172
Armenia	2.5	2.9	3.0	2.9	2.7	2.6	2.6	34	36	37	94	94
Azerbaijan	1.5	2.2	2.1	1.9	2.3	2.4	2.4	27	28	29	127	126
Georgia	...	2.3	3.4	3.9	4.1	3.8	4.1	52	49	52	55	50
Kazakhstan	3.0	2.6	2.1	2.2	2.7	2.9	2.7	28	26	29	140	126
Kyrgyz Republic	...	2.3	2.1	1.8	1.9	2.0	2.1	24	24	27	150	136
Pakistan	...	2.1	2.4	2.5	2.4	2.3	2.5	27	28	29	127	126
Tajikistan	...	2.1	2.1	2.0	2.0	2.1	2.3	22	22	23	154	152
Turkmenistan	...	1.8	2.0	1.8	1.8	1.6	1.6	17	17	17	168	169
Uzbekistan	2.4	2.2	1.7	1.8	1.7	1.6	1.6	17	17	18	168	166
East Asia												
China, People's Rep. of	3.1	3.2	3.5	3.6	3.6	3.5	3.6	39	40	36	80	100
Hong Kong, China	7.7	8.3	8.3	8.1	8.2	8.4	8.4	77	75	74	15	17
Korea, Rep. of	4.0	5.0	5.1	5.6	5.5	5.4	5.4	56	55	55	46	43
Mongolia	...	3.0	3.0	3.0	2.7	2.7	2.7	36	38	39	83	80
Taipei,China	5.5	5.9	5.7	5.7	5.6	5.8	6.1	61	61	61	36	35
South Asia												
Bangladesh	...	1.7	2.0	2.1	2.4	2.4	2.7	26	27	25	136	145
Bhutan	...	...	5.0	5.2	5.0	5.7	5.7	63	63	65	31	30
India	2.8	2.9	3.5	3.4	3.4	3.3	3.1	36	36	38	94	85
Maldives	...	...	3.3	2.8	2.5	2.3	2.5	...	...	...	...	...
Nepal	...	2.5	2.5	2.7	2.3	2.2	2.2	27	31	29	116	126
Sri Lanka	...	3.2	3.2	3.2	3.1	3.2	3.3	40	37	38	91	85
Southeast Asia												
Brunei Darussalam	...	...	...	...	5.5	5.5	5.2	55	60	...	38	...
Cambodia	...	2.3	2.0	1.8	2.0	2.1	2.1	22	20	21	160	156
Indonesia	1.7	2.2	2.3	2.6	2.8	2.8	3.0	32	32	34	114	107
Lao PDR	...	3.3	1.9	2.0	2.0	2.1	2.2	21	26	25	140	145
Malaysia	4.8	5.1	5.1	5.1	4.5	4.4	4.3	49	50	52	53	50
Myanmar	...	1.8	1.4	1.3	1.4	1.4	1.5	15	21	21	157	156
Philippines	2.8	2.5	2.5	2.3	2.4	2.4	2.6	34	36	38	94	85
Singapore	9.1	9.4	9.3	9.2	9.2	9.3	9.2	87	86	84	5	7
Thailand	3.2	3.8	3.3	3.5	3.4	3.5	3.4	37	35	38	102	85
Viet Nam	2.5	2.6	2.6	2.7	2.7	2.7	2.9	31	31	31	116	119
The Pacific												
Cook Islands	...	...	...	...	...	...	...	...	...	...	...	...
Fiji	...	4.0	...	...	...	...	...	...	...	...	...	...
Kiribati	...	...	3.3	3.1	2.8	3.2	3.1	...	...	...	...	...
Marshall Islands	...	...	...	...	...	...	...	...	...	...	...	...
Micronesia, Fed. States of	...	...	...	...	...	...	...	...	...	...	...	...
Nauru	...	...	...	...	...	...	...	...	...	...	...	...
Palau	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	2.3	2.0	2.0	2.1	2.1	2.2	25	25	25	144	145
Samoa	...	...	4.5	4.4	4.5	4.1	3.9	...	...	52	...	50
Solomon Islands	...	...	2.8	2.9	2.8	2.8	2.7	...	...	...	...	...
Timor-Leste	...	...	2.6	2.2	2.2	2.5	2.4	33	30	28	119	133
Tonga	...	...	1.7	2.4	3.0	3.0	3.1	...	...	...	...	...
Tuvalu	...	...	...	...	...	...	...	...	...	...	...	...
Vanuatu	...	...	3.1	2.9	3.2	3.6	3.5	...	...	...	...	...
Developed Member Economies												
Australia	8.3	8.8	8.6	8.7	8.7	8.7	8.8	85	81	80	9	11
Japan	6.4	7.3	7.5	7.3	7.7	7.8	8.0	74	74	76	18	15
New Zealand	9.4	9.6	9.4	9.3	9.4	9.3	9.5	90	91	91	1	2

... = data not available at cutoff date, Lao PDR = Lao People's Democratic Republic.

a For 2000–2011, score relates to perceptions of the degree of corruption as seen by business people and country analysts, and ranges from 10 (highly clean) to 0 (highly corrupt). From 2012 on, computation of the score used an updated methodology and is now presented on a 100 (very clean) to 0 (highly corrupt) scale. Scores from 2011 and previous editions should not be compared with scores from 2012 on.

b The highest rank is the most clean, while the lowest rank is the most corrupt; 2013 is based on 177 economies; and 2014 is based on 175 economies.

Source: Transparency International. http://www.transparency.org/cpi2014/results/#myAnchor1 (accessed 30 July 2015).





PART IV

Global Value Chains Indicators for International Production Sharing

Introduction to Global Value Chains

Production processes are increasingly fragmented and distributed across firms and economies. For example, the manufacturing of Toyota automobiles in Asia involves a huge regional production network—covering the People's Republic of China, India, and four members of the Association of Southeast Asian Nations (Indonesia, Malaysia, Thailand, and the Philippines)—in which final assembly of components and parts from other members of the network is conducted in the People's Republic of China and Thailand.

Traditional trade statistics alone no longer capture important elements of the complicated trade relationships between economies. It has become necessary to know the export structure of an economy in terms of foreign and domestic value added, as well as double-counted components (due to back-and-forth trade). Further decompositions, such as by industries and sectors, can provide crucial information for policy making. Recognizing this need, the Asian Development Bank (ADB) is extending existing global value chain (GVC) statistics for Asian economies by applying leading methodology and research in this field.[1]

In order to exploit the analytical richness of trade-focused empirical analysis, economic datasets in the form of interregional (international) input–output tables (IOTs) are required. Currently, there are three such sources being used for analysis: the World Input–Output Database (WIOD), the Organisation for Economic Co-operation and Development's (OECD) IOT database, and the Eora Multi-Region Input–Output database. The first two provide more granular sectoral information and are more rooted in official statistics. However, details are available only for 40 economies in the WIOD and 61 economies in the OECD IOT database; the numbers of Asian economies covered are 6 and 13, respectively. Although the Eora database covers 189 economies including 31 in Asia, the sectoral data provided are highly aggregated.

As part of a technical assistance project undertaken between 2008 and 2013, the ADB worked with 18 economies in Asia and the Pacific to produce supply and use tables (SUTs) and IOTs. Another ADB project is under way to produce a time series of tables for 19 economies. As these tables are compiled by the organizations responsible for the production of official statistics in their respective economies, they are compatible with economic information collected and official statistics disseminated by these economies. Utilizing the high-quality IOTs thus compiled, ADB has embarked on a major data development initiative to produce a time series of international SUTs and IOTs, with a particular focus on Asian economies.

As a first step, the IOTs for the years 2000, 2005, and 2011 that were extracted from the WIOD have been augmented by the addition of five economies: Bangladesh, Malaysia, the Philippines, Thailand, and Viet Nam. This has facilitated the production and analysis of global value chain-related statistics for 11 Asian economies for *Key Indicators for Asia and the Pacific 2015*. The tables of other Asian economies will be integrated into the international IOTs in a phased manner. Work is also under way to produce a time series of Asia-focused international IOTs from 1995 to the most recent year possible. This database will be a rich source of economic information for research and policy making.

1 See, for example, Z. Wang, S. Wei, and K. Zhu. 2014. *Quantifying International Production Sharing at the Bilateral and Sector Levels*. NBER Working Paper No. 19677. Cambridge, MA: National Bureau of Economic Research.

Data related to GVC categorized by a number of variables are provided on pages 358–373. In order to extract the full value of the information provided, it is recommended that the reader goes through the technical note titled "Understanding the Statistics on Global Value Chains" provided in the Appendix. Besides summarizing the methodology used and defining the variables, the note also includes a component interpreting and analyzing the data given in the tables.

Glossary of Terms

Global Value Chains (GVCs): A network of interlinked stages of production for goods and services that straddles international borders. Typically, a GVC involves combining imported and domestically produced goods and services into products that are then exported for use as intermediates in the subsequent stage of production or as final consumption products.

Domestic Value Added (DVA): Domestic inputs of goods and services in the overall exports of an economy.

Foreign Value Added (FVA): Imported inputs of goods and services in the overall exports of an economy.

Pure Double Counted Terms (PDC): In a GVC, some goods or services may cross the same national border for three or more times. For example, the United States (US) may first export cellphone parts for assembly in the People's Republic of China (PRC); then the PRC exports the assembled cellphones to the US for further enhancement; finally the US exports the enhanced cellphones to the PRC for final consumption. In this process, the parts produced by the US are counted as its export twice. The double-counted value added of these parts is referred to as the "pure double-counted terms".

GVC participation: There are various ways to measure economies' participation in GVCs. A simple metric is the share of foreign value added in total exports. It reflects the extent to which an economy uses foreign inputs in producing for exports. A more rigorous measure is **Vertical Specialization (VS)**, which is the share of foreign value added and pure double counted terms in total exports.

Revealed Comparative Advantage (RCA): It is an index, introduced by Bela Balassa, to calculate the relative advantage an economy has in the export of any given good or service. An economy is said to have an RCA in a product if it exports more than its "fair share," or a share that is equal to or greater than the share of total world trade that the product represents.

Domestic Value Added Absorbed Abroad (VAX_G): All domestic value added embodied in the gross exports and ultimately absorbed abroad.

Domestic Value Added first Exported then Returned Home (RDV_B): Domestic value added that are exported first, but then return to the home economy for domestic consumption. This would happen, for example, when the Philippines export electronic parts to the PRC for final assembly of laptops, which then return to the Philippines for final consumption.

Value Added Exports by Forward Industrial Linkages (VAX_F): Domestic value added that is originated from a particular sector and ultimately absorbed abroad via the exports of all sectors in the source economy. For example, besides direct export, the value added of German business services sector may be exported as an input to German automobiles. This indicator is useful in understanding the contribution of a given sector to the economy's aggregate exports.

Value Added Exports by Backward Industrial Linkages (VAX_B): Value added that is originated from all domestic sectors and ultimately absorbed abroad via the export of a particular sector in the source economy. For example, the domestic value added of German automobile exports includes that of all German sectors (e.g. business service, computers) used as inputs.

Global Value Chains Indicators

Table 4.1a: Value Added Decomposition of Exports–Primary Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total export)										
VAX-G	2000	96.38	91.14	83.46	95.31	88.70	96.72	86.17	93.08	86.42	87.07	83.35
	2005	95.16	86.30	72.13	92.88	87.65	95.82	87.28	91.97	84.65	84.31	77.34
	2011	95.69	86.86	57.70	94.72	78.89	88.47	89.64	92.50	86.07	82.49	74.11
RDV_B	2000	0.13	1.18	2.57	0.48	0.25	0.13	0.26	0.07	1.17	0.13	0.09
	2005	0.38	2.21	1.75	0.56	0.25	0.18	0.41	0.11	0.51	0.13	0.10
	2011	0.61	2.80	1.26	0.94	0.36	0.18	0.32	0.14	0.33	0.16	0.08
FVA	2000	2.83	5.96	9.90	3.03	9.95	2.21	9.27	5.93	8.91	10.08	15.78
	2005	3.14	7.54	17.51	4.19	10.83	2.75	7.91	6.71	10.02	11.86	21.16
	2011	2.60	7.02	28.28	2.74	17.75	8.00	6.94	5.78	9.90	13.79	24.16
PDC	2000	0.67	1.72	4.07	1.18	1.10	0.94	4.30	0.92	3.50	2.73	0.78
	2005	1.31	3.95	8.61	2.37	1.26	1.25	4.41	1.21	4.82	3.70	1.39
	2011	1.10	3.31	12.77	1.60	3.00	3.36	3.10	1.58	3.71	3.56	1.65

FVA = foreign value added, PDC = pure double counted term, PRC = People's Republic of China, RDV_B = domestic value added first exported then returned home, VAX_G = domestic value added absorbed abroad.

Table 4.1b: Value Added Decomposition of Exports–Low Technology Manufacturing Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total export)										
VAX-G	2000	86.19	83.26	89.91	78.66	75.06	84.26	61.74	83.87	72.16	62.12	72.59
	2005	71.55	80.64	86.88	78.20	74.35	80.37	65.55	83.68	68.15	64.87	66.85
	2011	64.65	83.46	82.46	80.35	66.01	81.94	71.42	86.95	74.28	61.77	59.75
RDV_B	2000	0.10	0.40	2.63	0.10	0.27	0.02	0.09	0.03	0.17	0.02	0.21
	2005	0.19	0.42	2.29	0.14	0.37	0.02	0.10	0.05	0.17	0.03	0.19
	2011	0.20	0.77	1.59	0.24	0.36	0.02	0.10	0.05	0.17	0.08	0.13
FVA	2000	12.13	14.14	5.29	17.19	19.18	13.80	32.03	14.69	24.25	33.97	21.23
	2005	25.73	16.10	7.19	16.92	18.74	16.79	27.20	14.45	26.36	30.49	23.65
	2011	32.62	13.27	10.76	15.32	25.25	15.29	22.90	11.26	20.48	33.87	29.67
PDC	2000	1.57	2.21	2.17	4.05	5.49	1.93	6.15	1.41	3.42	3.90	5.97
	2005	2.53	2.84	3.65	4.75	6.54	2.81	7.16	1.82	5.32	4.61	9.31
	2011	2.52	2.50	5.19	4.08	8.38	2.75	5.58	1.74	5.07	4.28	10.45

FVA = foreign value added, PDC = pure double counted term, PRC = People's Republic of China, RDV_B = domestic value added first exported then returned home, VAX_G = domestic value added absorbed abroad.

Table 4.1c: Value Added Decomposition of Exports–Medium and High Technology Manufacturing Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total export)										
VAX-G	2000	76.45	76.86	88.52	73.92	64.75	84.21	35.43	76.87	39.91	49.10	58.57
	2005	75.34	65.04	84.79	72.46	64.13	85.44	41.36	58.92	40.94	63.52	52.11
	2011	77.70	69.67	79.47	77.25	56.24	63.88	60.24	60.66	51.09	58.12	49.25
RDV_B	2000	0.24	1.02	1.84	0.20	0.36	0.08	0.11	0.13	0.29	0.06	0.36
	2005	0.67	1.54	1.79	0.30	0.46	0.08	0.13	0.12	0.15	0.07	0.30
	2011	0.41	2.40	1.22	0.45	0.34	0.12	0.21	0.08	0.16	0.11	0.18
FVA	2000	17.26	16.47	7.02	18.86	26.00	10.84	48.68	14.40	48.51	33.64	29.93
	2005	16.58	24.38	9.27	17.47	24.07	8.40	42.18	27.68	45.52	24.58	28.59
	2011	16.63	20.52	13.73	16.18	31.72	25.51	27.34	29.22	40.41	31.93	32.81
PDC	2000	6.04	5.64	2.62	7.02	8.89	4.87	15.77	8.60	11.30	17.20	11.14
	2005	7.41	9.04	4.15	9.77	11.33	6.08	16.33	13.28	13.39	11.83	19.00
	2011	5.26	7.42	5.58	6.13	11.70	10.50	12.21	10.04	8.34	9.85	17.77

FVA = foreign value added, PDC = pure double counted term, PRC = People's Republic of China, RDV_B = domestic value added first exported then returned home, VAX_G = domestic value added absorbed abroad.

Table 4.1d: Value Added Decomposition of Exports–Business Services Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total export)										
VAX-G	2000	91.62	89.13	91.47	83.90	81.47	96.93	68.50	86.44	83.79	76.77	80.17
	2005	90.67	84.29	89.73	84.39	76.62	96.28	80.56	90.00	79.42	85.89	72.82
	2011	91.42	84.78	88.28	87.00	71.19	79.29	82.84	92.08	84.23	84.22	70.93
RDV_B	2000	0.22	0.78	1.89	0.23	0.37	0.02	0.16	0.06	0.21	0.04	0.26
	2005	0.41	1.28	1.83	0.31	0.47	0.02	0.12	0.08	0.26	0.03	0.20
	2011	0.19	2.06	1.21	0.17	0.32	0.06	0.14	0.10	0.23	0.07	0.13
FVA	2000	6.40	7.96	4.99	12.48	14.01	2.75	25.94	11.51	13.70	19.12	15.58
	2005	6.89	10.83	5.91	10.83	16.61	3.26	15.11	8.31	16.82	12.61	20.01
	2011	6.83	9.47	8.60	9.16	19.97	16.52	13.92	6.08	12.78	14.20	20.98
PDC	2000	1.77	2.13	1.66	3.38	4.15	0.31	5.40	1.99	2.30	4.08	3.98
	2005	2.03	3.60	2.54	4.47	6.30	0.44	4.21	1.61	3.50	1.47	6.97
	2011	1.56	3.70	1.91	3.66	8.53	4.13	3.10	1.74	2.76	1.50	7.96

FVA = foreign value added, PDC = pure double counted term, PRC = People's Republic of China, RDV_B = domestic value added first exported then returned home, VAX_G = domestic value added absorbed abroad.

Table 4.1e: Value Added Decomposition of Exports–Personal Services Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total export)										
VAX-G	2000	91.72	88.26	96.06	86.48	89.48	96.42	75.46	89.31	77.27	83.55	87.16
	2005	87.51	84.79	95.20	84.04	89.16	95.92	75.76	89.97	76.58	86.06	89.35
	2011	90.67	86.13	94.10	86.42	85.15	90.76	82.88	91.73	77.18	84.51	88.71
RDV_B	2000	0.21	0.62	1.02	0.08	0.23	0.04	0.02	0.08	0.09	0.03	0.20
	2005	0.21	1.03	0.70	0.10	0.37	0.04	0.07	0.05	0.09	0.04	0.08
	2011	0.24	1.63	0.67	0.08	0.27	0.08	0.10	0.05	0.11	0.12	0.11
FVA	2000	5.67	7.37	2.38	11.63	8.93	3.30	24.04	9.36	20.45	14.60	11.06
	2005	9.04	10.19	3.53	13.71	8.93	3.77	22.04	8.28	21.13	12.84	9.55
	2011	6.37	9.06	4.28	12.16	12.74	7.32	15.68	5.98	20.53	13.76	9.70
PDC	2000	2.40	3.75	0.54	1.81	1.36	0.24	0.48	1.25	2.19	1.82	1.57
	2005	3.23	3.99	0.57	2.15	1.54	0.28	2.14	1.70	2.19	1.05	1.01
	2011	2.72	3.18	0.95	1.34	1.84	1.84	1.35	2.24	2.18	1.61	1.48

FVA = foreign value added, PDC = pure double counted term, PRC = People's Republic of China, RDV_B = domestic value added first exported then returned home, VAX_G = domestic value added absorbed abroad.

Table 4.2a: Exports by Various Measures–Primary Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		($ million)										
Exports	2000	8,242	10,914	2,243	10,794	473	390	9,556	698	1,516	5,953	1,830
	2005	14,559	20,989	2,958	21,998	625	367	15,802	925	2,495	10,705	2,137
	2011	28,316	34,214	5,468	65,316	753	760	17,798	1,461	7,055	26,096	4,805
DVA_B	2000	7,955	10,093	1,933	10,346	421	378	8,279	650	1,329	5,192	1,527
	2005	13,917	18,678	2,186	20,565	550	353	13,889	852	2,128	9,041	1,655
	2011	27,290	30,786	3,226	62,515	597	720	16,023	1,353	6,100	21,575	3,564
VAX_F	2000	13,457	31,930	4,309	19,494	3,012	797	12,423	1,782	5,418	5,053	1,632
	2005	22,484	88,383	4,961	29,691	3,715	931	21,564	3,000	7,868	9,224	1,700
	2011	43,621	205,085	6,752	88,298	4,774	2,024	39,012	5,307	22,235	23,166	3,748
VAX_B	2000	7,944	9,947	1,872	10,288	420	377	8,234	649	1,310	5,184	1,525
	2005	13,855	18,113	2,133	20,432	548	352	13,791	851	2,112	9,025	1,653
	2011	27,097	29,717	3,155	61,868	594	710	15,954	1,351	6,072	21,526	3,561

DVA_B = domestic value added by backward linkages, PRC = People's Republic of China, VAX_B = value added exports by backward industrial linkages, VAX_F = value added exports by forward industrial linkages.

Table 4.2b: Exports by Various Measures–Low Technology Manufacturing Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		($ million)										
Exports	2000	29,630	94,580	26,828	25,183	30,439	4,702	16,805	5,491	26,465	4,343	31,307
	2005	56,354	215,068	37,766	29,986	28,350	6,956	20,517	8,044	36,020	8,644	28,320
	2011	111,142	516,013	58,590	64,782	39,332	15,992	46,339	10,779	63,192	25,314	34,936
DVA_B	2000	25,565	79,065	24,841	19,826	22,924	3,962	10,390	4,606	19,139	2,697	22,793
	2005	40,388	174,075	33,696	23,479	21,177	5,592	13,469	6,735	24,604	5,608	18,982
	2011	72,016	434,058	49,279	52,192	26,105	12,777	33,136	9,378	47,050	15,651	20,913
VAX_F	2000	13,452	56,367	45,937	12,373	21,117	1,993	7,627	4,307	13,301	1,829	14,866
	2005	23,051	133,764	53,712	15,084	24,524	2,728	10,803	4,929	16,075	3,561	12,946
	2011	40,806	329,344	69,693	31,570	34,416	6,024	14,430	7,366	28,180	10,196	13,383
VAX_B	2000	25,538	78,751	24,121	19,809	22,848	3,962	10,375	4,605	19,097	2,698	22,726
	2005	40,322	173,438	32,810	23,449	21,078	5,591	13,448	6,731	24,548	5,608	18,933
	2011	71,855	430,671	48,313	52,055	25,962	12,775	33,098	9,372	46,940	15,636	20,875

DVA_B = domestic value added by backward linkages, PRC = People's Republic of China, VAX_B = value added exports by backward industrial linkages, VAX_F = value added exports by forward industrial linkages.

Table 4.2c: Exports by Various Measures–Medium and High Technology Manufacturing Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		($ million)										
Exports	2000	21,266	126,983	393,885	23,452	133,885	117	72,457	16,752	38,470	594	122,071
	2005	47,346	477,552	494,688	31,684	251,877	136	94,215	17,065	62,345	3,339	177,664
	2011	122,929	1,253,166	660,287	66,512	488,646	380	91,058	22,004	71,490	11,889	275,977
DVA_B	2000	16,312	98,907	355,826	17,384	87,155	99	25,722	12,900	15,459	292	71,928
	2005	36,003	317,840	428,154	23,053	162,665	116	39,053	10,075	25,608	2,124	93,112
	2011	96,056	902,855	532,684	51,669	276,413	325	55,034	13,362	36,621	6,922	136,413
VAX_F	2000	11,259	71,947	224,926	10,803	66,378	172	18,131	9,974	11,586	462	46,852
	2005	22,597	208,541	274,252	15,505	119,576	265	22,963	6,298	18,802	1,617	59,240
	2011	54,721	555,524	337,032	32,062	205,973	898	35,358	8,379	28,389	5,101	83,533
VAX_B	2000	16,258	97,604	348,652	17,336	86,686	99	25,671	12,878	15,355	291	71,500
	2005	35,669	310,619	419,448	22,959	161,539	116	38,966	10,054	25,525	2,121	92,582
	2011	95,516	873,057	524,740	51,377	274,798	307	54,849	13,348	36,525	6,910	135,921

DVA_B = domestic value added by backward linkages, PRC = People's Republic of China, VAX_B = value added exports by backward industrial linkages, VAX_F = value added exports by forward industrial linkages.

Table 4.2d: Exports by Various Measures–Business Services Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		($ million)										
Exports	2000	6,792	39,274	88,507	4,887	31,864	754	11,891	3,803	13,480	2,844	17,095
	2005	36,681	114,129	112,818	8,416	45,505	858	15,512	5,904	19,306	4,128	17,605
	2011	70,252	273,990	171,083	19,012	80,976	1,140	33,080	17,909	42,756	15,231	21,908
DVA_B	2000	6,238	35,346	82,702	4,112	26,097	731	8,177	3,290	11,328	2,184	13,759
	2005	33,424	97,954	103,404	7,129	35,109	827	12,523	5,319	15,393	3,547	12,859
	2011	64,367	238,632	153,145	16,571	57,935	1,082	27,452	16,511	36,124	12,838	15,571
VAX_F	2000	17,650	62,304	169,750	8,895	45,130	1,767	14,363	5,275	16,812	3,019	45,564
	2005	53,518	163,310	210,355	13,020	69,075	2,345	23,450	8,730	24,783	5,849	51,059
	2011	115,747	458,154	294,992	27,989	111,911	5,170	41,904	19,332	46,345	18,617	73,602
VAX_B	2000	6,222	35,007	80,954	4,100	25,959	731	8,146	3,287	11,294	2,183	13,706
	2005	33,260	96,204	101,232	7,102	34,864	826	12,497	5,314	15,334	3,545	12,819
	2011	64,222	232,286	151,035	16,541	57,645	1,074	27,403	16,491	36,014	12,828	15,539

DVA_B = domestic value added by backward linkages, PRC = People's Republic of China, VAX_B = value added exports by backward industrial linkages, VAX_F = value added exports by forward industrial linkages.

Table 4.2e: Exports by Various Measures–Personal Services Sector

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		($ million)										
Exports	2000	1,936	7,573	1,783	930	2,849	488	1,122	94	1,584	284	981
	2005	3,532	10,882	2,930	1,977	2,823	532	1,217	418	2,460	225	1,011
	2011	6,086	16,658	3,772	4,238	5,035	760	3,016	747	4,018	2,385	1,606
DVA_B	2000	1,780	6,733	1,732	805	2,556	471	846	84	1,226	238	857
	2005	3,098	9,345	2,811	1,663	2,528	510	922	376	1,886	194	905
	2011	5,534	14,630	3,576	3,664	4,302	728	2,502	686	3,105	2,019	1,426
VAX_F	2000	1,920	5,445	12,391	772	2,824	909	729	165	1,163	230	1,399
	2005	4,548	13,602	15,134	2,305	3,656	1,126	845	370	1,874	243	1,947
	2011	9,313	31,971	22,323	5,585	6,213	1,153	3,100	863	3,504	1,837	3,053
VAX_B	2000	1,776	6,685	1,713	804	2,549	471	847	84	1,224	238	855
	2005	3,091	9,227	2,790	1,661	2,517	510	922	376	1,884	194	904
	2011	5,518	14,347	3,550	3,663	4,287	725	2,500	685	3,101	2,016	1,425

DVA_B = domestic value added by backward linkages, PRC = People's Republic of China, VAX_B = value added exports by backward industrial linkages, VAX_F = value added exports by forward industrial linkages.

Table 4.2f: VAX_F to Gross Exports Ratio

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
Primary Sector	2000	163%	293%	192%	181%	637%	204%	130%	255%	357%	85%	89%
	2005	154%	421%	168%	135%	594%	253%	136%	324%	315%	86%	80%
	2011	154%	599%	123%	135%	634%	266%	219%	363%	315%	89%	78%
Low Technology Manufacturing Sector	2000	45%	60%	171%	49%	69%	42%	45%	78%	50%	42%	47%
	2005	41%	62%	142%	50%	87%	39%	53%	61%	45%	41%	46%
	2011	37%	64%	119%	49%	88%	38%	31%	68%	45%	40%	38%
Medium and High Technology Manufacturing	2000	53%	57%	57%	46%	50%	147%	25%	60%	30%	78%	38%
	2005	48%	44%	55%	49%	47%	195%	24%	37%	30%	48%	33%
	2011	45%	44%	51%	48%	42%	236%	39%	38%	40%	43%	30%
Business Services Sector	2000	260%	159%	192%	182%	142%	234%	121%	139%	125%	106%	267%
	2005	146%	143%	186%	155%	152%	273%	151%	148%	128%	142%	290%
	2011	165%	167%	172%	147%	138%	454%	127%	108%	108%	122%	336%
Personal Services Sector	2000	99%	72%	695%	83%	99%	186%	65%	176%	73%	81%	143%
	2005	129%	125%	516%	117%	130%	212%	69%	88%	76%	108%	192%
	2011	153%	192%	592%	132%	123%	152%	103%	116%	87%	77%	190%

PRC = People's Republic of China , VAX_F = value added exports by forward industrial linkages.

Table 4.3a: Revealed Comparative Advantage by Sector–Reference Year 2000

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(ratio)										
1	Agriculture, Hunting, Forestry, and Fishing	4.7	2.2	0.1	2.3	0.5	3.6	2.4	2.0	2.3	6.0	0.3
2	Mining and Quarrying	0.7	0.7	0.1	3.5	0.0	0.1	1.7	0.1	0.3	3.0	0.1
3	Food, Beverages, and Tobacco	0.6	1.2	0.3	1.9	0.4	0.5	1.1	1.7	3.6	2.4	0.2
4	Textiles and Textile Products	3.7	3.6	0.3	2.9	2.4	11.8	0.6	2.8	2.4	1.4	1.8
5	Leather, Leather and Footwear	3.2	3.8	0.1	3.4	1.4	3.4	0.2	1.3	3.8	5.7	0.9
6	Wood and Products of Wood and Cork	1.6	1.3	0.4	4.5	0.2	0.7	3.3	2.3	0.9	1.2	0.2
7	Pulp, Paper, Printing, and Publishing	0.4	0.7	0.7	1.1	0.7	0.3	0.3	0.3	0.6	0.2	0.3
8	Coke, Refined Petroleum, and Nuclear Fuel	1.4	1.1	1.0	5.1	2.1	0.8	1.7	1.3	2.1	0.0	1.9
9	Chemicals and Chemical Products	1.2	1.1	0.9	1.0	1.3	0.2	0.8	0.4	0.7	0.2	0.9
10	Rubber and Plastics	0.5	1.7	1.4	1.1	1.2	0.2	1.5	0.4	1.1	0.4	1.4
11	Other Non-Metallic Mineral	2.2	2.2	1.1	0.6	1.0	0.3	0.9	0.6	1.1	0.7	0.7
12	Basic Metals and Fabricated Metal	0.8	1.1	1.5	0.3	1.2	0.1	0.3	0.7	0.5	0.1	1.2
13	Machinery, Nec	0.4	0.8	1.6	0.4	1.0	0.0	0.9	2.8	0.3	0.1	0.9
14	Electrical and Optical Equipment	0.2	1.2	1.8	0.5	2.1	0.0	2.1	2.7	1.1	0.1	2.4
15	Transport Equipment	0.2	0.3	1.8	0.2	1.4	0.0	0.3	0.3	0.5	0.1	0.4
16	Manufacturing, Nec; Recycling	2.7	1.5	0.5	1.2	0.6	0.0	0.4	1.7	2.8	0.6	1.5
17	Electricity, Gas, and Water Supply	1.8	1.5	1.4	0.2	1.2	0.3	1.5	1.5	1.9	1.4	1.1
18	Construction	1.7	0.4	1.0	0.4	0.5	1.2	0.9	0.5	0.1	0.0	0.4
19	Sale, Maintenance, and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	0.7	-	1.4	-	0.1	0.4	0.1	0.1	-	0.4	0.7
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	0.4	1.1	1.4	0.6	0.7	0.8	0.6	0.5	1.8	1.3	0.9
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	2.2	0.6	0.4	0.8	0.8	2.5	3.1	2.9	1.7	0.3	2.0
22	Hotels and Restaurants	1.3	1.5	1.7	1.7	1.3	0.1	1.2	2.7	2.9	4.4	1.8
23	Inland Transport	1.7	1.3	0.9	0.3	0.7	1.8	0.6	0.3	0.8	0.4	0.4
24	Water Transport	0.2	1.5	2.2	0.5	4.5	0.8	1.1	0.8	1.6	0.6	1.1
25	Air Transport	0.2	0.9	1.1	0.2	1.7	0.2	0.5	0.3	1.5	0.9	0.8
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	0.3	0.4	0.9	0.5	0.8	0.2	1.1	0.3	0.2	0.1	1.5
27	Post and Telecommunications	0.7	0.8	0.7	0.3	0.7	0.3	1.0	0.8	1.1	1.6	0.7
28	Financial Intermediation	1.1	0.7	1.0	0.8	0.8	0.7	0.2	0.4	0.6	0.4	1.8
29	Real Estate Activities	0.5	0.4	0.8	0.3	1.0	2.0	0.4	0.2	0.7	2.2	2.8
30	Renting of Machinery and Equipment; Other Business Activities	0.5	0.3	0.7	0.1	0.6	0.2	0.3	0.2	0.1	0.0	0.3
31	Public Administration and Defense; Compulsory Social Security	0.0	0.1	0.8	0.2	1.7	5.3	0.2	0.2	0.0	0.0	0.2
32	Education	0.1	0.6	0.4	0.2	0.6	0.6	0.3	0.3	0.1	0.9	0.2
33	Health and Social Work	0.2	0.6	0.9	0.1	0.5	2.0	2.3	0.5	3.9	2.1	1.2
34	Other Community, Social, and Personal Services	1.7	1.1	1.1	0.7	0.5	4.9	0.3	0.3	0.9	0.9	0.5
35	Private Households with Employed Persons	-	-	-	-	-	-	-	-	-	-	-

PRC = People's Republic of China.

Table 4.3b: Revealed Comparative Advantage by Sector–Reference Year 2005												
		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(ratio)										
1	Agriculture, Hunting, Forestry, and Fishing	3.0	0.6	0.1	2.0	0.4	3.2	2.1	2.9	2.2	6.1	0.2
2	Mining and Quarrying	0.6	1.1	0.0	3.0	0.0	0.0	1.8	0.2	0.3	2.1	0.0
3	Food, Beverages, and Tobacco	0.5	3.3	0.3	2.0	0.3	0.5	1.4	3.7	2.8	1.2	0.2
4	Textiles and Textile Products	2.7	3.1	0.3	2.4	1.2	14.2	0.3	1.9	2.3	3.3	1.3
5	Leather, Leather and Footwear	1.8	1.3	0.1	2.5	0.6	5.7	0.2	0.8	2.8	0.8	0.8
6	Wood and Products of Wood and Cork	0.8	0.8	0.4	3.4	0.2	0.8	1.8	0.7	0.8	0.2	0.2
7	Pulp, Paper, Printing, and Publishing	0.3	0.9	0.8	1.0	0.7	0.4	1.0	0.3	0.5	0.5	0.4
8	Coke, Refined Petroleum, and Nuclear Fuel	1.3	1.1	0.9	4.2	1.5	0.6	0.7	1.4	1.3	0.0	2.2
9	Chemicals and Chemical Products	0.9	1.4	0.9	0.6	1.4	0.3	1.0	0.4	0.9	0.4	1.3
10	Rubber and Plastics	0.5	1.7	1.5	1.2	1.6	0.2	1.3	0.3	1.2	0.6	1.2
11	Other Non-Metallic Mineral	0.7	1.2	1.2	0.6	1.1	0.3	0.8	0.9	1.1	2.4	0.6
12	Basic Metals and Fabricated Metal	0.8	0.9	1.7	0.3	1.5	0.1	0.4	0.3	0.4	0.0	1.2
13	Machinery, Nec	0.4	1.7	1.6	0.3	1.2	0.0	0.3	0.3	0.5	0.2	1.1
14	Electrical and Optical Equipment	0.3	0.4	1.8	0.6	2.6	0.0	2.2	2.3	1.4	0.2	2.8
15	Transport Equipment	0.4	1.1	2.3	0.3	1.9	0.0	0.2	0.2	0.7	0.3	0.5
16	Manufacturing, Nec; Recycling	3.8	1.9	0.4	1.1	0.4	0.0	0.9	1.6	2.4	0.6	1.1
17	Electricity, Gas, and Water Supply	0.9	0.3	1.0	0.3	1.0	0.2	0.7	1.7	1.6	1.3	0.9
18	Construction	2.0	-	1.0	0.5	0.3	1.4	1.3	0.4	0.1	1.5	0.4
19	Sale, Maintenance, and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	0.7	0.9	1.4	-	0.2	0.4	0.3	0.9	-	0.1	0.7
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	0.6	0.9	1.7	0.5	0.8	1.0	0.5	0.7	2.1	0.1	1.3
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	2.0	1.5	0.3	0.7	0.6	2.4	2.4	4.0	1.7	3.9	2.3
22	Hotels and Restaurants	2.0	1.1	1.8	1.9	1.1	0.1	0.4	2.5	2.4	2.8	1.6
23	Inland Transport	1.6	1.9	0.9	0.6	0.6	2.0	0.5	0.5	0.6	0.6	0.4
24	Water Transport	0.2	0.8	2.0	0.4	3.8	0.9	0.8	0.3	1.6	0.2	1.1
25	Air Transport	0.2	0.3	1.2	0.8	1.8	0.3	0.5	0.3	1.8	0.1	0.9
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	0.2	1.0	0.9	0.6	0.7	0.2	1.0	0.6	0.5	0.4	1.3
27	Post and Telecommunications	1.1	0.6	0.7	0.8	0.7	0.4	1.3	1.7	1.4	0.5	0.6
28	Financial Intermediation	1.3	0.5	1.0	0.3	0.8	0.7	1.3	0.4	0.8	1.0	1.3
29	Real Estate Activities	0.0	0.4	0.7	1.2	0.7	1.8	0.4	0.9	0.6	1.3	2.4
30	Renting of Machinery and Equipment; Other Business Activities	1.4	0.1	0.7	0.0	0.7	0.2	0.3	0.6	0.1	0.1	0.3
31	Public Administration and Defense; Compulsory Social Security	0.0	0.7	0.7	0.5	1.1	3.8	0.9	0.3	0.0	0.1	0.8
32	Education	0.5	1.2	0.5	0.8	0.4	0.4	0.3	0.9	0.4	0.7	0.3
33	Health and Social Work	0.7	1.0	0.9	0.3	0.7	1.4	0.4	0.4	3.1	0.8	0.8
34	Other Community, Social, and Personal Services	1.7	-	1.1	1.3	0.4	4.9	0.1	0.5	1.0	0.4	0.4
35	Private Households with Employed Persons	-		-	-	-	-	-	-	-	-	-

PRC = People's Republic of China.

Table 4.3c: Revealed Comparative Advantage by Sector–Reference Year 2011

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(ratio)										
1	Agriculture, Hunting, Forestry, and Fishing	2.4	1.6	0.1	2.1	0.2	2.5	2.8	2.3	2.9	4.2	0.3
2	Mining and Quarrying	0.4	0.4	0.0	3.0	0.0	0.1	1.3	0.2	0.3	1.6	0.1
3	Food, Beverages, and Tobacco	0.5	1.0	0.3	2.7	0.3	0.1	1.3	3.7	3.4	1.0	0.1
4	Textiles and Textile Products	1.7	3.0	0.3	1.4	0.8	16.6	0.2	0.7	1.3	2.0	0.7
5	Leather, Leather and Footwear	1.0	3.2	0.1	2.0	0.4	6.0	0.1	0.4	0.8	0.6	0.5
6	Wood and Products of Wood and Cork	1.0	1.7	0.4	1.9	0.2	0.9	1.8	0.4	0.7	0.2	0.1
7	Pulp, Paper, Printing, and Publishing	0.3	0.8	1.0	0.9	0.7	0.3	0.4	0.2	0.4	0.6	0.5
8	Coke, Refined Petroleum, and Nuclear Fuel	1.0	0.6	1.1	2.9	1.4	0.4	2.5	0.9	0.9	0.0	1.6
9	Chemicals and Chemical Products	0.8	1.1	1.0	0.6	1.3	0.4	0.8	0.3	0.7	0.4	2.0
10	Rubber and Plastics	0.4	1.6	1.5	1.1	1.6	0.2	1.3	0.3	2.4	0.6	1.1
11	Other Non-Metallic Mineral	0.7	1.6	1.3	0.4	1.3	0.3	1.4	1.7	0.6	3.0	0.5
12	Basic Metals and Fabricated Metal	0.9	1.3	1.8	0.2	1.8	0.1	0.5	0.3	0.3	0.1	1.1
13	Machinery, Nec	0.5	1.1	1.5	0.4	1.3	0.0	0.3	0.2	0.6	0.2	1.0
14	Electrical and Optical Equipment	0.6	1.8	1.6	0.4	2.7	0.0	1.2	1.8	1.3	0.2	3.0
15	Transport Equipment	0.7	0.6	2.4	0.5	2.8	0.1	0.9	0.1	0.8	0.4	0.4
16	Manufacturing, Nec; Recycling	4.0	1.5	0.3	0.6	0.4	0.0	0.3	0.7	1.5	0.6	0.7
17	Electricity, Gas, and Water Supply	0.8	1.5	1.1	0.2	0.9	0.7	0.9	1.9	1.0	1.3	0.5
18	Construction	1.9	0.3	1.0	0.6	0.2	1.5	1.2	0.4	0.3	5.7	0.5
19	Sale, Maintenance, and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	0.8	-	1.5	-	0.2	0.4	2.4	0.7	0.9	0.2	0.5
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	0.6	1.1	1.8	0.4	0.8	0.9	1.0	0.2	1.4	0.0	1.7
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	2.3	0.5	0.4	0.7	0.8	3.8	2.1	4.6	1.5	4.6	2.6
22	Hotels and Restaurants	2.0	1.4	1.8	1.6	1.1	0.2	1.1	3.4	2.0	3.4	1.5
23	Inland Transport	1.7	0.9	1.0	0.5	0.6	4.6	0.2	0.4	0.8	0.6	0.3
24	Water Transport	0.1	1.8	2.8	0.3	2.9	1.0	0.8	0.1	1.8	0.2	0.9
25	Air Transport	0.2	0.8	1.1	1.1	1.9	0.2	0.6	0.4	2.4	0.1	1.3
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	0.2	0.3	1.0	0.6	0.7	0.1	1.2	0.6	1.0	0.4	1.1
27	Post and Telecommunications	1.3	1.1	0.8	1.0	0.6	0.8	1.6	1.5	0.9	0.4	0.6
28	Financial Intermediation	1.4	0.9	0.9	0.2	0.8	0.7	1.1	0.6	0.9	1.2	1.0
29	Real Estate Activities	0.0	0.7	0.8	0.9	0.7	1.7	0.2	0.4	0.8	1.4	2.6
30	Renting of Machinery and Equipment; Other Business Activities	1.4	0.4	0.8	0.0	0.7	0.2	0.3	1.8	0.4	0.1	0.4
31	Public Administration and Defense; Compulsory Social Security	0.0	0.1	0.6	0.5	1.0	2.6	3.1	0.8	0.0	1.0	1.0
32	Education	0.5	0.7	0.4	1.0	0.4	0.3	0.3	0.3	0.4	0.8	0.4
33	Health and Social Work	0.5	1.3	0.9	0.3	1.0	2.4	0.4	0.3	4.2	0.8	0.9
34	Other Community, Social, and Personal Services	1.8	0.9	1.4	1.3	0.5	4.9	0.1	0.8	1.0	1.2	0.5
35	Private Households with Employed Persons	-	-	-	-	-	-	-	-	-	-	-

PRC = People's Republic of China.

Table 4.4a: Vertical Specialization for 2000

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total exports)										
1	Agriculture, Hunting, Forestry, and Fishing	3.0	6.2	5.2	5.8	10.9	3.2	14.6	6.4	13.3	16.3	16.6
2	Mining and Quarrying	5.2	9.1	18.2	4.0	10.3	2.7	13.2	13.5	10.8	10.4	16.3
3	Food, Beverages, and Tobacco	9.3	8.0	5.6	12.3	19.0	11.9	34.7	11.8	20.1	24.3	22.5
4	Textiles and Textile Products	10.8	18.2	7.7	25.8	26.0	15.8	51.0	16.9	27.1	48.0	27.0
5	Leather, Leather and Footwear	10.9	17.5	6.2	19.4	23.7	15.6	42.9	19.3	29.5	47.1	19.8
6	Wood and Products of Wood and Cork	11.8	14.0	12.6	15.2	31.7	13.2	28.5	14.4	32.7	24.4	38.9
7	Pulp, Paper, Printing, and Publishing	17.5	14.6	5.9	28.4	21.5	13.9	45.0	23.9	40.1	40.2	29.2
8	Coke, Refined Petroleum, and Nuclear Fuel	58.7	28.9	32.9	18.6	70.5	11.5	36.3	55.5	68.1	49.9	49.4
9	Chemicals and Chemical Products	20.9	18.0	9.3	19.4	33.1	9.1	38.0	21.5	39.9	42.7	40.9
10	Rubber and Plastics	16.9	18.7	7.5	25.4	25.9	12.8	41.9	22.3	30.5	42.2	33.8
11	Other Non-Metallic Mineral	21.2	12.3	10.6	18.6	20.9	31.3	30.4	25.0	25.0	35.6	27.1
12	Basic Metals and Fabricated Metal	18.5	16.5	10.5	23.8	32.9	26.0	60.4	28.2	43.0	56.0	31.7
13	Machinery, Nec	17.7	15.9	8.7	45.9	25.4	24.4	48.5	20.6	47.6	50.4	33.3
14	Electrical and Optical Equipment	18.3	26.3	10.4	30.5	35.5	20.0	70.3	22.0	66.4	54.5	44.8
15	Transport Equipment	16.9	16.1	8.1	28.2	25.2	10.7	52.6	27.0	52.4	50.2	30.3
16	Manufacturing, Nec; Recycling	22.8	13.7	7.8	17.9	23.2	14.1	46.3	17.4	39.4	48.2	22.5
17	Electricity, Gas, and Water Supply	11.7	9.6	9.2	13.9	25.7	7.8	17.4	14.1	11.0	20.2	25.5
18	Construction	16.5	14.4	7.4	23.4	19.6	13.2	38.5	18.0	30.6	43.0	28.7
19	Sale, Maintenance, and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	3.0	-	6.8	-	11.2	1.2	42.8	14.9	-	36.1	20.4
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	3.0	8.3	2.7	13.3	8.2	1.1	14.1	11.1	4.6	23.1	6.8
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	2.9	8.5	2.2	13.5	8.6	1.3	14.1	11.1	4.1	22.4	4.9
22	Hotels and Restaurants	7.6	6.5	4.0	11.2	14.1	13.2	31.3	12.5	14.3	20.6	5.4
23	Inland Transport	16.6	8.5	4.1	20.6	24.3	5.7	43.9	22.9	35.9	23.6	16.5
24	Water Transport	10.2	13.2	17.6	29.6	26.7	7.1	27.4	18.0	24.1	38.6	32.5
25	Air Transport	15.5	12.8	10.1	44.3	25.6	13.9	38.9	30.9	28.2	38.3	29.3
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	10.2	8.4	4.0	14.8	15.3	6.1	40.1	18.6	9.5	18.0	12.5
27	Post and Telecommunications	6.3	12.4	2.5	8.4	14.9	6.7	25.4	12.9	4.6	16.6	11.2
28	Financial Intermediation	2.9	5.7	1.9	8.2	7.4	4.1	31.8	10.0	4.7	16.2	3.2
29	Real Estate Activities	1.9	3.7	0.8	5.9	4.3	0.9	2.9	2.8	1.5	15.5	3.7
30	Renting of Machinery and Equipment; Other Business Activities	6.1	13.9	2.5	19.6	8.1	3.8	34.3	11.7	17.4	22.9	18.6
31	Public Administration and Defense; Compulsory Social Security	0.0	7.8	3.0	14.9	10.2	5.2	26.1	7.9	0.0	24.0	9.3
32	Education	1.9	7.4	1.4	16.1	5.7	1.5	11.4	9.9	5.0	16.3	9.7
33	Health and Social Work	11.0	15.2	4.4	15.9	15.4	5.5	33.9	12.5	21.6	23.4	15.6
34	Other Community, Social, and Personal Services	8.1	11.2	3.0	13.1	10.6	1.7	13.5	14.9	19.1	15.1	12.8
35	Private Households with Employed Persons	-	-	-	-	-	-	-	-	-	-	-

PRC = People's Republic of China, VS = vertical specialization.

Table 4.4b: Vertical Specialization for 2005

		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total exports)										
1	Agriculture, Hunting, Forestry, and Fishing	3.4	8.2	8.0	7.3	11.9	4.0	16.0	7.6	15.1	21.5	22.7
2	Mining and Quarrying	5.7	14.7	32.4	6.5	14.7	3.5	11.6	11.2	14.7	9.8	19.2
3	Food, Beverages, and Tobacco	11.1	11.1	7.9	13.3	20.2	11.7	34.4	11.4	23.0	34.0	27.3
4	Textiles and Textile Products	16.1	19.3	11.3	26.1	26.0	20.2	32.8	21.4	28.8	36.9	30.1
5	Leather, Leather and Footwear	12.2	18.8	8.6	20.2	24.3	15.3	35.0	25.9	32.3	36.9	31.7
6	Wood and Products of Wood and Cork	16.3	18.0	15.4	15.3	32.6	14.5	24.8	14.1	19.3	33.2	39.5
7	Pulp, Paper, Printing, and Publishing	18.2	19.1	7.2	25.9	21.4	17.4	35.7	21.3	40.8	33.3	32.3
8	Coke, Refined Petroleum, and Nuclear Fuel	38.8	35.1	45.7	22.6	71.6	12.7	39.4	29.8	77.4	31.5	65.8
9	Chemicals and Chemical Products	22.6	25.1	15.9	26.5	36.7	8.5	40.3	26.1	40.1	31.7	47.7
10	Rubber and Plastics	20.5	25.6	11.4	31.2	28.2	11.6	43.6	26.0	32.7	35.8	39.6
11	Other Non-Metallic Mineral	18.9	17.4	12.9	18.9	24.5	19.9	39.4	22.3	28.3	31.7	33.2
12	Basic Metals and Fabricated Metal	22.7	25.5	15.9	25.0	35.7	26.1	53.2	30.6	53.7	42.0	41.8
13	Machinery, Nec	21.5	25.4	11.9	45.9	28.6	25.7	51.3	30.3	50.4	42.0	38.4
14	Electrical and Optical Equipment	20.7	38.3	12.7	29.8	35.0	21.2	63.6	45.8	64.5	42.0	49.8
15	Transport Equipment	20.9	25.2	11.3	23.8	27.1	11.4	51.9	26.6	54.5	38.1	38.2
16	Manufacturing, Nec; Recycling	46.1	17.4	10.9	20.2	25.5	17.7	25.1	23.2	48.7	31.7	31.0
17	Electricity, Gas, and Water Supply	16.3	16.0	14.9	22.1	33.5	7.1	25.3	6.9	23.1	15.7	43.6
18	Construction	17.4	19.8	9.5	22.0	20.8	14.8	41.4	17.8	37.4	29.4	36.3
19	Sale, Maintenance, and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	2.8	-	9.7	-	12.2	1.2	11.5	10.4	-	19.5	29.9
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	2.8	10.0	3.4	10.1	9.9	1.2	11.5	4.6	5.4	19.6	4.7
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	2.7	9.8	3.2	10.4	10.1	1.5	11.5	4.3	4.8	9.8	6.3
22	Hotels and Restaurants	9.7	9.4	5.8	11.1	14.7	12.9	16.4	13.6	16.5	22.3	8.3
23	Inland Transport	18.4	12.4	5.9	22.9	23.2	6.2	13.5	18.2	41.0	16.8	21.2
24	Water Transport	12.0	16.9	23.2	27.2	38.7	7.6	28.2	16.4	38.0	22.3	38.7
25	Air Transport	23.1	22.1	12.6	14.9	24.6	15.4	35.6	24.2	33.1	28.8	42.8
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	9.3	14.8	4.8	7.6	15.0	6.9	21.1	13.0	12.7	15.1	14.1
27	Post and Telecommunications	7.3	14.8	3.4	7.9	12.5	6.6	12.7	11.5	7.5	14.6	11.2
28	Financial Intermediation	4.1	7.7	2.1	6.0	5.6	3.7	8.0	5.8	6.4	5.6	3.5
29	Real Estate Activities	1.4	5.3	0.9	16.5	4.6	1.1	12.2	3.7	2.8	7.3	4.9
30	Renting of Machinery and Equipment; Other Business Activities	8.1	18.9	3.1	13.5	9.6	4.6	28.9	6.9	19.8	15.3	19.7
31	Public Administration and Defense; Compulsory Social Security	0.0	10.1	4.0	15.1	9.6	6.4	28.9	4.6	0.6	11.9	6.7
32	Education	2.5	10.7	2.0	16.5	5.3	1.7	15.1	5.6	8.0	9.7	10.2
33	Health and Social Work	11.3	19.2	6.3	11.5	15.3	6.2	30.5	11.6	24.7	21.4	17.3
34	Other Community, Social, and Personal Services	12.4	14.5	4.2	16.0	11.8	1.8	6.1	13.0	21.7	13.4	11.2
35	Private Households with Employed Persons	-	-	-	-	-	-	-	-	-	-	-

PRC = People's Republic of China, VS = vertical specialization.

Table 4.4c: Vertical Specialization for 2011												
		India	PRC	Japan	Indonesia	Rep. of Korea	Bangladesh	Malaysia	Philippines	Thailand	Viet Nam	Taipei,China
		(% of total exports)										
1	Agriculture, Hunting, Forestry, and Fishing	2.9	7.7	10.8	5.7	20.7	11.3	13.8	6.9	13.9	24.3	26.4
2	Mining and Quarrying	5.0	15.5	49.6	4.2	20.2	13.1	7.3	10.5	11.9	11.2	7.2
3	Food, Beverages, and Tobacco	11.5	11.2	11.4	10.5	31.1	17.2	25.5	10.0	20.1	38.5	33.8
4	Textiles and Textile Products	16.1	14.5	13.1	34.1	33.0	18.0	30.3	19.7	23.7	42.1	36.7
5	Leather, Leather and Footwear	11.5	14.5	11.7	21.4	30.4	11.4	26.3	22.8	26.1	42.1	36.4
6	Wood and Products of Wood and Cork	13.0	17.2	19.0	12.6	45.9	15.0	24.8	14.0	17.1	38.1	41.7
7	Pulp, Paper, Printing, and Publishing	16.4	19.3	9.8	22.1	28.2	28.8	31.3	19.0	24.8	38.1	36.3
8	Coke, Refined Petroleum, and Nuclear Fuel	33.4	43.7	51.5	14.3	82.0	67.7	21.6	31.6	30.6	36.1	78.2
9	Chemicals and Chemical Products	19.6	25.0	20.9	18.0	47.8	20.8	34.9	27.7	31.6	36.1	50.5
10	Rubber and Plastics	19.9	23.6	17.5	26.5	37.9	25.3	35.4	25.3	30.0	41.0	45.3
11	Other Non-Metallic Mineral	16.7	17.2	22.6	15.2	31.9	16.4	31.9	22.1	24.9	36.1	44.0
12	Basic Metals and Fabricated Metal	20.7	27.7	24.9	16.9	46.0	26.8	45.5	30.7	54.5	48.0	49.8
13	Machinery, Nec	19.4	23.2	15.7	43.3	35.6	42.6	45.8	28.0	49.1	48.0	43.0
14	Electrical and Optical Equipment	19.9	30.2	16.5	30.5	37.6	38.6	44.5	45.0	54.3	48.0	48.8
15	Transport Equipment	19.8	22.8	15.9	19.3	32.6	51.5	49.4	24.7	43.5	43.6	40.9
16	Manufacturing, Nec; Recycling	52.9	15.4	16.3	16.3	33.2	67.8	25.9	19.4	37.6	36.0	41.3
17	Electricity, Gas, and Water Supply	15.8	17.9	24.4	18.5	49.5	12.0	21.0	6.9	17.2	18.0	66.9
18	Construction	16.4	18.2	13.2	18.0	28.5	19.4	31.0	15.7	37.2	33.4	38.3
19	Sale, Maintenance, and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	2.1	-	12.7	-	15.6	2.5	18.0	9.9	18.3	22.6	35.8
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	2.1	7.9	4.3	8.2	13.4	2.7	12.7	4.7	5.5	22.6	2.8
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	2.1	8.1	3.7	8.5	13.9	6.1	13.5	4.5	5.5	11.3	8.2
22	Hotels and Restaurants	10.7	9.2	7.4	9.2	22.3	13.1	18.7	11.7	15.6	25.2	10.0
23	Inland Transport	17.3	12.3	7.4	19.6	33.3	6.8	24.3	18.2	27.4	19.2	28.1
24	Water Transport	11.2	16.8	25.3	24.1	48.8	10.9	22.3	17.2	19.2	25.5	46.6
25	Air Transport	25.6	23.5	16.4	12.4	36.2	55.5	32.6	22.5	19.9	34.3	44.6
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	8.6	14.2	6.4	7.2	22.5	11.1	23.3	11.4	11.6	17.7	17.2
27	Post and Telecommunications	8.8	10.5	3.7	5.5	18.0	8.0	19.1	11.0	10.0	17.2	13.1
28	Financial Intermediation	3.8	5.6	3.5	4.6	8.3	7.7	10.1	4.7	7.1	6.6	4.3
29	Real Estate Activities	1.3	4.1	1.3	13.6	6.2	2.3	7.8	3.0	3.0	8.7	5.0
30	Renting of Machinery and Equipment; Other Business Activities	6.8	15.5	5.1	11.0	12.1	7.2	14.4	6.1	19.5	17.9	19.9
31	Public Administration and Defense; Compulsory Social Security	0.0	9.1	5.2	12.5	13.5	6.1	17.4	4.1	0.0	13.6	7.8
32	Education	2.7	9.7	2.2	13.2	7.5	3.2	8.4	4.7	6.8	11.5	11.5
33	Health and Social Work	10.5	17.4	7.6	8.9	19.5	4.4	26.4	11.1	20.8	24.5	19.0
34	Other Community, Social, and Personal Services	9.2	12.2	5.3	13.9	16.7	3.6	17.5	11.4	21.2	15.6	11.9
35	Private Households with Employed Persons	-	-	-	-	-	-	-	-	-	-	-

PRC = People's Republic of China, VS = vertical specialization.

Table 4.5a: Vertical Specialization disaggregated (India)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
	2000	6,482	23	62	30	8
Sector 16, Manufacturing, Nec; Recycling	2005	23,821	46	68	24	7
	2011	59,481	53	72	22	6
	2000	2,053	59	26	54	20
Sector 8, Coke, Refined Petroleum and Nuclear Fuel	2005	6,002	39	28	44	28
	2011	18,375	33	30	46	24
	2000	17	15	79	13	9
Sector 25, Air Transport	2005	53	23	83	10	7
	2011	120	26	49	34	17
	2000	3,803	18	15	52	32
Sector 12, Basic Metals and Fabricated Metal	2005	12,358	23	15	46	39
	2011	22,174	21	23	44	32
	2000	1,199	17	25	49	26
Sector 10, Rubber and Plastics	2005	2,456	21	26	45	29
	2011	4,815	20	23	49	28

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5b: Vertical Specialization disaggregated (People's Rep. of China)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
	2000	3,313	29	21	55	24
Sector 8, Coke, Refined Petroleum and Nuclear Fuel	2005	8,205	35	21	51	28
	2011	15,516	44	20	54	26
	2000	70,263	26	52	22	26
Sector 14, Electrical and Optical Equipment	2005	298,552	38	50	23	28
	2011	719,840	30	49	26	26
	2000	18,596	17	20	49	31
Sector 12, Basic Metals and Fabricated Metal	2005	54,177	26	16	49	35
	2011	131,606	28	14	49	37
	2000	12,498	18	23	46	30
Sector 9, Chemicals and Chemical Products	2005	37,160	25	24	42	33
	2011	117,855	25	18	46	36
	2000	10,687	19	39	40	21
Sector 10, Rubber and Plastics	2005	25,166	26	38	39	22
	2011	69,881	24	31	44	25

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5c: Vertical Specialization disaggregated (Japan)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
Sector 8, Coke, Refined Petroleum and Nuclear Fuel	2000	3,186	33	18	53	29
	2005	7,209	46	15	50	35
	2011	19,112	51	15	53	31
Sector 2, Mining and Quarrying	2000	1,512	18	5	63	32
	2005	2,197	32	25	41	35
	2011	4,265	50	10	58	32
Sector 24, Water Transport	2000	18,358	18	25	50	25
	2005	22,105	23	18	48	34
	2011	40,368	25	30	56	13
Sector 12, Basic Metals and Fabricated Metal	2000	45,368	11	7	54	39
	2005	69,092	16	6	51	43
	2011	121,210	25	6	56	38
Sector 17, Electricity, Gas and Water Supply	2000	359	9	16	52	32
	2005	822	15	23	49	28
	2011	1,271	24	25	46	29

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5d: Vertical Specialization disaggregated (Indonesia)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
Sector 13, Machinery, Nec	2000	2,164	46	57	27	16
	2005	2,447	46	49	29	22
	2011	8,398	43	51	31	18
Sector 4, Textiles and Textile Products	2000	8,221	26	58	20	22
	2005	8,274	26	60	19	21
	2011	13,054	34	56	25	20
Sector 14, Electrical and Optical Equipment	2000	7,682	30	48	21	31
	2005	8,805	30	35	23	42
	2011	12,447	30	45	29	27
Sector 10, Rubber and Plastics	2000	2,281	25	12	58	30
	2005	4,088	31	12	55	34
	2011	9,084	27	8	59	33
Sector 24, Water Transport	2000	178	30	33	42	25
	2005	778	27	16	27	57
	2011	1,531	24	21	37	42

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5e: Vertical Specialization disaggregated (Rep. of Korea)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
Sector 8, Coke, Refined Petroleum and Nuclear Fuel	2000	10,330	71	20	63	18
	2005	16,866	72	16	57	27
	2011	54,592	82	19	59	22
Sector 17, Electricity, Gas and Water Supply	2000	50	26	21	60	20
	2005	61	34	21	53	25
	2011	111	49	21	52	27
Sector 24, Water Transport	2000	10,212	27	21	52	27
	2005	17,639	39	18	51	31
	2011	27,918	49	24	40	36
Sector 9, Chemicals and Chemical Products	2000	13,642	33	7	60	34
	2005	27,515	37	5	56	38
	2011	56,223	48	6	59	35
Sector 12, Basic Metals and Fabricated Metal	2000	11,918	33	6	61	33
	2005	24,966	36	4	58	38
	2011	60,666	46	3	61	37

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5f: Vertical Specialization disaggregated (Bangladesh)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
Sector 16, Manufacturing, Nec; Recycling	2000	3	14	27	45	28
	2005	3	18	41	32	27
	2011	28	68	46	38	16
Sector 8, Coke, Refined Petroleum and Nuclear Fuel	2000	34	11	19	51	31
	2005	38	13	19	40	42
	2011	3	68	18	53	29
Sector 25, Air Transport	2000	23	14	45	35	20
	2005	34	15	44	34	21
	2011	12	56	25	65	10
Sector 15, Transport Equipment	2000	0	11	40	49	11
	2005	1	11	44	36	20
	2011	4	52	24	48	29
Sector 13, Machinery, Nec	2000	3	24	34	31	35
	2005	3	26	48	25	27
	2011	7	43	20	53	27

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5g: Vertical Specialization disaggregated (Malaysia)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
	2000	2,058	53	88	8	4
Sector 15, Transport Equipment	2005	2,672	52	49	30	21
	2011	16,708	49	59	26	14
	2000	4,769	49	57	19	23
Sector 13, Machinery, Nec	2005	3,112	51	22	32	46
	2011	4,184	46	35	38	27
	2000	3,032	60	23	46	31
Sector 12, Basic Metals and Fabricated Metal	2005	5,429	53	7	52	41
	2011	7,084	45	7	58	35
	2000	55,097	70	56	20	24
Sector 14, Electrical and Optical Equipment	2005	68,042	64	50	25	25
	2011	31,535	45	30	32	38
	2000	3,560	42	19	45	37
Sector 10, Rubber and Plastics	2005	3,545	44	20	41	38
	2011	12,112	35	17	49	34

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5h: Vertical Specialization disaggregated (Philippines)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
	2000	9,879	22	21	35	45
	2005	12,346	46	31	36	33
Sector 14, Electrical and Optical Equipment	2011	14,904	45	36	39	25
	2000	473	55	15	60	25
Sector 8, Coke, Refined Petroleum and Nuclear Fuel	2005	798	30	10	59	31
	2011	567	32	24	48	28
	2000	606	28	14	56	31
Sector 12, Basic Metals and Fabricated Metal	2005	1,036	31	11	56	33
	2011	1,855	31	12	56	33
	2000	4,757	21	30	40	30
Sector 13, Machinery, Nec	2005	995	30	25	35	40
	2011	1,390	28	14	46	40
	2000	249	21	19	50	32
Sector 9, Chemicals and Chemical Products	2005	523	26	18	50	32
	2011	584	28	25	44	30

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5i: Vertical Specialization disaggregated (Thailand)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
Sector 12, Basic Metals and Fabricated Metal	2000	2,994	43	10	57	32
	2005	4,843	54	11	54	36
	2011	1,766	54	9	53	37
Sector 14, Electrical and Optical Equipment	2000	25,037	66	59	25	15
	2005	34,311	64	54	28	18
	2011	41,125	54	62	27	11
Sector 13, Machinery, Nec	2000	1,316	48	37	31	31
	2005	3,530	50	43	30	27
	2011	6,276	49	36	33	31
Sector 15, Transport Equipment	2000	2,886	52	54	31	16
	2005	8,571	54	49	30	21
	2011	12,836	43	55	24	20
Sector 16, Manufacturing, Nec; Recycling	2000	4,682	39	60	32	9
	2005	6,980	49	61	28	11
	2011	7,386	38	69	20	11

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5j: Vertical Specialization disaggregated (Viet Nam)

		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
Sector 12, Basic Metals and Fabricated Metal	2000	90	56	9	43	47
	2005	169	42	10	41	49
	2011	457	48	12	52	37
Sector 14, Electrical and Optical Equipment	2000	248	55	46	21	32
	2005	553	42	34	26	40
	2011	1,977	48	35	37	28
Sector 13, Machinery, Nec	2000	95	50	6	58	36
	2005	360	42	35	31	33
	2011	1,075	48	35	38	27
Sector 15, Transport Equipment	2000	44	50	41	35	24
	2005	719	38	35	34	32
	2011	3,436	44	25	55	20
Sector 5, Leather, Leather and Footwear	2000	1,055	47	82	13	5
	2005	248	37	70	19	11
	2011	510	42	75	14	11

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Table 4.5k: Vertical Specialization disaggregated (Taipei,China)						
		Gross Exports	VS	VS disaggregated		
				FVA_FIN	FVA_INT	PDC
		($ million)	(% of total export)	(% of VS)		
Sector 8, Coke, Refined Petroleum and Nuclear Fuel	2000	1,792	49	28	47	24
	2005	7,677	66	9	56	35
	2011	20,964	78	13	60	27
Sector 17, Electricity, Gas and Water Supply	2000	24	26	25	53	22
	2005	9	44	20	55	24
	2011	16	67	15	51	34
Sector 9, Chemicals and Chemical Products	2000	10,299	41	13	59	28
	2005	22,502	48	14	53	33
	2011	38,081	50	11	58	31
Sector 12, Basic Metals and Fabricated Metal	2000	14,448	32	13	58	29
	2005	22,070	42	9	57	34
	2011	33,716	50	8	59	34
Sector 14, Electrical and Optical Equipment	2000	77,501	45	41	30	29
	2005	100,948	50	21	32	47
	2011	147,893	49	17	41	42

FAV_FIN = foreign value added final, FVA_INT = foreign value added intermediate, PDC = pure double-counted, VS = vertical specialization.

Understanding the Statistics on Global Value Chains

Economic globalization is increasingly being characterized by fragmented commodity production processes that are distributed internationally. As enterprises of all sizes seek to capitalize on factor cost differentials and the lowering of barriers to trade and investment, cross-border transactions in intermediate commodities have come to dominate international trade. Consequently, heterogeneity in component origination is a hallmark in most commodities destined for final consumption. Such internationalization of the production process, however, poses a number of critical definitional and measurement challenges and issues, as conventional approaches to characterizing trade flows and presenting trade statistics have shown to be inadequate in capturing the essential characteristics of international production sharing. To fill this important analytical gap, commencing with this release, *Key Indicators for Asia and the Pacific* includes statistics and quantitative analyses on global value chains to complement the basic trade statistics. The focus in this release is to introduce the concepts and methods applied to produce statistics on international production sharing in order that the reader may situate the information in the traditional System of National Accounts framework and use it in complementarity with the economic statistics presented in the other sections of this publication.

This section provides a synopsis of an accounting framework that succinctly encapsulates and details the defining features of the phenomenon of international production fragmentation through quantitative measures. In addition, some empirical results of the application of the framework to bilateral and bilateral sector-level trade data are also presented and analyzed. The primary focus of this section is, therefore, the definition and measurement of the indicators essential to studying today's international trade. The complete value added trade database developed by applying the accounting framework and the datasets used in the estimation process are available at (www.adb.org/ki-2015).

Conventional Presentation of Trade Statistics

The principal sources of trade data are customs records. Goods that cross territorial boundaries are recorded primarily as exports, re-exports, imports, or re-imports at full value. Valuation methods, although varied across jurisdictions in terms of specifics, are generally based on the purchase price or cost of production. Trades in services are discerned through an economy's balance of payment accounts maintained by its central bank. Deeper analysis of relevant data gathered through enterprise and trade surveys could provide additional insights on origin and destination as well as components of the traded commodities. Although broad indications of commodity transformations can be discerned through the categorization of commodities as imports, exports, re-imports, and re-exports, for the latter two with the territory concerned just being a transiting point, trade data in themselves do not provide information on the effects of cross-border transactions on the economy. The underlying issue is that trade data are recorded and presented in gross value terms without any attempt to delineate the local and foreign contents in the traded commodity or the contributions of different industrial sectors to its production. Standard statistics and derived indicators have the same limitations as the data.

As indicated above, traditional trade statistics have analytical and informational limitations. Commodities are produced either completely locally or by incorporating at least one non-local (imported) component (good or service). The territorial apportionment of the benefits of productive activity is primarily determined by the origin of the components. In this regard, statistics on a territory's actual contribution to the production of a commodity, whether imported, exported, or locally consumed, is essential for economic analysis and policy-

making purposes. Such granularity in data becomes even more significant as countries seek to promote their economic growth by expanding the market for their products beyond their territorial boundaries. Extending the decomposition by origin to product and sector levels will further enhance the analytical utility of the information. Recognizing this critical data gap in the economic and policy analysis, a number of statistical and multilateral organizations have started taking steps to produce more detailed trade statistics, primarily quantifying the role of imports in the production of exports. Some presentations delve further and also provide details on other main components of exported commodities such as the compensation of employees and rent due to owners of capital.

Further, the conventional mode of recording cross-border transactions and presenting international trade statistics does not readily facilitate a deeper and broader understanding of the extent of international economic interconnectedness or the measurement and quantification of an economy's involvement in increasingly globalized production processes. For example, an economy whose sole export is a basic low-valued, yet key, component of a commodity assembled primarily in and shipped globally from another economy would not be discerned as highly integrated into the global market through traditional measures. Statistics will show the economy as exporting a single item, perhaps of a total value that is rather insignificant compared to overall global trade, to the assembling economy, which will be characterized as highly integrated internationally due to the import of the various components and the export of the commodity it assembles. Nonetheless, the value of the work done in the economy producing the key component (its "value added") is intrinsic in the commodity, however and wherever it is consumed. The criticality of the economy and its sector producing the key component in the production process of the commodity is concealed in standard measures. Likewise, the contributions of other local sectors that support the exporting sector are also not apparent. The fundamental challenge is that the traditional approaches to accounting and analysis of trade do not support a mechanism for tracing the path of a value added from its initial creation to final consumption. Only the economic input–output analysis framework provides such a facility.

Studying Production and Trade through an Input–Output Analysis Framework

In an economic era when cross-border production processes are the norm, any dichotomous presentation, and analysis, of production and trade data is incomplete and inadequate for informing policy issues and academic research. With more than half of all international trade being in intermediates, the fundamental contention is that the design of the production process is a key determinant in the content, magnitude, and direction of an economy's imports and exports. As will be shown succinctly in this subsection, the system of input–output tables (IOTs) founded on Wassily Leontief's economic input–output model is the ideal quantitative framework for depicting and studying the workings of different economies and the interactions among them. In a nutshell, the IOTs detail the transactional linkages among various industrial, and institutional, sectors of an economy, even inter-temporally and inter-spatially depending on data availability. A variety of econometric, statistical, and mathematical methods can be applied to study various factors and facets of an economy, and to understand its functioning and evolution.

The IOTs of an economic territory are derived from its supply and use tables (SUTs), which themselves are a standardized depiction of the economy detailing its production processes, its supply and use of a comprehensive set of commodities, and the income (value added) generated in it as a result of its industrial sectors undertaking productive activities. The SUTs integrate all relevant production, expenditure and

income data related to the economy into a two-dimensional sector-commodity space adhering to a standard set of definitions, concepts, classifications and accounting rules. They provide the accounting framework for establishing the coherence among data on production, expenditure, and income respecting the economic identity equating supply and use of the commodities by the various sectors of the economy, thereby enabling the computation of a number of standard measures of economic activity such as gross domestic product (GDP). The SUTs provide the only numerical system by which GDP can be computed by the three approaches of production, expenditure, and income, rendering it the appropriate framework for discerning and studying the evolution of, and interconnections and linkages between, various aspects of an economy such as production and trade.

In integrating and aggregating diversely sourced economic data in a sector-commodity space framework, the presentation of the information will invariably be dichotomous as supply tables and use tables. The tables will also be rectangular (more commodities than sectors) due to the (i) technological stipulations that require a given sector to use more than one commodity input in its production process, and (ii) secondary products resulting from production activities. Thus, although the information embedded in the SUTs is essential and adequate for a variety of economic and econometric analysis, given the form of its presentation, it is not sufficient for others, particularly those requiring the use of matrix methods such as regional economic impact analysis. In order to fully exploit the analytical possibilities of the information gathered in the framework, the SUTs are transformed into IOTs by employing well-established and standard methods. The input–output framework combines the SUTs into a single symmetric table (matrix with equal number of rows and columns) in the sector–sector or commodity–commodity space.[2]

The utility of the input–output analysis framework in studying production and trade can be illustrated by a simple example. Figure 3.1 depicts an elementary open economy in IOT form at a given point in time. There are three principal matrices: intermediate use, final use, and value added. The total output, or supply, by industrial sector is provided in the row vector and the total demand by industrial sector is given in the column vector, which are also the row and column sums, respectively, of the system of matrices. The economy has three industrial sectors ($i, j = 1, 2, 3$), two final use sectors, domestic (e.g., households) and the rest of the world (ROW). The intermediate use matrix records bilateral and bisectoral transactions in intermediates, which are commodities used in the production of other commodities. The value added matrix details the shares of labor (compensation), capital (interest and depreciation), entrepreneurial effort (operating surplus or profit), and government (production and commodity taxes and subsidies) in a given sector's output. The sectors produce differentiable commodities valued X_j. Assume that sector 1 of the domestic economy imports an intermediate commodity valued M_1, transforms or enhances it using domestic labor valued V_1, and produces output valued X_1. Sector 2 uses sector 1's output as input in its production process, employing labor valued V_2 to produce output valued X_2, which, in turn, becomes the input in the production process of sector 3. The chain of production and bisectoral trade in intermediates continues until the product of sector 3 valued X_3 is either exported (E_3) to the ROW or consumed by the domestic final use sector (F_3), and is thereby no longer used in the economy's domestic production processes.

[2] For a complete discussion on the methods for transforming SUTs into IOTs, refer to Eurostat. 2008. Eurostat Manual of Supply, Use and Input-Output Tables. Eurostat Methodologies and Working Papers. Luxembourg.

Figure 3.1: Input–Output Transactions Table

	Intermediate use	Industrial Sectors as Consumers (j)			Final use	Rest of the World (ROW)			
		1	2	3		Domestic	Imports	Exports	Total demand
Industrial Sectors as Producers (i)	1	M_1	X_1				$-M_1$		X_1
	2			X_2					X_2
	3					F_3		E_3	X_3
	Value added								
	Labor, capital, and entrepreneurship								
	Government								
	Total value added	V_1	V_2	V_3					
	Total output	X_1	X_2	X_3					

It should be noted that a commodity leaves an economy's production processes when it is exported or when not used as an intermediate input in the production of another market-bound commodity by the domestic sector(s) acquiring it. Such transactions, including intermediate exports, are categorized as final consumption and recorded in the final use matrix of the economy. Imports, whether for intermediate or final use, categorized by the industrial sectors producing them are included in the final use matrix as negative numbers in a column vector in order to remove them from the total use by the industrial or institutional sectors so that the domestic output of a sector can be equated with its use by all demanding sectors. If imports are not removed, the demand for, and use of, the output of domestic industrial sectors will be overstated by the amount of imports. In the presentation of Figure 3.1, the intermediate and final use matrices include both the uses of domestically produced and imported commodities.

In the IOT representation of the economy, all relevant fundamental economic identities, such as the equality between supply (row vector) and demand (column vector), and the equality between total value added and final expenditure, are respected. The industrial sector-specific columns—comprising the intermediate use, value added, and output segments—reveal how a given sector's output was produced. That is, the production technology employed by an industrial sector j to produce its output(s) can be discerned from the details in the relevant column; sector-specific production technologies are represented by input technical coefficients (conventionally denoted by a_{ij}), which are proportions of sector i's contribution in sector j's output. Likewise, the industrial sector-specific rows—comprising the intermediate use, final use, and total demand segments—detail the economy-wide demand for sector j's output. In other words, information on how a sector's output is used is provided in the associated row. As will be seen later, for more advanced analytical approaches, the columns and rows provide essential information, respectively, on backward (upstream) and forward (downstream) sectoral linkages.

A salient feature of the IOT is that it provides the mechanism for detailing the direct and indirect linkages between production and trade in a systematic and mathematical manner. Since every sector-specific production process (resulting in the production of $X_j > = 0$) can be represented as the linear combination of the contributions of all industrial sectors ($z_{ij} > = 0$) in the sector i – sector j space ($i, j = 1,..,n$), the intermediate use matrix (**Z**) and the associated matrix of technical coefficients (**A**) are square. Further, in the matrix representation of a realistic economy, no column sum in **A** is greater than 1, and at least one column sum is

less than 1 (implying non-negative value added in every sector). Given these characteristics of the technical coefficient matrix **A**, a powerful economic analytical tool known as Leontief inverse can be derived from it. Formulaically, it is expressed as

$$L = (I - A)^{-1}$$

where **I** is the identity matrix whose dimensions are same as that of **A**. **L** is also known as the total requirements matrix, whereas the matrix of technical coefficients, **A**, is also referred to as the direct requirements matrix. The matrix of total output **X** (accounting for all direct and indirect effects) required to support final demand **F** is given by

$$X^r = (I - A^{rr})^{-1} F^r$$

where *r* refers to the economy being analyzed. $\mathbf{A^{rr}}$ is the technical coefficient matrix of transactions within *r*.

Figures 3.2a, 3.2b, and 3.2c comprise a numerical illustration of the mathematical formulations discussed above in the context of the framework set in Figure 3.1. An IOT, the corresponding direct requirements, and total requirements matrices derived from it are presented in sequence. It is worthwhile reviewing some of the fundamentals of input–output economic analysis in relation to the numerical example. The IOT in Figure 3.2a gives information on what the industrial sectors produce and on which sectors, industrial or institutional, use the products and how. The direct requirements, or technical coefficient, matrix in Figure 3.2b, which is derived from the intermediate use matrix, shows an industrial sector's direct proportionate contribution to the production of a given sector's output; in other words, the matrix indicates how much of different sectors' products, including imports, are needed to be employed directly in the production process of an industrial sector to produce one unit value of its output. The Leontief inverse, or the total requirements matrix, in Figure 3.2c shows how much additional output is needed by every industrial sector if a particular industrial sector is to produce one more unit value of output for final consumption including exports; thus, the industrial sectors' direct contributions to the production process of a given industrial sector as per the definition of its production technology and their indirect contributions due to inter-sectoral linkages, or dependencies, are given in the matrix. For this example, sector 1's intermediate input is assumed to be internally produced and not imported. (This assumption will be relaxed later in the discussion.)

A defining contribution of the input–output system—from the tables to the Leontief inverse—to economic analysis is the quantified mapping of the continuum of linkages and relationships between production and trade, making it the ideal framework for studying the globalized production environment. Figures 3.3a, 3.3b, and 3.3c situate the economy depicted in Figure 3.2a–3.2c in an international context by articulating the imports and exports in the three-dimensional, geography–sector–sector space (that is, by providing the information bilaterally and bisectorally) and incorporating the input–output details of the trading partners in the system of matrices, resulting in a simple international or interregional IOT with two economic territories. In this articulation, the intermediate and final use matrices are decomposed as use of domestically produced commodities and use of imports. Given that the imports of an economy are the exports of its trading partners and all commodities have to be produced, and consumed, in the world characterized by the two economies,

Figure 3.2a: Numerical Example of an Input–Output Transactions Table

	Intermediate use	Industrial Sectors as Consumers (j)			Final use	Rest of the World (ROW)			
		1	2	3		Domestic	Imports	Exports	Total demand
Industrial Sectors as Producers (i)	1	40	50				-40		50
	2			80					80
	3					75		25	100
	Value added								
	Labor, capital, and entrepreneurship								
	Government								
	Total value added	10	30	20					
	Total output	50	80	100					

Figure 3.2b: Direct Requirements Matrix

	Intermediate use	Industrial Sectors as Consumers (j)		
		1	2	3
Industrial Sectors as Producers (i)	1	0.8	0.625	0
	2	0	0	0.8
	3	0	0	0

Figure 3.2c: Total Requirements Matrix

	Intermediate use	Industrial Sectors as Consumers (j)		
		1	2	3
Industrial Sectors as Producers (i)	1	5	3.125	2.5
	2	0	1	0.8
	3	0	0	1

Figure 3.3a describes a complete global system of production, trade, and consumption. The corresponding direct and total requirements matrices are shown in Figures 3.3b and 3.3c, respectively. The dimensions of these two tables are double those of Figures 3.2b and 3.2c due to the integration of the requirements of the ROW in the system and the disaggregation of intermediates as per their origin (domestic or foreign).

The interpretation of the matrices is the same as discussed above, but now the input requirements of a production process are also presented in another dimension: territorial origin of inputs. The resulting total requirements matrix details, maps, and quantifies the global (direct and indirect) effects of a final consumption decision regardless of its origin in the three-dimensional, geography–sector–sector space. By relocating the production of the economy's sector 1 intermediate input from itself to sector 1 of the ROW and by enabling the ROW's sector 2 to use the economy's sector 3 output, Figures 3.3a, 3.3b, and 3.3c create a new set of direct and indirect interregional and intraregional productive dependencies; we now have a simple globally shared production process or global production chain. Although in this subsection, we look only at a two-economy, interregional input–output model, the measurement concepts and analytical methods discussed can be expanded to an n-economy global economy, which can also be easily represented by the input–output system.

The total requirements matrix, $\mathbf{L}$, can be decomposed into three components based on the intrinsic cause (demand) driving the production of the output: intraregional effect ($\mathbf{M_1}$), interregional spillover effect ($\mathbf{M_2}$), and interregional feedback effect ($\mathbf{M_3}$), where $\mathbf{L} = \mathbf{M_3}*\mathbf{M_2}*\mathbf{M_1}$.[3] Formulaically, it is expressed as

[3] R.E Miller and P.D. Blair. 2009. *Input-Output Analysis: Foundations and Extensions*. New York: Cambridge University Press.

Figure 3.3a: Numerical Example of an International Input–Output Transactions Table

		Intermediate use	Economy: Industrial Sectors as Consumers (j) 1	2	3	Rest of the World (ROW): Industrial Sectors as Consumers (j) 1	2	3	Final use: Domestic	Exports	Total demand
Economy	Industrial Sectors as Producers (i)	1		50							50
		2			80						80
		3					5		75	20	100
ROW	Industrial Sectors as Producers (i)	1	40								40
		2				20			5	5	30
		3									0
	Value added										
	Labor, capital, and entrepreneurship		5	15	10	10	15				
	Government		5	15	10	10	10				
	Total value added		10	30	20	20	25	0			
	Total output		50	80	100	40	30	0			

Figure 3.3b: Direct Requirements Matrix

		Intermediate use	Economy: Industrial Sectors as Consumers (j) 1	2	3	Rest of the World (ROW): Industrial Sectors as Consumers (j) 1	2	3
Economy	Industrial Sectors as Producers (i)	1		0.625				
		2			0.8			
		3					0.166666667	
ROW	Industrial Sectors as Producers (i)	1	0.8					
		2				0.5		
		3						

Figure 3.3c: Total Requirements Matrix

		Intermediate use	Economy: Industrial Sectors as Consumers (j) 1	2	3	Rest of the World (ROW): Industrial Sectors as Consumers (j) 1	2	3
Economy	Industrial Sectors as Producers (i)	1	1.034	0.647	0.517	0.043	0.086	0.000
		2	0.055	1.034	0.828	0.069	0.138	0.000
		3	0.069	0.043	1.034	0.086	0.172	0.000
ROW	Industrial Sectors as Producers (i)	1	0.828	0.517	0.414	1.034	0.069	0.000
		2	0.414	0.259	0.207	0.517	1.034	0.000
		3	0.000	0.000	0.000	0.000	0.000	1.000

$$\mathbf{M_1} = \begin{bmatrix} (\mathbf{I} - \mathbf{A^{rr}})^{-1} & \mathbf{0} \\ \mathbf{0} & (\mathbf{I} - \mathbf{A^{ss}})^{-1} \end{bmatrix}$$

$$\mathbf{M_2} = \begin{bmatrix} \mathbf{I} & (\mathbf{I} - \mathbf{A^{rr}})^{-1}\mathbf{A^{rs}} \\ (\mathbf{I} - \mathbf{A^{ss}})^{-1}\mathbf{A^{sr}} & \mathbf{I} \end{bmatrix}$$

$$\mathbf{M_3} = \begin{bmatrix} [\mathbf{I} - (\mathbf{I} - \mathbf{A^{rr}})^{-1}\mathbf{A^{rs}}(\mathbf{I} - \mathbf{A^{ss}})^{-1}\mathbf{A^{sr}}]^{-1} & \mathbf{0} \\ \mathbf{0} & [\mathbf{I} - (\mathbf{I} - \mathbf{A^{ss}})^{-1}\mathbf{A^{sr}}(\mathbf{I} - \mathbf{A^{rr}})^{-1}\mathbf{A^{rs}}]^{-1} \end{bmatrix}$$

Where **I** is the identity matrix and **0** is the zero matrix, both with the same dimension as the relevant technical coefficient matrix **A**. $\mathbf{A^{rr}}$ and $\mathbf{A^{ss}}$ are the technical coefficient matrices of transactions within economies r and s, respectively. The coefficients related to interregional transactions are captured in matrices $\mathbf{A^{rs}}$ and $\mathbf{A^{sr}}$.

$\mathbf{M_1}$ captures the total output that a sector needs to produce in order to meet the total intraregional requirement for its output arising from a unit value increase in final demand for any given commodity in any given location. $\mathbf{M_2}$ measures the pure interregional direct and indirect demand for the sector's product and $\mathbf{M_3}$ shows a sector's or economy's demand for its own product(s) resulting from its product(s) being used in the production of commodities which themselves are demanded by the sector or economy in question for its production process. In terms of additive decomposition, **L** can be given as

$$\mathbf{L} = (\mathbf{I}) + (\mathbf{M_1} - \mathbf{I}) + (\mathbf{M_2M_1} - \mathbf{M_1}) + (\mathbf{M_3M_2M_1} - \mathbf{M_2M_1})$$

The decomposition isolates the initial, intraregional, interregional and feedback effects. The last two terms capture the effects of interregional trade linkages on an economy's sector-specific production activities. They could also be used as a measure of the level and evolution of integration between two or more economies. The last term in particular could also serve as an indicator of an economy's, or one of its sector's, intensity of participation in globally distributed production processes. A high coefficient indicates that the sector under consideration is connected to the relevant international production processes at more than one level (vertical integration). For example, an increase in the demand for luxury cars produced in Germany will increase the demand for high technology engines produced in the United States, which in turn requires German green energy technology. The demand for green energy technology is the feedback effect and could be experienced by Germany only by it being more vertically integrated in the car production process by participating at two different stages (green energy technology production and final assembly).

Thus, as demonstrated here, the input–output system provides a much more intuitive framework for analyzing and studying trade in the context of a globally distributed production environment. In a nutshell, the input–output approach can be used to measure economic activity, production sharing, distribution of economic benefits, and economic integration of regions. It provides detailed information about the interconnectedness between an economy's trade and production processes thereby facilitating more meaningful research on trade and industrial structures and illuminating policy issues. However, in order to apply the input–output framework to quantify international production sharing the sector requirements need to be specified in value added terms. The concept of value added and the derivation of value added terms are discussed in detail in the next subsection.

Value Added Approach to Analyzing Trade Data

The cost of production or purchase of commodities forms the basis for the conventional presentation and analysis of the data and statistics on trade. However, as discussed earlier, such an approach has limited utility for research and policy purposes in a global economic environment that is increasingly characterized by highly fragmented commodity production processes distributed across territorial boundaries. In particular, the actual contribution of an economy, or a given sector of an economy, to the production of a commodity is not discernable from the data. For example, a commodity that is wholly produced in the economy and another that is produced by marginally enhancing an imported intermediate would both be valued and presented in the same manner, as exports of the economy at gross value. Further, imported commodities that have a significant portion of locally produced components would be shown at full value as exports of the last economy to process and ship them. Hence, as argued earlier, a more insightful and analytical illustration of the data as information is needed to fully understand the state and dynamics of modern day trade, and its correlation to international production-sharing arrangements. In the preceding subsection, it was demonstrated that the input–output economic analysis framework provides the right setting for a quantitative exploration of trade and trade patterns and linkages. This section delves deeper into the framework to extract a mechanism for decomposing the total or gross value of a commodity according to where (economy–sector location) its componential values are created (added).

Figure 4.1 elaborates on the IOT example provided in Figure 3.1a by denoting the complete set of transactions possible within the economic framework provided therein. The sector specific production technologies depicted in industrial sector columns can be represented by a system of equations as follows:

$$p_{11}X_1 + p_{21}X_2 + p_{31}X_3 + V_1 = X_1$$

$$p_{21}X_1 + p_{22}X_2 + p_{23}X_3 + V_2 = X_2$$

$$p_{31}X_1 + p_{32}X_2 + p_{33}X_3 + V_3 = X_3$$

Where $0 \leq p_{ij} < 1$ and $V_j > 0$. Solving the system of equations results in

$$X_1 = \frac{p_{21}\left((1 - p_{33})V_2 + p_{23}V_3\right) - p_{31}(p_{22}V_3 - V_3 - p_{32}V_2) - (p_{33} + p_{22}(1 - p_{33}) + p_{23}p_{32} - 1)V_1}{p_{11}(p_{33} + p_{22}(1 - p_{33}) + p_{23}p_{32} - 1) - p_{33} + p_{22}(p_{33} - 1) + p_{21^2}(p_{33} - 1) - p_{23}p_{32} + p_{21}p_{31}(-p_{32} - p_{23}) + (p_{22} - 1)p_{31^2} + 1}$$

$$X_2 = \frac{p_{11}\left((p_{33} - 1)V_2 - p_{23}V_3\right) + p_{21}p_{31}V_3 + p_{23}V_3 + (1 - p_{33})V_2 - p_{31^2}V_2 + (p_{21}(1 - p_{33}) + p_{23}p_{31})V_1}{p_{11}(p_{33} + p_{22}(1 - p_{33}) + p_{23}p_{32} - 1) - p_{33} + p_{22}(p_{33} - 1) + p_{21^2}(p_{33} - 1) - p_{23}p_{32} + p_{21}p_{31}(-p_{32} - p_{23}) + (p_{22} - 1)p_{31^2} + 1}$$

$$X_3 = \frac{p_{11}(p_{22}V_3 - V_3 - p_{32}V_2) - p_{22}V_3 - p_{21^2}V_3 + V_3 + p_{32}V_2 + p_{21}p_{31}V_2 - \left((p_{22} - 1)p_{31} - p_{21}p_{32}\right)V_1}{p_{11}(p_{33} + p_{22}(1 - p_{33}) + p_{23}p_{32} - 1) - p_{33} + p_{22}(p_{33} - 1) + p_{21^2}(p_{33} - 1) - p_{23}p_{32} + p_{21}p_{31}(-p_{32} - p_{23}) + (p_{22} - 1)p_{31^2} + 1}$$

Figure 4.1: Input–Output Transactions Table

	Intermediate use	Industrial Sectors as Consumers (j)			Final use	Rest of the World (ROW)			
		1	2	3		Domestic	Imports	Exports	Total demand
Industrial Sectors as Producers (i)	1	$p_{11}X_1$	$p_{12}X_1$	$p_{13}X_1$		F_1	$-M_1$	E_1	X_1
	2	$p_{21}X_2$	$p_{22}X_2$	$p_{23}X_2$		F_2	$-M_2$	E_2	X_2
	3	$p_{31}X_3$	$p_{32}X_3$	$p_{33}X_3$		F_3	$-M_3$	E_3	X_3
	Value added								
	Labor, capital, and entrepreneurship								
	Government								
	Total value added	V_1	V_2	V_3					
	Total output	X_1	X_2	X_3					

where $0 \leq p_{ij} < 1$

Thus, as can be seen from the solution for X_j, the output of sector j, and hence its imports and exports, can be completely decomposed as the value added terms V_j of all the industrial sectors. Even in an n-sector economy, every X_j ($j = 1,..,n$) has a unique solution in terms of V_j ($j = 1,..,n$) since there are n variables and n independent equations.

Intuitively, every commodity is produced by combining a number of other commodities (intermediates) and using factors of production—labor, capital, governmental facilitation, and entrepreneurship, which are known as primary inputs, meaning they are not produced by another productive process—as per the product-specific technology. Every intermediate in turn is produced by a technology process that combines a set of intermediates using defined quantities of primary inputs. Extending the technical relations recursively through all linked upstream production activities, we reach the primary industries (e.g., agriculture, fishing, hunting, and mining) that use primary inputs and natural resources, which are not the result of any productive activity and hence not purchased in an economic sense, to produce their output. All commodities, including those used by primary sector industries as intermediates such as fertilizer, gasoline, miscellaneous supplies, and consultancy services, that are not wholly constituted of primary factors originated in primary sector industries in one form or another. For example, the fees paid to the government to obtain a permit to undertake primary activities should be seen as a purchase of services provided by the government sector whose output contains a very high proportion of primary inputs (e.g., employee compensation and use of capital equipment) and whose intermediates can be traced back to the primary sector. Ultimately, the output of all industrial sectors can be expressed as a combination of primary inputs, the sector-specific contribution of which is termed the sector's value added.

There are significant informational and analytical benefits to decomposing output in value added terms. It is now possible to determine and quantify the contribution of each industrial sector, and that of the territory where it is located, in the output of any given sector. The decomposition within the input–output analysis framework provides a facility to discern the length of the production chain, degree of the distribution of the production process globally (production sharing), and position of an economy or sector in the production

sequence of a commodity. Crucially, by identifying and quantifying the contribution (value added) of each economy or sector in the production of a commodity, the value added decomposition permits the measurement of the benefits accruing to the sector or economy as a result of participating in the production, and trade, of the commodity. In terms of standard System of National Accounts concepts, the net benefit (or income or value) accruing to an economy or sector in order for it to be counted in as part of GDP is the value added. That is why in the estimation of GDP by expenditure approach, for example, imports are deducted (netted out) from total final expenditures, which also include gross exports, of the economy to calculate the value of the output that is purely domestic. In this context, in trading or exporting a commodity, the sector or the economy engaged in any stage of its production does not realize the benefit of the full value of the commodity at the stage of being exported, rather the portion of the value it adds (or contributes), and it passes on (or transfers) the remainder proportionately to other upstream contributing sectors or economies. In real terms, it trades only the value it adds, hence the appropriateness of the phrase "trade in value added."

The value added approach can succinctly be encapsulated in the input–output framework tracing both the sector or economy contribution to the full set of production processes (forward linkages) and contributions of all the sectors or economies to the production process of a given sector (backward linkages). An abstract technical coefficient matrix and its Leontief inverse are presented in Figure 4.2. To recapitulate, each term in the Leontief inverse, or total requirements matrix, of the technical coefficient matrix of an economy shows how much of sector *i*'s output is needed to meet the economy's productive, direct and indirect, requirements to supply one unit value of the final demand, including exports, for the output of sector *j*. The column *j* thus gives the total requirements by the producing sector for all the intermediates needed to produce output X_j of sector *j* in order to meet an additional unit value of the final demand for the product of sector *j*. Row *i*

Figure 4.2: Direct and Total Requirements Matrices

Direct Requirements Matrix, A

		Intermediate use	Economy: Industrial Sectors as Consumers (j) 1	2	3	Rest of the World (ROW): Industrial Sectors as Consumers (j) 1	2	3
Economy	Industrial Sectors as Producers (i)	1	a^{ss}_{11}	a^{ss}_{12}	a^{ss}_{13}	a^{sr}_{11}	a^{sr}_{12}	a^{sr}_{13}
		2	a^{ss}_{21}	a^{ss}_{22}	a^{ss}_{23}	a^{sr}_{21}	a^{sr}_{22}	a^{sr}_{23}
		3	a^{ss}_{31}	a^{ss}_{32}	a^{ss}_{33}	a^{sr}_{31}	a^{sr}_{32}	a^{sr}_{33}
ROW	Industrial Sectors as Producers (i)	1	a^{rs}_{11}	a^{rs}_{12}	a^{rs}_{13}	a^{rr}_{11}	a^{rr}_{12}	a^{rr}_{13}
		2	a^{rs}_{21}	a^{rs}_{22}	a^{rs}_{23}	a^{rr}_{21}	a^{rr}_{22}	a^{rr}_{23}
		3	a^{rs}_{31}	a^{rs}_{32}	a^{rs}_{33}	a^{rr}_{31}	a^{rr}_{32}	a^{rr}_{33}

Total Requirements Matrix, B

		Intermediate use	Economy: Industrial Sectors as Consumers (j) 1	2	3	Rest of the World (ROW): Industrial Sectors as Consumers (j) 1	2	3
Economy	Industrial Sectors as Producers (i)	1	b^{ss}_{11}	b^{ss}_{12}	b^{ss}_{13}	b^{sr}_{11}	b^{sr}_{12}	b^{sr}_{13}
		2	b^{ss}_{21}	b^{ss}_{22}	b^{ss}_{23}	b^{sr}_{21}	b^{sr}_{22}	b^{sr}_{23}
		3	b^{ss}_{31}	b^{ss}_{32}	b^{ss}_{33}	b^{sr}_{31}	b^{sr}_{32}	b^{sr}_{33}
ROW	Industrial Sectors as Producers (i)	1	b^{rs}_{11}	b^{rs}_{12}	b^{rs}_{13}	b^{rr}_{11}	b^{rr}_{12}	b^{rr}_{13}
		2	b^{rs}_{21}	b^{rs}_{22}	b^{rs}_{23}	b^{rr}_{21}	b^{rr}_{22}	b^{rr}_{23}
		3	b^{rs}_{31}	b^{rs}_{32}	b^{rs}_{33}	b^{rr}_{31}	b^{rr}_{32}	b^{rr}_{33}

shows the total amount of the output of sector *i* needed, directly and indirectly, by the economy to meet the final demand for the product of each sector *j*. Since each element in the matrix is given in terms of output of sector *i*, it can be converted into value added terms by multiplying it by the proportion of value added, V_i, embedded in the products as shown in Figure 4.3. However, as discussed above, the total value added, even at the sector level, translates into final use or final demand. Thus, the column sum of the value added embedded in each term of the total requirement matrix is equal to the final demand for a sector's output, which is unity by definition. Extending this mathematical formulation and multiplying the total requirement matrix of value added (*VB*) by the matrix of actual level of final demand for each sector's product *Y* results in a matrix (*VBY*) that provides a framework for decomposing the final demand of a sector's product into various, economy-sector-specific, value added components (Figure 4.4).

Figure 4.3: Total Value Added Coefficient Matrix

$$\hat{V} \times B = \hat{V}B$$

$$\begin{bmatrix} v^s_1 & 0 & 0 & 0 & 0 & 0 \\ 0 & v^s_2 & 0 & 0 & 0 & 0 \\ 0 & 0 & v^s_3 & 0 & 0 & 0 \\ 0 & 0 & 0 & v^r_1 & 0 & 0 \\ 0 & 0 & 0 & 0 & v^r_2 & 0 \\ 0 & 0 & 0 & 0 & 0 & v^r_3 \end{bmatrix} \times \begin{bmatrix} b^{ss}_{11} & b^{ss}_{12} & b^{ss}_{13} & b^{sr}_{11} & b^{sr}_{12} & b^{sr}_{13} \\ b^{ss}_{21} & b^{ss}_{22} & b^{ss}_{23} & b^{sr}_{21} & b^{sr}_{22} & b^{sr}_{23} \\ b^{ss}_{31} & b^{ss}_{32} & b^{ss}_{33} & b^{sr}_{31} & b^{sr}_{32} & b^{sr}_{33} \\ b^{rs}_{11} & b^{rs}_{12} & b^{rs}_{13} & b^{rr}_{11} & b^{rr}_{12} & b^{rr}_{13} \\ b^{rs}_{21} & b^{rs}_{22} & b^{rs}_{23} & b^{rr}_{21} & b^{rr}_{22} & b^{rr}_{23} \\ b^{rs}_{31} & b^{rs}_{32} & b^{rs}_{33} & b^{rr}_{31} & b^{rr}_{32} & b^{rr}_{33} \end{bmatrix} = \begin{bmatrix} v^s_1 b^{ss}_{11} & v^s_1 b^{ss}_{12} & v^s_1 b^{ss}_{13} & v^s_1 b^{sr}_{11} & v^s_1 b^{sr}_{12} & v^s_1 b^{sr}_{13} \\ v^s_2 b^{ss}_{21} & v^s_2 b^{ss}_{22} & v^s_2 b^{ss}_{23} & v^s_2 b^{sr}_{21} & v^s_2 b^{sr}_{22} & v^s_2 b^{sr}_{23} \\ v^s_3 b^{ss}_{31} & v^s_3 b^{ss}_{32} & v^s_3 b^{ss}_{33} & v^s_3 b^{sr}_{31} & v^s_3 b^{sr}_{32} & v^s_3 b^{sr}_{33} \\ v^r_1 b^{rs}_{11} & v^r_1 b^{rs}_{12} & v^r_1 b^{rs}_{13} & v^r_1 b^{rr}_{11} & v^r_1 b^{rr}_{12} & v^r_1 b^{rr}_{13} \\ v^r_2 b^{rs}_{21} & v^r_2 b^{rs}_{22} & v^r_2 b^{rs}_{23} & v^r_2 b^{rr}_{21} & v^r_2 b^{rr}_{22} & v^r_2 b^{rr}_{23} \\ v^r_3 b^{rs}_{31} & v^r_3 b^{rs}_{32} & v^r_3 b^{rs}_{33} & v^r_3 b^{rr}_{31} & v_3{}^r b^{rr}_{32} & v^r_3 b^{rr}_{33} \end{bmatrix}$$

Figure 4.4: Value Added Decomposition of Final Demand

$$\hat{V}B \times \hat{Y} = \hat{V}B\hat{Y}$$

$$\begin{bmatrix} v^s_1 b^{ss}_{11} & v^s_1 b^{ss}_{12} & v^s_1 b^{ss}_{13} & v^s_1 b^{sr}_{11} & v^s_1 b^{sr}_{12} & v^s_1 b^{sr}_{13} \\ v^s_2 b^{ss}_{21} & v^s_2 b^{ss}_{22} & v^s_2 b^{ss}_{23} & v^s_2 b^{sr}_{21} & v^s_2 b^{sr}_{22} & v^s_2 b^{sr}_{23} \\ v^s_3 b^{ss}_{31} & v^s_3 b^{ss}_{32} & v^s_3 b^{ss}_{33} & v^s_3 b^{sr}_{31} & v^s_3 b^{sr}_{32} & v^s_3 b^{sr}_{33} \\ v^r_1 b^{rs}_{11} & v^r_1 b^{rs}_{12} & v^r_1 b^{rs}_{13} & v^r_1 b^{rr}_{11} & v^r_1 b^{rr}_{12} & v^r_1 b^{rr}_{13} \\ v^r_2 b^{rs}_{21} & v^r_2 b^{rs}_{22} & v^r_2 b^{rs}_{23} & v^r_2 b^{rr}_{21} & v^r_2 b^{rr}_{22} & v^r_2 b^{rr}_{23} \\ v^r_3 b^{rs}_{31} & v^r_3 b^{rs}_{32} & v^r_3 b^{rs}_{33} & v^r_3 b^{rr}_{31} & v_3{}^r b^{rr}_{32} & v^r_3 b^{rr}_{33} \end{bmatrix} \times \begin{bmatrix} y^s_1 & 0 & 0 & 0 & 0 & 0 \\ 0 & y^s_2 & 0 & 0 & 0 & 0 \\ 0 & 0 & y^s_3 & 0 & 0 & 0 \\ 0 & 0 & 0 & y^r_1 & 0 & 0 \\ 0 & 0 & 0 & 0 & y^r_2 & 0 \\ 0 & 0 & 0 & 0 & 0 & y^r_3 \end{bmatrix} = \begin{bmatrix} v^s_1 b^{ss}_{11} y^s_1 & v^s_1 b^{ss}_{12} y^s_2 & v^s_1 b^{ss}_{13} y^s 3 & v^s_1 b^{sr}_{11} y^r_1 & v^s_1 b^{sr}_{12} y^r_2 & v^s_1 b^{sr}_{13} y^r_3 \\ v^s_2 b^{ss}_{21} y^s_1 & v^s_2 b^{ss}_{22} y^s_2 & v^s_2 b^{ss}_{23} y^s 3 & v^s_2 b^{sr}_{21} y^r_1 & v^s_2 b^{sr}_{22} y^r_2 & v^s_2 b^{sr}_{23} y^r_3 \\ v^s_3 b^{ss}_{31} y^s_1 & v^s_3 b^{ss}_{32} y^s_2 & v^s_3 b^{ss}_{33} y^s 3 & v^s_3 b^{sr}_{31} y^r_1 & v^s_3 b^{sr}_{32} y^r_2 & v^s_3 b^{sr}_{33} y^r_3 \\ v^r_1 b^{rs}_{11} y^s_1 & v^r_1 b^{rs}_{12} y^s_2 & v^r_1 b^{rs}_{13} y^s 3 & v^r_1 b^{rr}_{11} y^r_1 & v^r_1 b^{rr}_{12} y^r_2 & v^r_1 b^{rr}_{13} y^r_3 \\ v^r_2 b^{rs}_{21} y^s_1 & v^r_2 b^{rs}_{22} y^s_2 & v^r_2 b^{rs}_{23} y^s 3 & v^r_2 b^{rr}_{21} y^r_1 & v^r_2 b^{rr}_{22} y^r_2 & v^r_2 b^{rr}_{23} y^r_3 \\ v^r_3 b^{rs}_{31} y^s_1 & v^r_3 b^{rs}_{32} y^s_2 & v^r_3 b^{rs}_{33} y^s 3 & v^r_3 b^{rr}_{31} y^r_1 & v_3{}^r b^{rr}_{32} y^r_2 & v^r_3 b^{rr}_{33} y^r_3 \end{bmatrix}$$

GDP = gross domestic product.

diagonal block of economy s
diagonal block of economy r
sector's GDP
backward linkage
economy's GDP
forward linkage

Extending the analysis above on the total requirements matrix to *VBY*, it can be seen that the columns of the matrix show the value added of each economy-sector embedded in the final demand for a given sector's output, essentially showing how the portion of a sector's output designated as final demand y_i was produced with the value added from different economy-sectors. Thus, the columns detail, in terms of value added, the productive linkages between the final demand for a sector's output and the economy-sector specific contributions required to produce it. These productive dependencies of a given sector on all sectors upstream, including on itself, are termed backward linkages. It shows how a change in the demand for a sector's product affects the output of sectors supplying intermediates to it—that is, a sector's supply dependency. The diagonal elements of the matrix show a sector's own value added contribution to its product destined for final use. An economy's contribution to its products, also known as domestic value added, can be discerned from the diagonal blocks (Figure 4.4). The contributions of other economies to a given economy's products, also known as foreign value added, are shown in the off-diagonal blocks along a given column. Further, the proportionate magnitude of the sum of the elements in each economy's block along a column shows the level of regional or geographic dispersion of a production process. From a national economic accounts perspective, the sum of all

the elements in a diagonal block would give the GDP of the economy. The elements of the off-diagonal blocks along the columns show an economy's imports or import dependence. The columns also help to measure the impact of a sector's exports on the rest of the economy.

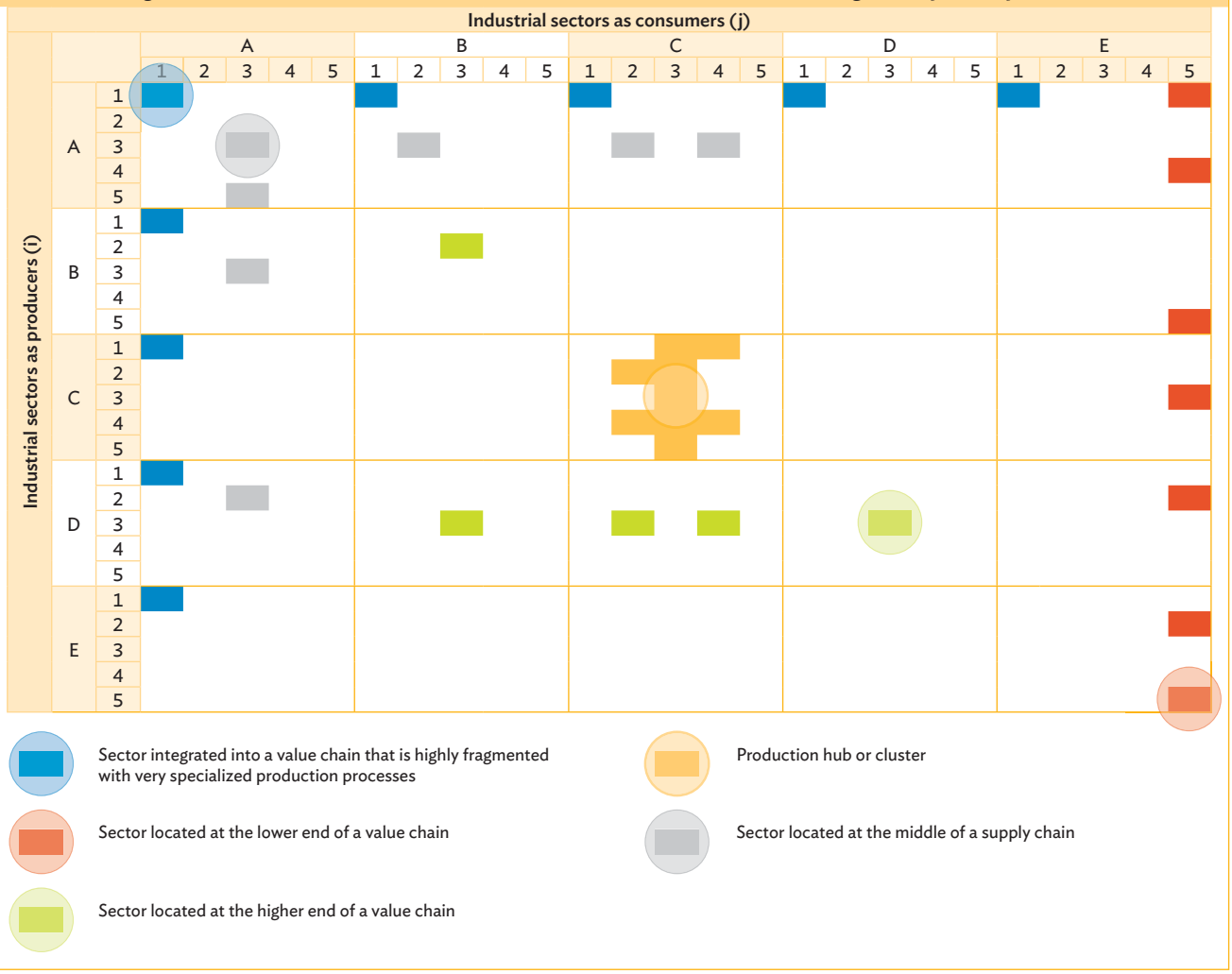
The elements across the rows of the *VBY* matrix provide the amount of a sector's value added in the final demand for any given economy-sector's output, thus specifying the sector's contributions to the productive processes of all economy-sectors, including to its own processes. These downstream productive linkages that detail how and by whom a sector's products are being used are called forward linkages. The degree of criticality of an economy-sector's products to the production processes of various sectors and economies can be discerned from the information provided across the rows. It shows how a sector's output would be affected by changes in the final demand for other sectors' output—that is, an economy-sector's demand dependence. From an economy's perspective, the non-diagonal blocks across the rows indicate its level of export dependence or export concentration. It also shows how regionally diversified an economy-sector's export markets are. The impacts of all exports on any given sector can also be discerned through the information across the relevant row.

With its elements expressed as value added, the matrix *VBY* contains completely independent items from which other variables of interest could be derived. They provide the basic building blocks for mapping the production and supply chains. Each term gives the value added (contribution) solely attributable to a specific economy-sector. In the *B* matrix, the diagonal elements could also serve as an indicator of the level of interconnectedness of a sector to the rest of the economy; it is more of a measure of how many times a portion of a sector's product passes through the sector as part of another sector's output, including its own, that is being used as this sector's input. The difference between an economy's coefficients before and after its integration into the global economy shows the economic effects of integration. (This is similar to the elements in M_2 and M_3, as seen in subsection 3).

In the *VBY* matrix, for any given sector, the row and column together gives the supply chain for its output or products. The orientation of the numbers along the column indicates that the region-sector is likely located toward the lower end of supply chains, meaning that it comprises part of the production process at stages close to shipping to the final consumption, including exports. The orientation across the row means that the economy-sector is more likely to be at the upper-end of the chain, and a more even distribution along row and column indicates a location close to the middle of the supply chain. The concentration along the diagonal or diagonal block indicates that the sector or economy is a production hub or cluster for a given commodity. Another pattern worth noting is that if the supply chain is located in the same sector in several economies along the columns and rows, then the production process is highly specialized and fragmented with a high degree of differentiation between the output of one stage and the next (Figure 4.5).

Basically, the value added terms along and across the columns and rows referring to a given sector show, respectively, how its output was produced and how it was used. Information discerned across the rows and along the columns show the length, distribution, and concentration of a given commodity's production chain. The entire economic input–output system expressed in terms of transactions in value added, as detailed by the *VBY* matrix, facilitates the measurement, analysis, and evaluation of the sectoral and economy-wide impacts of economic decisions on production and consumption. Since a multi-sectoral and multi-economy global economic system and the inter-sectoral and inter-economy interconnectedness and dependencies are depicted comprehensively by the input–output framework, the economy-wide and sectoral transmission

Figure 4.5: Patterns of Value Chains Discerned from the VBY matrix of an Interregional Input-Output Table



and diffusion of the economic effects of the decisions can be traced, mapped, and quantified by the *VBY* matrix. This feature of the input–output system makes it a very powerful economic analysis tool especially in studying the level of economic integration of regions and in tracking temporally and spatially the impact of major investment activities such as economic corridor development and the "one belt one road" initiative by the People's Republic of China. However, despite its demonstrable utility, the input–output framework at the level of sophistication described here has certain analytical limitations, especially given that exports of intermediates are also classified as final demand. The next subsection describes a framework founded on the methodology developed by Wang, Wei, and Zhu (2014) for addressing quantificational and analytical issues that cannot adequately be addressed by using the basic input–output methods.

An Accounting Framework for International Production Sharing[4]

As shown in the previous subsection, the final demand for the output of a given sector is completely decomposed into the economy-sector specific value added by the elements along the relevant column of the *VBY* matrix. Conceptually, in national economic accounting, exports, for both intermediate and final use, are

[4] The concepts, framework, and analysis provided in the subsection are primarily based on Z. Wang, S. Wei, and K. Zhu. 2014. Quantifying International Production Sharing at the Bilateral and Sector Levels. *NBER Working Paper* No. 19677. Cambridge, MA: National Bureau of Economic Research.

treated as final demand. Thus, in the *VBY* matrix, the final demand component *Y* can be used to represent all exports *E*. Matrix *VBE* shows the decomposition of exports by economy-sector specific value added. In an economic environment characterized, indeed defined, by international production sharing, exports are comprised of commodities for both intermediate and final use. This identity can be written as

$$E^{sr} = Y^{sr} + A^{sr}X^{r}$$

Where E^{sr} is the total exports from economy *s* to economy *r*, and Y^{sr} and $A^{sr}X^{r}$ are exports for final and intermediate use, respectively. Therefore, *VBE* can be written as

$$VBE = VBY + VB(AX)$$

As shown earlier, *VBY* decomposes exports for final use into economy-sector specific value added. And all elements in the matrix are the most basic and independent terms. However, the elements of the matrix *VB(AX)* are not in their most fundamental form since the output term *X* can itself be expressed as a combination of output destined for final use *Y* and for intermediate use *AX* as follows

$$X^{s} = A^{ss}X^{s} + Y^{ss} + A^{sr}X^{r} + Y^{sr}$$

Using this recursive identity, all output *X* can be expressed in terms of how and where they are finally absorbed (that is, in terms of *Y*) as shown below

$$\begin{bmatrix} X^{s} \\ X^{r} \end{bmatrix} = \begin{bmatrix} I - A^{ss} & -A^{sr} \\ -A^{rs} & I - A^{rr} \end{bmatrix}^{-1} \begin{bmatrix} Y^{ss} & Y^{sr} \\ Y^{rs} & Y^{rr} \end{bmatrix} = \begin{bmatrix} B^{ss} & B^{sr} \\ B^{rs} & B^{rr} \end{bmatrix} \begin{bmatrix} Y^{s} \\ Y^{r} \end{bmatrix}$$

Extending this relation to a multi-economy context we have

$$X^{r} = \sum_{t}^{G} B^{rt} \sum_{u}^{G} Y^{tu} = B^{rr} \sum_{t}^{G} Y^{rt} + \sum_{t \neq s,r}^{G} B^{rt} \sum_{u \neq s,t}^{G} Y^{tu} + B^{rs} \sum_{t \neq s}^{G} Y^{st}$$

$$= B^{rr}Y^{rr} + \sum_{t \neq s,r}^{G} B^{rt}Y^{tt} + B^{rr} \sum_{t \neq s,r}^{G} Y^{rt} + \sum_{t \neq s,r}^{G} B^{rt} \sum_{u \neq s,t}^{G} Y^{tu} + B^{rr}Y^{rs} + \sum_{t \neq s,r}^{G} B^{rt}Y^{ts} + B^{rs}Y^{ss} + \sum_{t \neq s}^{G} B^{rs}Y^{st}$$

where *t* and *u* refers to economies in the global economic system *(t, u = 1,..,G)*. The equation shows the output *X* fully expressed in terms of where (economy-sector) it is ultimately absorbed. Using this identity, we can also show output for intermediate use *AX* in terms of where it is finally absorbed

$$A^{sr}X^{r} = A^{sr}B^{rr}Y^{rr} + A^{sr} \sum_{t \neq s,r}^{G} B^{rt}Y^{tt} + A^{sr}B^{rr} \sum_{t \neq s,r}^{G} Y^{rt} + A^{sr} \sum_{t \neq s,r}^{G} B^{rt} \sum_{u \neq s,t}^{G} Y^{tu}$$

$$+ A^{sr}B^{rr}Y^{rs} + A^{sr} \sum_{t \neq s,r}^{G} B^{rt}Y^{ts} + A^{sr}B^{rs}Y^{ss} + A^{sr} \sum_{t \neq s}^{G} B^{rt}Y^{st}$$

The interpretations of the terms of the equation are rather obvious: for example, the first term shows economy *s*' intermediate exports used by economy *r* to produce commodities for final use that are eventually consumed in economy *r*; the second term is part of economy *s*' intermediate exports used by the direct importer, economy *r*, to produce intermediates that are exported to a third economy *t* for the production of commodities for final consumption. The third term is the part of economy *s*' intermediate exports used by economy *r* to produce exports for final use that are ultimately absorbed by the third economy *t*, and so on.

The supply and demand for commodities in economies s and r can also be expressed as

$$\begin{bmatrix} \boldsymbol{X^s} \\ \boldsymbol{X^r} \end{bmatrix} = \begin{bmatrix} \boldsymbol{A^{ss}} & \boldsymbol{A^{sr}} \\ \boldsymbol{A^{rs}} & \boldsymbol{A^{rr}} \end{bmatrix} \begin{bmatrix} \boldsymbol{X^s} \\ \boldsymbol{X^r} \end{bmatrix} + \begin{bmatrix} \boldsymbol{Y^{ss}} & \boldsymbol{Y^{sr}} \\ \boldsymbol{Y^{rs}} & \boldsymbol{Y^{rr}} \end{bmatrix}$$

The identity can be expanded and expressed in terms of domestic intermediate use, domestic final use, and exports as follows

$$\boldsymbol{X^r} = \boldsymbol{A^{rr}X^r} + \sum_{t \neq r}^{G} \boldsymbol{A^{rt}X^t} + \boldsymbol{Y^{rr}} + \sum_{t \neq r}^{G} \boldsymbol{Y^{rt}} = \boldsymbol{A^{rr}X^r} + \boldsymbol{Y^{rr}} + \sum_{t \neq r}^{G} \boldsymbol{E^{rt}} = \boldsymbol{A^{rr}X^r} + \boldsymbol{Y^{rr}} + \boldsymbol{E^{r^*}}$$

Rearranging the terms we have

$$\boldsymbol{X^r} = (\boldsymbol{I} - \boldsymbol{A^{rr}})^{-1}\boldsymbol{Y^{rr}} + (\boldsymbol{I} - \boldsymbol{A^{rr}})^{-1}\boldsymbol{E^{r^*}} = \boldsymbol{L^{rr}Y^{rr}} + \boldsymbol{L^{rr}E^{r^*}}$$

where $L^{rr} = (I - A^{rr})^{-1}$ is the local Leontief inverse or the total requirements matrix of economy *r* before it becomes integrated in the interregional economic system. Thus, *AX* can also be expressed as

$$\boldsymbol{A^{sr}X^r} = \boldsymbol{A^{sr}L^{rr}Y^{rr}} + \boldsymbol{A^{sr}L^{rr}E^{r^*}}$$

The equations with $A^{sr}X^r$ as the dependent variable each completely decompose economy *s*' intermediate exports to economy *r* according to where they are finally absorbed. Further, the terms of *VB* can be extended to a multi-economy setting to obtain economy s' domestic and foreign value added as follows:

$$\boldsymbol{V^sB^{ss}} = \left[\sum_{i}^{N} \boldsymbol{v_i^s b_{i1}^{ss}} \quad \sum_{i}^{N} \boldsymbol{v_i^s b_{i2}^{ss}} \quad \ldots \quad \sum_{i}^{N} \boldsymbol{v_i^s b_{iN}^{ss}} \right]$$

$$\boldsymbol{V^rB^{rs}} = \left[\sum_{i}^{N} \boldsymbol{v_i^r b_{i1}^{rs}} \quad \sum_{i}^{N} \boldsymbol{v_i^r b_{i2}^{rs}} \quad \ldots \quad \sum_{i}^{N} \boldsymbol{v_i^r b_{iN}^{rs}} \right]$$

$$\boldsymbol{V^tB^{ts}} = \left[\sum_{i}^{N} \boldsymbol{v_i^t b_{i1}^{ts}} \quad \sum_{i}^{N} \boldsymbol{v_i^t b_{i2}^{ts}} \quad \ldots \quad \sum_{i}^{N} \boldsymbol{v_i^t b_{iN}^{ts}} \right]$$

Given that $\sum VB$ = unity, defining # as an element-wise matrix multiplication operation, the columns of matrix *VBY* can also be expressed as

$$\boldsymbol{Y^{sr}} = (\boldsymbol{V^sB^{ss}})^T \# \boldsymbol{Y^{sr}} + (\boldsymbol{V^rB^{rs}})^T \# \boldsymbol{Y^{sr}} + \left(\sum_{t \neq s,r}^{G} \boldsymbol{V^tB^{ts}} \right)^T \# \boldsymbol{Y^{sr}}$$

Likewise economy *s*' intermediate exports to economy *r*, *AX*, can also be expressed as

$$A^{sr}X^{r} = (V^{s}B^{ss})^{T}\#(A^{sr}X^{r}) + (V^{r}B^{rs})^{T}\#(A^{sr}X^{r}) + \left(\sum_{t\neq s,r}^{G} V^{t}B^{ts}\right)^{T}\#(A^{sr}X^{r})$$
$$= (V^{s}L^{ss})^{T}\#(A^{sr}X^{r}) + (V^{s}B^{ss} - V^{s}L^{ss})^{T}\#(A^{sr}X^{r})$$
$$+ (V^{r}B^{rs})^{T}\#(A^{sr}X^{r}) + \left(\sum_{t\neq s,r}^{G} V^{t}B^{ts}\right)^{T}\#(A^{sr}X^{r})$$

Where $V^{s}L^{ss}$ is the domestic value added multiplier for single economy input–output models. It can be expressed as

$$V^{s}L^{ss} = \left[\sum_{i}^{N} v_{i}^{s}l_{i1}^{ss} \quad \sum_{i}^{N} v_{i}^{s}l_{i2}^{ss} \quad \ldots \quad \sum_{i}^{N} v_{i}^{s}l_{iN}^{ss}\right]$$

Using the system of equations shown thus far, the decomposition equation of economy *s*' gross exports to economy *r* can be as written as

$$E^{sr} = (V^{s}B^{ss})^{T}\#Y^{sr} \qquad (1)\ DVA\_FIN$$
$$+ (V^{s}L^{ss})^{T}\#(A^{sr}B^{rr}Y^{rr}) \qquad (2)\ DVA\_INT$$
$$+ (V^{s}L^{ss})^{T}\#\left[A^{sr}\sum_{t\neq s,r}^{G} B^{rt}Y^{tt} + A^{sr}B^{rr}\sum_{t\neq s,r}^{G} Y^{rt} + A^{sr}\sum_{t\neq s,r}^{G}\sum_{u\neq s,t}^{G} B^{rt}Y^{tu}\right] \qquad (3)\ DVA\_INTrex$$
$$+ (V^{s}L^{ss})^{T}\#\left[A^{sr}B^{rr}Y^{rs} + A^{sr}\sum_{t\neq s,r}^{G} B^{rt}Y^{ts} + A^{sr}B^{rs}Y^{ss}\right] \qquad (4)\ RDV$$
$$+ \left[(V^{s}L^{ss})^{T}\#\left(A^{sr}\sum_{t\neq s,r}^{G} B^{rs}Y^{st}\right) + (V^{s}B^{ss} - V^{s}L^{ss})^{T}\#(A^{sr}X^{r})\right] \qquad (5)\ DDC$$
$$+ \left[(V^{r}B^{rs})^{T}\#Y^{sr} + \left(\sum_{t\neq s,r}^{G} V^{t}B^{ts}\right)^{T}\#Y^{sr}\right] \qquad (6)\ FVA\_FIN$$
$$+ \left[(V^{r}B^{rs})^{T}\#(A^{sr}L^{rr}Y^{rr}) + \left(\sum_{t\neq s,r}^{G} V^{t}B^{ts}\right)^{T}\#(A^{sr}L^{rr}Y^{rr})\right] \qquad (7)\ FVA\_INT$$
$$+ \left[(V^{r}B^{rs})^{T}\#\left(A^{sr}L^{rr}E^{r^{*}}\right) + \left(\sum_{t\neq s,r}^{G} V^{t}B^{ts}\right)^{T}\#\left(A^{sr}L^{rr}E^{r^{*}}\right)\right] \qquad (8)\ FDC$$

This finer decomposition of gross exports is a defining contribution of Wang, Wei, and Zhu (2014) to the analysis of global value chains. Their decomposition equation shows that the gross exports from economy *s* to economy *r*, at sector levels, can be completely decomposed into the sum of 16 detailed terms in eight major categories. The economic interpretations of the terms of the equation are provided in Figure 4.6.

Figure 4.6: Definition of the Terms of the WWZ Export Decomposition Equation

Term	Category	Formula	Term Description	Category Description
1	DVA_FIN	$(V^s B^{ss})^T \# Y^{sr}$	Domestic Value Added in final use commodity exports	Domestic Value Added embedded in economy s' final use commodity export to economy r
2	DVA_INT	$(V^s L^{ss})^T \# (A^{sr} B^{rr} Y^{rr})$	Domestic Value Added in intermediate exports used by direct importer to produce its domestic final use commodities and consumed there	Domestic Value Added embedded in economy s' intermediate exports used by direct importer r to produce and consume final use goods in r
3	DVA_INTrex	$(V^s L^{ss})^T \# \left(A^{sr} \sum_{t \neq s,r}^{G} B^{rt} Y^{tt} \right)$	Domestic Value Added in intermediate exports used by the direct importer to produce intermediate exports for the production of domestic final use commodities produced and consumed in third economies	Economy s' Domestic Value Added embedded in its intermediate exports used by the direct importer r to produce exports and ultimately absorbed by other economies except the source economy s
4	DVA_INTrex	$(V^s L^{ss})^T \# \left(A^{sr} B^{rr} \sum_{t \neq s,r}^{G} Y^{rt} \right)$	Domestic Value Added in intermediate exports used by the direct importer to produce final use exports to third economies	
5	DVA_INTrex	$(V^s L^{ss})^T \# \left(A^{sr} \sum_{t \neq s,r}^{G} \sum_{u \neq s,t}^{G} B^{rt} Y^{tu} \right)$	Domestic Value Added in intermediate exports used by the direct importer to produce intermediate exports to third economies	
6	RDV	$(V^s L^{ss})^T \# (A^{sr} B^{rr} Y^{rs})$	Returned Domestic Value Added in final use commodity imports from the direct importer	Domestic Value Added embedded in economy s' intermediate exports that are exported first, but return to economy s and are finally consumed at home
7	RDV	$(V^s L^{ss})^T \# \left(A^{sr} \sum_{t \neq s,r}^{G} B^{rt} Y^{ts} \right)$	Returned Domestic Value Added in final use commodity imports via third economies	
8	RDV	$(V^s L^{ss})^T \# (A^{sr} B^{rr} Y^{ss})$	Returned Domestic Value Added in intermediate imports used to produce final use commodities consumed at home	
9	DDC	$(V^s L^{ss})^T \# \left(A^{sr} \sum_{t \neq s}^{G} B^{rs} Y^{st} \right)$	Double counted Domestic Value Added used to produce final use commodity exports	Economy s' Domestic Value Added embedded in its intermediate exports to economy r but returns home as its intermediate imports, and is used for the production of its final use commodity exports that are finally absorbed abroad, which are parts of the value added in economy s' final use commodity exports and are already counted in the first category; and economy s' Domestic Value Added in its intermediate exports to economy r that returns home as intermediate imports and is used for the production of its intermediate exports. It is also a domestic double counted portion caused by the back and forth trade in intermediate goods but to produce intermediate exports of economy s (repeated counting of economy s' domestic value added in intermediate exports)
10	DDC	$(V^s B^{ss} - V^s L^{ss})^T \# (A^{sr} X^r)$	Double counted Domestic Value Added used to produce intermediate exports	
11	FVA_FIN	$(V^r B^{rs})^T \# Y^{sr}$	Direct importer's Value Added in exporting economy's final use commodity exports	The importer's (economy r) value added embedded in economy s' final use commodity exports to economy r; and the foreign value added from third economies embedded in economy s' final use commodity exports to economy r
12	FVA_FIN	$\left(\sum_{t \neq s,r}^{G} V^t B^{ts} \right)^T \# Y^{sr}$	Third economies' Value Added in exporting economy's final use commodity exports	
13	FVA_INT	$(V^r B^{rs})^T \# (A^{sr} L^{rr} Y^{rr})$	Direct importer's Value Added in exporting economy's intermediate commodity exports	The importer's (economy r) value added embedded in economy s' intermediate exports to economy r, which are then used by economy r to produce final use commodities for its own consumption; and foreign value added from third economy t embedded in economy s' intermediate exports to economy r, which are then used by economy r to produce final use commodities for its own consumption
14	FVA_INT	$\left(\sum_{t \neq s,r}^{G} V^t B^{ts} \right)^T \# (A^{sr} L^{rr} Y^{rr})$	Third economies' Value Added in exporting economy's intermediate commodity exports	
15	FDC	$(V^r B^{rs})^T \# \left(A^{sr} L^{rr} E^{r^*} \right)$	Direct importer's Value Added double-counted in home economy's exports production	Other economies' value added embedded in economy s' intermediate exports to economy r that returns home as intermediate imports and is used for the production of its intermediate and final use commodity exports; it is also a foreign double-counted portion caused by the back-and-forth trade in intermediate goods, but to produce intermediate exports of economy s (repeated counting of other economies' value added in intermediate exports).
16	FDC	$\left(\sum_{t \neq s,r}^{G} V^t B^{ts} \right)^T \# \left(A^{sr} L^{rr} E^{r^*} \right)$	Third economies' Value Added double-counted in home economy's exports production	

The first three categories—DVA_FIN, DVA_INT, and DVA_INTrex—are all domestic value added embedded in an economy's gross exports, which are ultimately consumed abroad as final use commodities. The sum of the three, termed **VAX_G** by Wang, Wei, and Zhu (2014), is a pure measure of an economy's domestic value added exports since it excludes any exported domestic value added that returns home. The fourth category, denoted **RDV_B**, is domestic value added embedded in an economy's exports of intermediate use commodities that are exported first and returned to be consumed domestically.

The sum of VAX_G and RDV_B, given as **DVA**, is the domestic value added embedded in an economy's sector level gross exports, which include value added created from all sectors in the economy contributing to the production of the sector's exports. In the System of National Accounts terms, DVA is the GDP of the sector—the column sums of the elements in the diagonal blocks of *VBY* (Figure 4.4); the DVA for the economy (its GDP) is the sum of all the elements in the relevant diagonal block of the matrix.

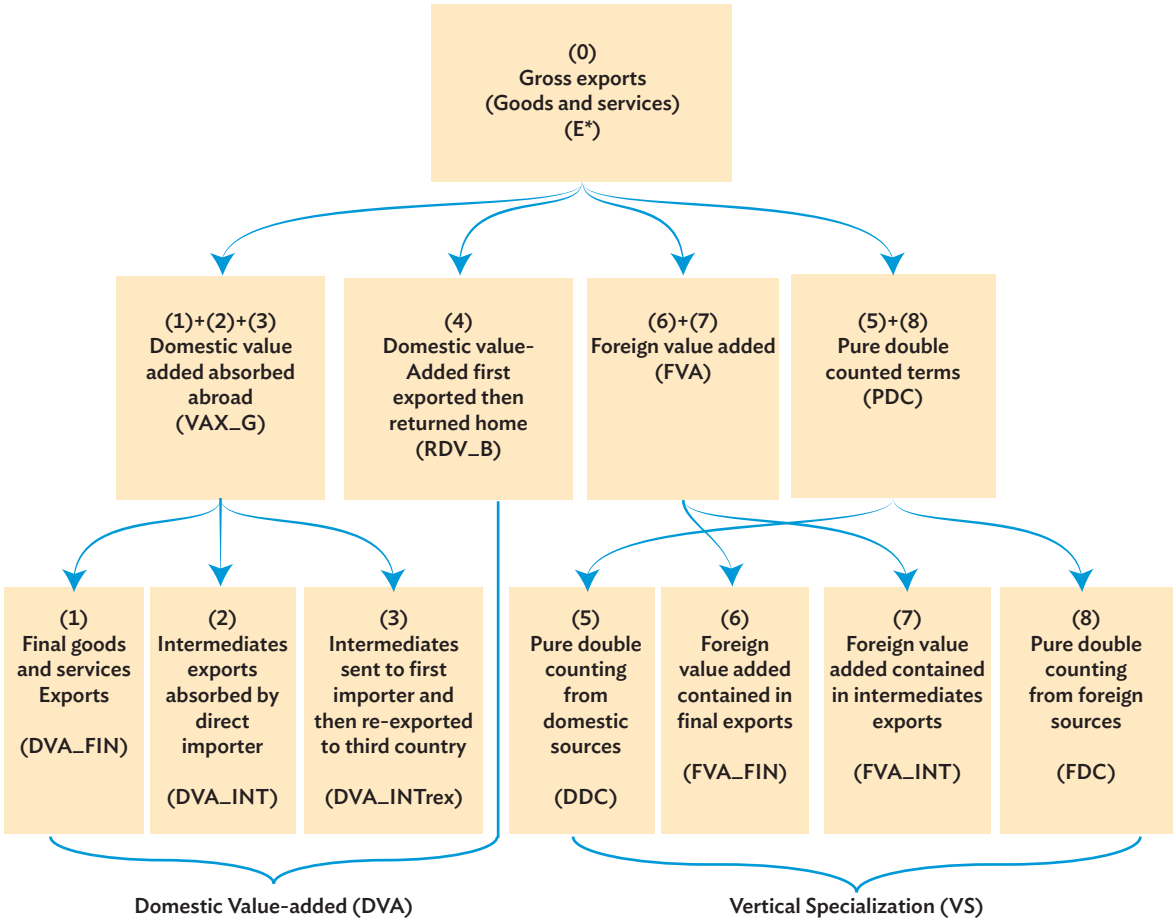
The term **DDC**, at the sector and bilateral levels, captures the portion of the domestic value added that is double-counted in the column elements of the relevant diagonal block of *VBY*. The value added is double-counted due to the back-and-forth trade in intermediates along a value chain. Hence, the longer the global value chain and the more integrated an economy is in the value chain at multiple levels, the greater the relative magnitude of the DDC component in a given sector's exports. **FVA_FIN** and **FVA_INT** measure the foreign value added embedded in an economy's exports of commodities for final and intermediate use, respectively. In *VBY,* the column sum of the relevant off diagonal block elements constitute the foreign value added. The value added by other economies embedded in the exports of a given economy that is double-counted in the gross estimation for the same reason as the DDC is captured by the term **FDC** or foreign double counted term. For an economy well integrated into a global value chain, DDC and FDC increase as the frequency of the back-and-forth trading increases. Wang, Wei, and Zhu (2014) categorize the two components as pure double-counted terms or **PDC**.

As discussed, the decomposition equation of Wang, Wei, and Zhu (2014) completely decomposes bilateral gross exports into various value added and double-counted parts, based on the territorial origin and destination of the value added. For any given sector, the sum of the components of the equation exactly equals the value of its gross exports, the relevant column sum of *VBY*. The distinctive informational advantage of this decomposition equation over the *VBY* matrix lies in its innate facility to isolate the portions of the value added that are double-counted due to the back-and-forth trade in intermediates. The export decomposition accounting framework defined by Wang, Wei, and Zhu (2014) is diagrammatically depicted in Figure 4.7.

The summation of DDC, FVA_FIN, FVA_INT, and FDC is a metric for measuring the level of integration of an economy in a global value chain; Wang, Wei, and Zhu (2014) characterize it as an extension of the measure of vertical specialization (**VS**) proposed by Hummels, Ishii, and Yi (2001).[5] Each component of VS depicts characteristic interregional, or cross-economy, production-sharing arrangements. Analyzed together, the four terms help to discern the position and contribution of a given economy-sector in various global value chains.

[5] D. Hummels, J. Ishii, and K. M. Yi. 2001. The Nature and Growth of Vertical Specialization in World Trade. *Journal of International Economics*. 54 (2001). pp. 75–96.

Figure 4.7: Conceptual Framework for Gross Trade Accounting



The value added exports of an economy can also be measured as the sum of the value added contributions of all the domestic sectors to the production of the exported commodities. For the exports of economy *s* to economy *r*, this backward-linkage-based measure, termed **VAX_B**, can be expressed as

$$VAX\_B^{sr} = (V^s B^{ss})^T \# Y^{sr} + (V^s L^{ss})^T \# (A^{sr} B^{rr} Y^{rr}) + (V^s L^{ss})^T \# \left(A^{sr} \sum_{t \neq s,r}^{G} B^{rt} Y^{tr} \right)$$

$$+ (V^s L^{ss})^T \# \left(\sum_{t \neq s,r}^{G} A^{st} B^{tt} Y^{tr} \right) + (V^s L^{ss})^T \# \left(\sum_{t \neq s,r}^{G} \sum_{u \neq s,t}^{G} A^{st} B^{tu} Y^{ur} \right)$$

where *t* and *u* are the third economy and the rest of the world, respectively. In matrix *VBY*, it is the sum of the diagonal block elements of the relevant columns, since exports E can be represented as the sum of the matrices of destination specific exports $\sum E^k$ ($k = 1..n$), as shown in Figure 4.8. Alternatively, value added exports of an economy can be measured as the sum of its value added contribution to the production of the exports of other domestic sectors. Using this forward-linkage-based measure, denoted **VAX_F**, economy *s*' exports to economy *r* can be given as

$$VAX\_F^{sr} = \hat{V}^s B^{ss} Y^{sr} + \hat{V}^s B^{sr} Y^{rr} + \hat{V}^s \sum_{t \neq s,r}^{G} B^{st} Y^{tr}$$

Figure 4.8: Value Added Decomposition of Exports

$$\hat{V}B\hat{E}$$

$$\begin{bmatrix}
v^s_1b^{ss}_{11}E^s_1 & v^s_1b^{ss}_{12}E^s_2 & v^s_1b^{ss}_{13}E^s_3 & v^s_1b^{sr}_{11}E^r_1 & v^s_1b^{sr}_{12}E^r_2 & v^s_1b^{sr}_{13}E^r_3 & v^s_1b^{st}_{11}E^t_1 & v^s_1b^{st}_{12}E^t_2 & v^s_1b^{st}_{13}E^t_3 \\
v^s_2b^{ss}_{21}E^s_1 & v^s_2b^{ss}_{22}E^s_2 & v^s_2b^{ss}_{23}E^s_3 & v^s_2b^{sr}_{21}E^r_1 & v^s_2b^{sr}_{22}E^r_2 & v^s_2b^{sr}_{23}E^r_3 & v^s_2b^{st}_{21}E^t_1 & v^s_2b^{st}_{22}E^t_2 & v^s_2b^{st}_{23}E^t_3 \\
v^s_3b^{ss}_{31}E^s_1 & v^s_3b^{ss}_{32}E^s_2 & v^s_3b^{ss}_{33}E^s_3 & v^s_3b^{sr}_{31}E^r_1 & v^s_3b^{sr}_{32}E^r_2 & v^s_3b^{sr}_{33}E^r_3 & v^s_3b^{st}_{31}E^t_1 & v^s_3b^{st}_{32}E^t_2 & v^s_3b^{st}_{33}E^t_3 \\
v^r_1b^{rs}_{11}E^s_1 & v^r_1b^{rs}_{12}E^s_2 & v^r_1b^{rs}_{13}E^s_3 & v^r_1b^{rr}_{11}E^r_1 & v^r_1b^{rr}_{12}E^r_2 & v^r_1b^{rr}_{13}E^r_3 & v^r_1b^{rt}_{11}E^t_1 & v^r_1b^{rt}_{12}E^t_2 & v^r_1b^{rt}_{13}E^t_3 \\
v^r_2b^{rs}_{21}E^s_1 & v^r_2b^{rs}_{22}E^s_2 & v^r_2b^{rs}_{23}E^s_3 & v^r_2b^{rr}_{21}E^r_1 & v^r_2b^{rr}_{22}E^r_2 & v^r_2b^{rr}_{23}E^r_3 & v^r_2b^{rt}_{21}E^t_1 & v^r_2b^{rt}_{22}E^t_2 & v^r_2b^{rt}_{23}E^t_3 \\
v^r_3b^{rs}_{31}E^s_1 & v^r_3b^{rs}_{32}E^s_2 & v^r_3b^{rs}_{33}E^s_3 & v^r_3b^{rr}_{31}E^r_1 & v_3{}^rb^{rr}_{32}E^r_2 & v^r_3b^{rr}_{33}E^r_3 & v^r_3b^{rt}_{31}E^t_1 & v^r_3b^{rt}_{32}E^t_2 & v^t_3b^{ts}_{33}E^t_3 \\
v^t_1b^{ts}_{11}E^s_1 & v^t_1b^{ts}_{12}E^s_2 & v^t_1b^{ts}_{13}E^s_3 & v^t_1b^{tr}_{11}E^r_1 & v^t_1b^{tr}_{12}E^r_2 & v^t_1b^{tr}_{13}E^r_3 & v^t_1b^{tt}_{11}E^t_1 & v^t_1b^{tt}_{12}E^t_2 & v^t_1b^{tt}_{13}E^t_3 \\
v^t_2b^{ts}_{21}E^s_1 & v^t_2b^{ts}_{22}E^s_2 & v^t_2b^{ts}_{23}E^s_3 & v^t_2b^{tr}_{21}E^r_1 & v^t_2b^{tr}_{22}E^r_2 & v^t_2b^{tr}_{23}E^r_3 & v^t_2b^{tt}_{21}E^t_1 & v^t_2b^{tt}_{22}E^t_2 & v^t_2b^{tt}_{23}E^t_3 \\
v^t_3b^{ts}_{31}E^s_1 & v^t_3b^{ts}_{32}E^s_2 & v^t_3b^{ts}_{33}E^s_3 & v^t_3b^{tr}_{31}E^r_1 & v^t_3b^{tr}_{32}E^r_2 & v^t_3b^{tr}_{33}E^r_3 & v^t_3b^{tt}_{31}E^t_1 & v_3{}^tb^{tt}_{32}E^t_2 & v^t_3b^{tt}_{33}E^t_3
\end{bmatrix} =$$

VAX_B VAX_F

$$\hat{V}B\hat{E}^s$$

$$\begin{bmatrix}
v^s_1b^{ss}_{11}E^{ss}_1 & v^s_1b^{ss}_{12}E^{ss}_2 & v^s_1b^{ss}_{13}E^{ss}_3 & v^s_1b^{sr}_{11}E^{rs}_1 & v^s_1b^{sr}_{12}E^{rs}_2 & v^s_1b^{sr}_{13}E^{rs}_3 & v^s_1b^{st}_{11}E^{ts}_1 & v^s_1b^{st}_{12}E^{ts}_2 & v^s_1b^{st}_{13}E^{ts}_3 \\
v^s_2b^{ss}_{21}E^{ss}_1 & v^s_2b^{ss}_{22}E^{ss}_2 & v^s_2b^{ss}_{23}E^{ss}_3 & v^s_2b^{sr}_{21}E^{rs}_1 & v^s_2b^{sr}_{22}E^{rs}_2 & v^s_2b^{sr}_{23}E^{rs}_3 & v^s_2b^{st}_{21}E^{ts}_1 & v^s_2b^{st}_{22}E^{ts}_2 & v^s_2b^{st}_{23}E^{ts}_3 \\
v^s_3b^{ss}_{31}E^{ss}_1 & v^s_3b^{ss}_{32}E^{ss}_2 & v^s_3b^{ss}_{33}E^{ss}_3 & v^s_3b^{sr}_{31}E^{rs}_1 & v^s_3b^{sr}_{32}E^{rs}_2 & v^s_3b^{sr}_{33}E^{rs}_3 & v^s_3b^{st}_{31}E^{ts}_1 & v^s_3b^{st}_{32}E^{ts}_2 & v^s_3b^{st}_{33}E^{ts}_3 \\
v^r_1b^{rs}_{11}E^{ss}_1 & v^r_1b^{rs}_{12}E^{ss}_2 & v^r_1b^{rs}_{13}E^{ss}_3 & v^r_1b^{rr}_{11}E^{rs}_1 & v^r_1b^{rr}_{12}E^{rs}_2 & v^r_1b^{rr}_{13}E^{rs}_3 & v^r_1b^{rt}_{11}E^{ts}_1 & v^r_1b^{rt}_{12}E^{ts}_2 & v^r_1b^{rt}_{13}E^{ts}_3 \\
v^r_2b^{rs}_{21}E^{ss}_1 & v^r_2b^{rs}_{22}E^{ss}_2 & v^r_2b^{rs}_{23}E^{ss}_3 & v^r_2b^{rr}_{21}E^{rs}_1 & v^r_2b^{rr}_{22}E^{rs}_2 & v^r_2b^{rr}_{23}E^{rs}_3 & v^r_2b^{rt}_{21}E^{ts}_1 & v^r_2b^{rt}_{22}E^{ts}_2 & v^r_2b^{rt}_{23}E^{ts}_3 \\
v^r_3b^{rs}_{31}E^{ss}_1 & v^r_3b^{rs}_{32}E^{ss}_2 & v^r_3b^{rs}_{33}E^{ss}_3 & v^r_3b^{rr}_{31}E^{rs}_1 & v_3{}^rb^{rr}_{32}E^{rs}_2 & v^r_3b^{rr}_{33}E^{rs}_3 & v^r_3b^{rt}_{31}E^{ts}_1 & v^r_3b^{rt}_{32}E^{ts}_2 & v^t_3b^{ts}_{33}E^{ts}_3 \\
v^t_1b^{ts}_{11}E^{ss}_1 & v^t_1b^{ts}_{12}E^{ss}_2 & v^t_1b^{ts}_{13}E^{ss}_3 & v^t_1b^{tr}_{11}E^{rs}_1 & v^t_1b^{tr}_{12}E^{rs}_2 & v^t_1b^{tr}_{13}E^{rs}_3 & v^t_1b^{tt}_{11}E^{ts}_1 & v^t_1b^{tt}_{12}E^{ts}_2 & v^t_1b^{tt}_{13}E^{ts}_3 \\
v^t_2b^{ts}_{21}E^{ss}_1 & v^t_2b^{ts}_{22}E^{ss}_2 & v^t_2b^{ts}_{23}E^{ss}_3 & v^t_2b^{tr}_{21}E^{rs}_1 & v^t_2b^{tr}_{22}E^{rs}_2 & v^t_2b^{tr}_{23}E^{rs}_3 & v^t_2b^{tt}_{21}E^{ts}_1 & v^t_2b^{tt}_{22}E^{ts}_2 & v^t_2b^{tt}_{23}E^{ts}_3 \\
v^t_3b^{ts}_{31}E^{ss}_1 & v^t_3b^{ts}_{32}E^{ss}_2 & v^t_3b^{ts}_{33}E^{ss}_3 & v^t_3b^{tr}_{31}E^{rs}_1 & v^t_3b^{tr}_{32}E^{rs}_2 & v^t_3b^{tr}_{33}E^{rs}_3 & v^t_3b^{tt}_{31}E^{ts}_1 & v_3{}^tb^{tt}_{32}E^{ts}_2 & v^t_3b^{tt}_{33}E^{ts}_3
\end{bmatrix} +$$

VAX_B^{ss} VAX_F^{ss}

$$\hat{V}B\hat{E}^r$$

$$\begin{bmatrix}
v^s_1b^{ss}_{11}E^{sr}_1 & v^s_1b^{ss}_{12}E^{sr}_2 & v^s_1b^{ss}_{13}E^{sr}_3 & v^s_1b^{sr}_{11}E^{rr}_1 & v^s_1b^{sr}_{12}E^{rr}_2 & v^s_1b^{sr}_{13}E^{rr}_3 & v^s_1b^{st}_{11}E^{tr}_1 & v^s_1b^{st}_{12}E^{tr}_2 & v^s_1b^{st}_{13}E^{tr}_3 \\
v^s_2b^{ss}_{21}E^{sr}_1 & v^s_2b^{ss}_{22}E^{sr}_2 & v^s_2b^{ss}_{23}E^{sr}_3 & v^s_2b^{sr}_{21}E^{rr}_1 & v^s_2b^{sr}_{22}E^{rr}_2 & v^s_2b^{sr}_{23}E^{rr}_3 & v^s_2b^{st}_{21}E^{tr}_1 & v^s_2b^{st}_{22}E^{tr}_2 & v^s_2b^{st}_{23}E^{tr}_3 \\
v^s_3b^{ss}_{31}E^{sr}_1 & v^s_3b^{ss}_{32}E^{sr}_2 & v^s_3b^{ss}_{33}E^{sr}_3 & v^s_3b^{sr}_{31}E^{rr}_1 & v^s_3b^{sr}_{32}E^{rr}_2 & v^s_3b^{sr}_{33}E^{rr}_3 & v^s_3b^{st}_{31}E^{tr}_1 & v^s_3b^{st}_{32}E^{tr}_2 & v^s_3b^{st}_{33}E^{tr}_3 \\
v^r_1b^{rs}_{11}E^{sr}_1 & v^r_1b^{rs}_{12}E^{sr}_2 & v^r_1b^{rs}_{13}E^{sr}_3 & v^r_1b^{rr}_{11}E^{rr}_1 & v^r_1b^{rr}_{12}E^{rr}_2 & v^r_1b^{rr}_{13}E^{rr}_3 & v^r_1b^{rt}_{11}E^{tr}_1 & v^r_1b^{rt}_{12}E^{tr}_2 & v^r_1b^{rt}_{13}E^{tr}_3 \\
v^r_2b^{rs}_{21}E^{sr}_1 & v^r_2b^{rs}_{22}E^{sr}_2 & v^r_2b^{rs}_{23}E^{sr}_3 & v^r_2b^{rr}_{21}E^{rr}_1 & v^r_2b^{rr}_{22}E^{rr}_2 & v^r_2b^{rr}_{23}E^{rr}_3 & v^r_2b^{rt}_{21}E^{tr}_1 & v^r_2b^{rt}_{22}E^{tr}_2 & v^r_2b^{rt}_{23}E^{tr}_3 \\
v^r_3b^{rs}_{31}E^{sr}_1 & v^r_3b^{rs}_{32}E^{sr}_2 & v^r_3b^{rs}_{33}E^{sr}_3 & v^r_3b^{rr}_{31}E^{rr}_1 & v_3{}^rb^{rr}_{32}E^{rr}_2 & v^r_3b^{rr}_{33}E^{rr}_3 & v^r_3b^{rt}_{31}E^{tr}_1 & v^r_3b^{rt}_{32}E^{tr}_2 & v^t_3b^{ts}_{33}E^{tr}_3 \\
v^t_1b^{ts}_{11}E^{sr}_1 & v^t_1b^{ts}_{12}E^{sr}_2 & v^t_1b^{ts}_{13}E^{sr}_3 & v^t_1b^{tr}_{11}E^{rr}_1 & v^t_1b^{tr}_{12}E^{rr}_2 & v^t_1b^{tr}_{13}E^{rr}_3 & v^t_1b^{tt}_{11}E^{tr}_1 & v^t_1b^{tt}_{12}E^{tr}_2 & v^t_1b^{tt}_{13}E^{tr}_3 \\
v^t_2b^{ts}_{21}E^{sr}_1 & v^t_2b^{ts}_{22}E^{sr}_2 & v^t_2b^{ts}_{23}E^{sr}_3 & v^t_2b^{tr}_{21}E^{rr}_1 & v^t_2b^{tr}_{22}E^{rr}_2 & v^t_2b^{tr}_{23}E^{rr}_3 & v^t_2b^{tt}_{21}E^{tr}_1 & v^t_2b^{tt}_{22}E^{tr}_2 & v^t_2b^{tt}_{23}E^{tr}_3 \\
v^t_3b^{ts}_{31}E^{sr}_1 & v^t_3b^{ts}_{32}E^{sr}_2 & v^t_3b^{ts}_{33}E^{sr}_3 & v^t_3b^{tr}_{31}E^{rr}_1 & v^t_3b^{tr}_{32}E^{rr}_2 & v^t_3b^{tr}_{33}E^{rr}_3 & v^t_3b^{tt}_{31}E^{tr}_1 & v_3{}^tb^{tt}_{32}E^{tr}_2 & v^t_3b^{tt}_{33}E^{tr}_3
\end{bmatrix} +$$

VAX_B^{sr} VAX_F^{sr}

$$\hat{V}B\hat{E}^t$$

$$\begin{bmatrix}
v^s_1b^{ss}_{11}E^{st}_1 & v^s_1b^{ss}_{12}E^{st}_2 & v^s_1b^{ss}_{13}E^{st}_3 & v^s_1b^{sr}_{11}E^{rt}_1 & v^s_1b^{sr}_{12}E^{rt}_2 & v^s_1b^{sr}_{13}E^{rt}_3 & v^s_1b^{st}_{11}E^{tt}_1 & v^s_1b^{st}_{12}E^{tt}_2 & v^s_1b^{st}_{13}E^{tt}_3 \\
v^s_2b^{ss}_{21}E^{st}_1 & v^s_2b^{ss}_{22}E^{st}_2 & v^s_2b^{ss}_{23}E^{st}_3 & v^s_2b^{sr}_{21}E^{rt}_1 & v^s_2b^{sr}_{22}E^{rt}_2 & v^s_2b^{sr}_{23}E^{rt}_3 & v^s_2b^{st}_{21}E^{tt}_1 & v^s_2b^{st}_{22}E^{tt}_2 & v^s_2b^{st}_{23}E^{tt}_3 \\
v^s_3b^{ss}_{31}E^{st}_1 & v^s_3b^{ss}_{32}E^{st}_2 & v^s_3b^{ss}_{33}E^{st}_3 & v^s_3b^{sr}_{31}E^{rt}_1 & v^s_3b^{sr}_{32}E^{rt}_2 & v^s_3b^{sr}_{33}E^{rt}_3 & v^s_3b^{st}_{31}E^{tt}_1 & v^s_3b^{st}_{32}E^{tt}_2 & v^s_3b^{st}_{33}E^{tt}_3 \\
v^r_1b^{rs}_{11}E^{st}_1 & v^r_1b^{rs}_{12}E^{st}_2 & v^r_1b^{rs}_{13}E^{st}_3 & v^r_1b^{rr}_{11}E^{rt}_1 & v^r_1b^{rr}_{12}E^{rt}_2 & v^r_1b^{rr}_{13}E^{rt}_3 & v^r_1b^{rt}_{11}E^{tt}_1 & v^r_1b^{rt}_{12}E^{tt}_2 & v^r_1b^{rt}_{13}E^{tt}_3 \\
v^r_2b^{rs}_{21}E^{st}_1 & v^r_2b^{rs}_{22}E^{st}_2 & v^r_2b^{rs}_{23}E^{st}_3 & v^r_2b^{rr}_{21}E^{rt}_1 & v^r_2b^{rr}_{22}E^{rt}_2 & v^r_2b^{rr}_{23}E^{rt}_3 & v^r_2b^{rt}_{21}E^{tt}_1 & v^r_2b^{rt}_{22}E^{tt}_2 & v^r_2b^{rt}_{23}E^{tt}_3 \\
v^r_3b^{rs}_{31}E^{st}_1 & v^r_3b^{rs}_{32}E^{st}_2 & v^r_3b^{rs}_{33}E^{st}_3 & v^r_3b^{rr}_{31}E^{rt}_1 & v_3{}^rb^{rr}_{32}E^{rt}_2 & v^r_3b^{rr}_{33}E^{rt}_3 & v^r_3b^{rt}_{31}E^{tt}_1 & v^r_3b^{rt}_{32}E^{tt}_2 & v^t_3b^{ts}_{33}E^{tt}_3 \\
v^t_1b^{ts}_{11}E^{st}_1 & v^t_1b^{ts}_{12}E^{st}_2 & v^t_1b^{ts}_{13}E^{st}_3 & v^t_1b^{tr}_{11}E^{rt}_1 & v^t_1b^{tr}_{12}E^{rt}_2 & v^t_1b^{tr}_{13}E^{rt}_3 & v^t_1b^{tt}_{11}E^{tt}_1 & v^t_1b^{tt}_{12}E^{tt}_2 & v^t_1b^{tt}_{13}E^{tt}_3 \\
v^t_2b^{ts}_{21}E^{st}_1 & v^t_2b^{ts}_{22}E^{st}_2 & v^t_2b^{ts}_{23}E^{st}_3 & v^t_2b^{tr}_{21}E^{rt}_1 & v^t_2b^{tr}_{22}E^{rt}_2 & v^t_2b^{tr}_{23}E^{rt}_3 & v^t_2b^{tt}_{21}E^{tt}_1 & v^t_2b^{tt}_{22}E^{tt}_2 & v^t_2b^{tt}_{23}E^{tt}_3 \\
v^t_3b^{ts}_{31}E^{st}_1 & v^t_3b^{ts}_{32}E^{st}_2 & v^t_3b^{ts}_{33}E^{st}_3 & v^t_3b^{tr}_{31}E^{rt}_1 & v^t_3b^{tr}_{32}E^{rt}_2 & v^t_3b^{tr}_{33}E^{rt}_3 & v^t_3b^{tt}_{31}E^{tt}_1 & v_3{}^tb^{tt}_{32}E^{tt}_2 & v^t_3b^{tt}_{33}E^{tt}_3
\end{bmatrix}$$

VAX_Bst VAX_Fst

where $\hat{V}^s$ is an N by N diagonal matrix with direct value added coefficients of economy *s* V^s along the diagonal. To situate VAX_F in the context of *VBY*, it is the sum of the diagonal block elements of the relevant rows.

A number of observations can be made about the VAX terms. In a multi-economy world at the bilateral sector level, VAX_G, VAX_F, and VAX_B are not expected to be equal to each other due to compositional differences. However, they are all the same at the aggregate economy level. VAX_F and VAX_B are equal at the bilateral aggregate level. At the bilateral sector level, VAX_G is equal to VAX_B: VAX_G is always less than or equal to gross exports and VAX_B is always less than or equal to gross exports.

Direct value added exports at the sector level are the same for all three measures (the intersection of VAX_B and VAX_F in Figure 4.8; at the level of disaggregation depicted, VAX_B is equal to VAX_G); the terms related to indirect value added trade are the differentiating factors. Further, since forward-linkage measures count a sector's value added contributions to the production of other sectors' exports as its value added exports, VAX_F could diverge considerably from gross exports proportionate to the extent that the sector's output is used in other sectors' production processes. Likewise, at the bilateral level, due to the indirect productive and trade linkages discussed earlier, two economies can have a disproportionately large volume of value added trade between them compared with gross trade.

In the context of analyzing trade through value added measures, an economy's revealed comparative advantage (**RCA**) in a sector should also be redefined. Conventionally, the RCA of an economy in a given sector is calculated as the share of that economy-sector's gross exports in the economy's total gross exports relative to that sector's gross exports from all economies as a share of the global total gross exports. It is given as

$$RCA_i^r = \frac{(e_i^{r*} / \sum_{i=1}^{n} e_i^{r*})}{(\sum_t^G e_i^{t*}) / \sum_i^n \sum_t^G e_i^{t*})}$$

where $e^{r*}{}_i$ is the export of commodity *i* by economy *r* (*i = 1,..,n*) and *t* is an economy in the world (*t = 1,..,G*). A ratio of greater than 1 indicates that an economy has an RCA in that sector.

However, as pointed out by Wang, Wei, and Zhu (2014), the traditional RCA measure does not take into account domestic and international production-sharing arrangements. Hence, the estimate of the exports of a sector does not include any measure of the indirect exports of its value added through other sectors' gross exports, while foreign value added and the value added of other domestic sectors embedded in the exports are not discounted. Essentially, the traditional RCA estimate related to a sector cannot be construed as a pure measure of an economy-sector's comparative advantage.

Wang, Wei, and Zhu (2014) propose a new method for estimating RCA based on the exports of value added attributable to a given sector of an economy. It is defined as

$$RCA_i^r = \frac{(dvix\_f_i^r / \sum_{i=1}^{n} dvix\_f_i^r)}{(\sum_t^G dvix\_f_i^t) / \sum_i^n \sum_t^G dvix_i^t)}$$

where $dvix\_f'_i$ is the sector's forward-linkage-based domestic value added embedded in the exports of the economy.

This subsection describes a framework for estimating, presenting, and analyzing trade statistics in purely value added terms. The measures defined provide an in-depth quantitative insight into the phenomenon of international production sharing. A number of estimates produced by applying the framework to relevant datasets are provided in Tables 4.1a–4.5k. The results are discussed in detail in the next subsection.

Empirical Results from the Application of the Framework

Applying the framework detailed above to the World Input–Output Database augmented by the Asian Development Bank (ADB) with the economic input–output transactions data on five additional Asian economies for the years 2000, 2005, and 2011, statistics were developed for a number of key indicator variables to principally assess the level of participation or integration of the economies in global value chains. The primary objective is not to compare and contrast the results from applying traditional methods with those from applying value added methods to analyze data related to trade, but rather to present a preliminary set of statistics derived using a cutting edge analytical method on a database established primarily for research purposes. In keeping with the presentation style and conventions of the *Key Indicators for Asia and the Pacific* publication, the estimates are presented in a time series to trace the evolution of the metrics of interest over time. The estimates and analyses are provided for 11 Asian economies: Bangladesh; the People's Republic of China (PRC); India; Indonesia; Japan; the Republic of Korea; Malaysia; the Philippines; Taipei,China; Thailand; and Viet Nam. Future issues of the publication will include relevant statistics for more ADB regional member economies. For the purpose of this analysis, the industrial sectors have been aggregated into five categories: (i) primary, (ii) low technology, (iii) high and medium technology, (iv) business services, and (v) personal services. Details of the composition of these categories are provided in Figure 4.9.

Tables 4.1a–4.1e decompose the gross exports of the aggregated sectors into four major components: (i) domestic value added that is absorbed abroad (VAX-G), (ii) a backward-linkage-based measure of domestic value added that is initially exported but eventually returned home (RDV_B), (iii) foreign value added (FVA), and (iv) pure double-counted terms (PDC).

The statistics show that, between 2000 and 2011, the exports of the primary sector for all the economies were principally composed of value added domestically. This is largely due to the nature of the industries in the primary sector that produce basic commodities using natural resources, labor and, increasingly, heavy machinery. The opportunities for fragmenting and distributing the production processes are rather limited in this sector. However, the proportion of foreign content in exports increased markedly for Bangladesh; Japan; the Republic of Korea; and Taipei,China; implying a trend toward specialization in the primary sector in these economies. While in India, Indonesia, and the Philippines, the production chains were as highly concentrated domestically in 2011 as they were in 2000, other economies increased their participation in global value chains. Japan, in particular, seemed to have not only gotten more vertically integrated, but also to have moved up the value chains rather significantly, as indicated by the magnitude and change of the PDC term. The size of Japan's PDC also points to its primary sector participating in more sophisticated, highly fragmented, and increasingly distributed production chains in which a commodity in development enters an economy more than once as part of the production process. Although for the PRC, India, and the Republic of Korea the PDC ratios were relatively

Figure 4.9: Sector Aggregation

	Sectors at the Level Used By World Input-Output Database	ERDI Aggregation Level 1	ERDI Aggregation Level 2
1	Agriculture, Hunting, Forestry, and Fishing	Primary	Primary
2	Mining and Quarrying	Primary	Primary
3	Food, Beverages, and Tobacco	Low tech	Low tech
4	Textiles and Textile Products	Low tech	Low tech
5	Leather, Leather, and Footwear	Low tech	Low tech
6	Wood and Products of Wood and Cork	Low tech	Low tech
7	Pulp, Paper, Paper, Printing, and Publishing	Low tech	Low tech
8	Coke, Refined Petroleum, and Nuclear Fuel	high and medium tech	high and medium tech
9	Chemicals and Chemical Products	high and medium tech	high and medium tech
10	Rubber and Plastics	Low tech	Low tech
11	Other Non-Metallic Mineral	high and medium tech	high and medium tech
12	Basic Metals and Fabricated Metal	high and medium tech	high and medium tech
13	Machinery, Nec	high and medium tech	high and medium tech
14	Electrical and Optical Equipment	high and medium tech	high and medium tech
15	Transport Equipment	high and medium tech	high and medium tech
16	Manufacturing, Nec; Recycling	Low tech	Low tech
17	Electricity, Gas, and Water Supply	Utilities	Low tech
18	Construction	Construction	Low tech
19	Sale, Maintenance, and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	Trade and repair services	Business service
20	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	Trade and repair services	Business service
21	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	Trade and repair services	Business service
22	Hotels and Restaurants	Tourism	Business service
23	Inland Transport	Transport Services	Business service
24	Water Transport	Transport Services	Business service
25	Air Transport	Transport Services	Business service
26	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	Transport Services	Business service
27	Post and Telecommunications	ICT services	Business service
28	Financial Intermediation	Finance and Insurance Services	Business service
29	Real Estate Activities	Property services	Business service
30	Renting of Machinery and Equipment; Other Business Activities	Property services	Business service
31	Public Administration and Defense; Compulsory Social Security	Public and welfare services	Personal service
32	Education	Public and welfare services	Personal service
33	Health and Social Work	Public and welfare services	Personal service
34	Other Community, Social, and Personal Services	Public and welfare services	Personal service
35	Private Households with Employed Persons	Services provided by private households	Personal service

ERDI = Development Indicators and Policy Research Division, ICT = information and communications technology.

low in 2011, they increased significantly since 2000 and, given the size of these economies, the change should be interpreted as the result of increasing vertical specialization in value chains by large enterprises in the primary sector. The domestic value added returned to the PRC, India, and Indonesia increased notably, meaning that a growing proportion of commodities imported for intermediate and final use contained components developed or processed by the economy at an earlier or higher stage in the production process.

In the low technology sector, the most striking development during the period was the dramatically increasing level of offshoring along the production chains in India, as indicated by the proportion of FVA. This could largely be attributed to the realization of economic liberalization reforms enacted in the 1990s. The reverse was the trend in Malaysia, with the proportion of domestic value added increasing during the period, pointing to growing concentration domestically of the supply chains. Japan; the Republic of Korea; and Taipei,China continued the offshoring trend, implying that they were becoming more and more specialized in specific portions of supply chains. These economies were also increasing their participation in more sophisticated value chains as evidenced by the levels and positive changes in PDC. Even in India PDC increased, signifying the trend toward participating in more distributed production processes by major enterprises in the sector. Based on the very low proportions of the RDV in all economies, it could be inferred that most of the intermediate exports did not return to the exporting economies for eventual final consumption after further

processing abroad. It is evident that the value chains were still primarily domestic for Bangladesh, the PRC, Japan, Indonesia, and the Philippines.

As far as the industries in the medium and high technology sector are concerned, Japan; the Republic of Korea; and Taipei,China continued to specialize in specific processes in the value chains and offshore other activities—a trend characterized by decreasing VAX_G and increasing FVA. As evidenced by the rise in the PDC ratios over the years, these economies also increased their participation in multiple, yet not sequential, stages of the value chains. It is noteworthy that Malaysia, Thailand, and Viet Nam all expanded the domestic medium and high technology industries as seen by the evolution of the VAX_G ratio. Indonesia and India showed some, yet less dramatic, progress in expanding the domestic sector. The PRC experienced a change in the trend during the period: while its domestic value added declined between 2000 and 2005, it increased after 2005, indicating that, while due to its participation in the sector's global value chains the PRC's domestic share decreased initially, from 2005 onward the economy expanded its medium and high technology sector by increasingly domesticating upstream portions of the production processes. The declines seen in Bangladesh and the Philippines' VAX_G were largely due to their sector continuing to specialize in specific segments of the production process. Just as in the case of the low technology sector, the RDV ratios were very low for this sector, indicating that in these two sectors the economies were concentrating proportionately more on the stages at the lower end of the production chains. In terms of PDC, the ratios of all the economies for the medium and high technology sector were significantly higher than the corresponding ratios for the low technology sector. This is largely due to the fact that far greater fragmentation and distribution of the production processes is possible in the former sector than in the latter.

Value chains in the business services category were highly concentrated domestically, as evidenced by the high VAX_G ratios in all economies, since by their nature most of the service commodities require immediacy between producers and consumers. However, due to the increasing adaptation of information communications and technology (ICT) facilities by the economies and the technological advancements made during the decade, the fragmentation and distribution of the production processes related to the service commodities became increasingly possible. For example, for the delivery of legal services related to a civil dispute in Japan, the initial consultation and investigation takes place in Japan, legal research is conducted in India, communications with the legal system in Japan is handled by the service provider's office in Singapore, and legal representation is provided in Japan; all of these activities fall within the gambit of legal services whose final delivery is in Japan by a Japanese law firm. Further, a significant portion of intermediate goods (e.g., gasoline) used in the production of an exported service (e.g., air transportation) may have to be imported, thereby increasing the import content of exports. The developed economies—Japan; the Republic of Korea; and Taipei,China—all saw decreasing VAX_G ratios and increasing FVA ratios, reflecting their ability to fragment the production process of the service commodities and offshore specific stages for efficiency or other economic considerations. Indonesia, Malaysia, the Philippines, and Viet Nam more or less increased their VAX_G shares largely due to the growing use of domestically produced intermediates in service commodity production processes. The PDC ratios related to the PRC; the Republic of Korea; and Taipei,China rose; signifying increasing fragmentation and cross-economy specialization in their service production processes. The changes seen in Bangladesh's ratios were largely due to very small exports in the business services sector by a few enterprises (especially those in the ICT industries) that were starting to specialize in certain stages in

the production process. RDV ratios were very small for all economies, indicating most of the value chains for service commodities had largely domesticated the last stages of production, although the PRC showed some significant ratios due to, for example, the export of services such as the renting of machinery and equipment to foreign mining and quarrying firms, a portion of whose products shipped to the PRC are finally consumed there (e.g., copper).

Industries in the personal services category were also quite concentrated domestically, as shown by the high VAX_G ratios for all the economies. The proportions were generally stable for almost all the economies since the level of fragmentation that could be achieved in the production processes of these commodities (e.g., services provided by the government) is rather low. The decreases seen in Japan; the Republic of Korea; and Taipei,China were largely due to growth in the use of foreign-made intermediates (e.g., gasoline) in the production process and, to a lesser extent, due to fragmentation of the production process (e.g., offshoring of administrative work related to the delivery of education services and health care services). The increasing VAX_G and decreasing FVA in Malaysia were due to declining reliance on imported commodities in the production processes of personal services. The changes in Bangladesh were, again, largely due to a small export sector increasing its reliance on imported intermediates. That service sectors in economies such as Thailand and Malaysia became integrated into global value chains early on was evidenced by the high ratios seen in FVA since 2000, which were brought about by the sector relying markedly on imported intermediates in its production processes. As far as the PDC terms are concerned, the rather significant ratios seen for the PRC were due to certain exported services being used in the production of intermediate imports. For example, the domestic value added in health care services provided by a PRC-based enterprise to workers of foreign-based enterprises (e.g., mining companies), whose products are imported to the PRC for further processing and export to another economy, will be double-counted and captured by DDC (and PDC). Likewise, the foreign value added in the imported pharmaceuticals used in the delivery of health care services will also be double-counted and captured by PDC through the FDC component. The size of the PDC ratio for the PRC for both types of services signifies the economy's increasing contribution to global commodity production processes through its direct and indirect provision of intermediate services to the international market. The significant PDC ratio exhibited by India was to a large extent due to services, provided by private households' with employed persons, that could probably have been categorized under business services if more details on the economy's informal sector were available.

Tables 4.2a and 4.2b show the economy-sector specific gross exports as estimated from the database for the years 2000, 2005, and 2011. Estimates of domestic value added exports calculated by backward linkages (DVA_B) and value added exports estimated by forward (VAX_F) and backward (VAX_B) linkages are also displayed. Gross exports estimates are higher than DVA_B estimates due to the foreign value added embedded in them. As noted earlier in subsection 5, estimates by DVA_B will be higher than VAX_B due to the RDV and DDC embedded in DVA_B. Estimates based on backward linkages contain the sector's value added and those of all the upstream domestic sectors that are suppliers of intermediates to the sector in consideration. Hence, all the differences seen between estimates of exports by gross value, DVA_B, and VAX_B in all the sectors for the economies can be explained by the corresponding analysis related to the statistics in Tables 4.1a–4.1e. VAX_F estimates the value added of the sector in consideration exported through itself and also through other sectors downstream that use the sector's output as intermediates. Thus, VAX_F could be either higher or lower than the other metrics.

An important derivation from Tables 4.2a–4.2e is the ratio of VAX_F to gross exports (Table 4.2f). The more a sector's value added is exported indirectly through the exports of other sectors, the higher the ratio will be. In the primary sector, the ratio was greater than 100% for all economies except Taipei,China and Viet Nam. Analysis of the detailed input–output data indicates that in these economies the outputs of the primary sector were not widely used as intermediates in the production processes of other domestic sectors that export significantly. The ratios declined in India, Indonesia, Japan and Thailand over the years due to a proportionate shift toward servicing increasing domestic demand for intermediate and final commodities of the primary and other sectors. While in Bangladesh, the Republic of Korea, Malaysia, and the Philippines, the output of the sector was used increasingly as intermediates by exporting sectors. In the PRC, the growth was quite significant.

In the low technology sector, the ratio of VAX_F to gross exports was (sometimes significantly) lower than 100% in all economies except Japan. Analysis of the detailed data shows that the output of the low technology sector was not widely used as intermediates by the exporting sectors in these economies. The commodities produced by the low technology sector were more likely to be exported by these economies as commodities for final use. In the medium and high technology sector every economy except for Bangladesh had ratios significantly lower than 100%. Due to the relatively lower position in the value chain occupied by the high technology sector in these economies, the commodities it produces were less likely to be used as intermediates in other sectors' production processes and more likely to be exported as final commodities. Bangladesh's high technology sector had very small direct exports; however, due to its contribution to the production processes of the textile sector, which exports in high volumes, the ratio was quite high.

Gross estimates of exports of the service sectors were generally lower than the VAX_F estimates since the outputs of service sectors were likely to be used quite extensively by other sectors, including those producing goods commodities for exports. The value added of the service sectors is embedded in the exports of all these sectors that use them as intermediates in their production processes. Therefore, a ratio of greater than 100% is generally expected. In Bangladesh, the higher proportions were due to the very small direct exports of the service sector and significant indirect value added exports of the textile sector. The ratio for business services declined in India during the review period as the sector started to allocate proportionately more output toward domestic consumption and away from exports to meet growing domestic demand for intermediate and final commodities. The less-than-100% ratios seen in some economies for other services is due to the weight of the service commodities that are less likely to be intermediate inputs of other sectors, such as health care services, within the overall services sector of these economies.

Tables 4.3a–4.3c show RCA estimated by the forward-linkage-based method proposed by Wang, Wei, and Zhu (2014). The statistics are provided at a more detailed level of sector classification. As a note on data issues, the sector "households with employed persons" is more likely to include a high proportion of the informal sector in economies like Bangladesh and India, and a significant portion of its output, to be correct, should be allocated to other more specific sectors as per the characteristics of the components of the output. Otherwise, this sector is likely to show a very high level of RCA for these economies since the largest economies in the world such as the United States and Germany are most likely to have only extremely small household sectors that export. Hence, we exclude this sector from further analysis.

Analysis of the estimates shows that in 2000 India had a significant advantage in agriculture, textiles, and leather products, and, to a lesser extent, in consumer goods manufacturing and retail trade. By 2005, the advantage in the first three sectors had decreased and the advantage in the consumer goods manufacturing had started to increase. In 2011, consumer goods manufacturing—which includes industries such as the manufacturing of jewelry, toys, and miscellaneous household items—was clearly where India had the comparative advantage. Agriculture still had an edge, although much diminished from 2000. As per the RCA information, India would benefit significantly by orienting its economic policies toward capitalizing on the advantage enjoyed by this sector. The PRC's greatest advantages were in textiles, leather products, and agriculture in 2000. It is noteworthy that the PRC's advantages (i.e., proportions greater than 1) were somewhat more widely distributed than in India. By 2011, the PRC had retained an advantage in many sectors and acquired an advantage in a number of others, especially in manufacturing. India markedly increased its advantage in ICT, financial intermediation, and rental and leasing of machinery and equipment sectors. Although the PRC's ratios in agriculture, textiles, and leather products had declined by 2011, it still retained a significant advantage in the latter two.

By 2011, Indonesia's RCA in sectors such as mining, textiles, leather products, wood products, and petroleum manufacturing had declined rather significantly even though it still retained its advantages in these sectors. That its advantage in the food, beverages, and tobacco sector increased is noteworthy for economic policy formulation purposes. Although the Republic of Korea's advantage in transportation services, textiles, and petroleum manufacturing declined during the decade, its advantage in manufacturing sectors, especially high technology, increased. Japan generally retained its edge in many sectors and increased it in a number of others such as water transportation services and transport equipment manufacturing. Bangladesh had further augmented its already dominant position in textiles by 2011, and more or less held its advantage in leather products and agriculture. Although Bangladesh displayed significant advantages in retail trade and inland transportation sectors, the trend is more due to these sectors' linkages to the textile sector than to increase in direct exports. Malaysia's RCA in agriculture and rubber manufacturing held steady through the decade, although it declined in manufacturing sectors such as wood products and electrical and optical equipment, and in the distributive trade sector, mainly retail trade. The economy gained a notable edge in public administration, ICT, financial intermediation, petroleum, and other non-metallic mineral manufacturing.

The Philippines maintained its RCA in agriculture and utilities, but lost its edge in manufacturing sectors like textiles, leather products, wood products, petroleum, and other manufacturing. However, it gained or increased its advantage significantly in manufacturing sectors like food and non-metallic mineral, and in service sectors such as retail trade, tourism, ICT, and the renting of machinery and equipment. During the review period, Thailand generally maintained or increased its advantage in agriculture, rubber and plastics, and high technology manufacturing, and in transportation and health care services. However, it experienced a declining or losing trend in a number of manufacturing sectors especially textiles and leather products. Viet Nam continued to hold a dominant position in agriculture and tourism, while increasing, or gaining, significant advantages in textiles, non-metallic manufacturing, construction, retail trade, and financial intermediation. However, it experienced a loss of or decline in advantage in a number of manufacturing sectors, especially food, leather products, and wood products. It also lost its advantage in the ICT sector. Taipei,China generally retained or augmented its advantage in manufacturing sectors such as petroleum, electrical equipment, and chemicals; in distributive trades; and in air transport, tourism, and real estate. The economy lost comparative edge in health care services, financial intermediation, textiles, and consumer goods manufacturing.

The vertical specialization (VS) ratios for the 11 economies are shown in Tables 4.4a–4.4c. The measure can be used to gauge the depth and pattern of cross-economy production sharing. The components of the VS metric facilitate the identification and quantification of the major factors of the globalization of the production processes of any given sector.

From the results presented, it can be discerned that in all 11 Asian economies the major industrial sectors (especially manufacturing) were, to varying degrees, vertically integrated into global value chains. Even in services, and in primary sectors like agriculture, there were some levels of integration into global value chains. Notably, in 2011, the VS ratios were in the double-digits for all manufacturing industries. The information discerned from the data point toward the globalized nature of modern day production processes. However, during the review period, the level of VS did not uniformly increase across the board for all economies. Especially in Indonesia, Malaysia, Thailand, the Philippines, and Viet Nam, the VS ratio declined for many sectors. An analysis of the detailed data indicates that this decline was attributable to increased domestication of additional stages of the value chains, meaning that producers were increasingly looking internally to local suppliers for inputs; stages downstream in the production process, which used to be located abroad, were being set up in the economies. However, the PRC and India saw an increase in the VS ratio in most sectors. In India, the growth was largely due to the increasing realization of the benefits of economic liberalization programs and the opening up of the economy. In the PRC, various sectors' attempts to move up the value chains and reap the benefits of international product sharing by strategically specializing in stages where they had the most efficiency advantages contributed to the increase in the VS ratios. The upward trends seen in sectors in Japan; the Republic of Korea; and Taipei,China were largely due not only to their moving up the value chains, but also to their increased participation in deep and sophisticated value chains. These are analyzed further in the context some economy-specific data presented in Tables 4.5a–4.5k.

As shown in Table 5a, by 2011, the most vertically integrated sector in India was consumer goods manufacturing with a VS ratio of 53%. This was largely due to the level of foreign value added in its exports of final goods (72% of the ratio) indicating that this sector in India was more likely to be situated toward the lower end of the relevant global value chains. On the other hand, some enterprises in the rubber and plastics manufacturing sector, which had a relatively lower VS ratio of 20%, were more likely to be situated higher in the global value chain since the sector's VS ratio was mostly comprised FVA_INT (49%) and PDC (28%). The magnitude of the latter number also points to greater participation in a longer and deeper production chain by these enterprises with the intermediates entering and leaving India for further processing a number of times. Table 5b provides the breakdown for five sectors in the PRC. The VS ratios in these sectors were driven increasingly by trade in intermediates; further, the back-and-forth trade in intermediates given by high values of PDC shows the sectors' participation in deep global value chains and fragmented and globally distributed production processes. It is noteworthy that all these were in manufacturing and were characterized by generally increasing PDC terms. In Japan; the Republic of Korea; and Taipei,China; the most vertically specialized was the petroleum sector due to the expected high proportion of FVA_INT inherent in primary intermediate crude oil. The magnitudes of the PDC term also allude to the sector in the three economies being at a higher position in the values chains characterized by cross-economy production processes. The degrees of specialization of the consumer goods manufacturing sector of Indonesia and Bangladesh were driven generally by foreign value added embedded in imports of final use commodities and intermediates, which get integrated in the back-and- forth trading processes. In Malaysia, the most vertically integrated sector was transport equipment manufacturing; it can be discerned from the data that, during the review period, the driver of the VS ratio of this sector changed from imports of commodities for final use to imports of intermediates, enabling Malaysia to move up the value

chain from its position in 2000. The VS ratio of the electrical and optical equipment manufacturing sector in the Philippines was driven mainly by imports of intermediates and the back-and-forth trade; however, since 2000 the sector has moved down the value chain, with an increase in the proportion of the imports of final use commodities and a decrease in the PDC ratio. In Viet Nam and Thailand, the basic metal and fabricated metal manufacturing industry was vertically specialized through trade in intermediates and its high level of participation in cross-economy production processes; the magnitudes of the FVA_INT and PDC terms indicate that the sector was positioned near the top of the relevant value chains.

Issues and Challenges

While the facility of a cutting edge framework is readily available for the decomposition and analysis of trade data, the singular challenge in realizing the full potential of the analytical tool described here is the limited or non-availability of relevant data in the required form. It was established earlier in this section that for a complete exploration of the value chains and the quantification of international production-sharing arrangements the essential base required is the international or interregional IOTs, which are compiled by interlinking economy-specific IOTs through bilateral trade flows. Given that the IOTs are designed to depict the complete set of economic transaction flows encompassing production, consumption, and income (value) generation, the range of themes on which data are required is quite wide; further, detailed inter-sectoral transactional information are required to represent the production structures of various sectors. Commodity level information on bilateral trade is essential to situate an economy's IOT in an international setting. Relevant data from several sources such as surveys, censuses, and administrative records need to be extracted to compile the tables.

However, the existence of significant gaps in the statistical system of several economies hampers or precludes the construction of IOTs even at the basic economy level. Thus, many developing economies either do not produce the tables or produce them intermittently (often at intervals of several years). As such, the set of building blocks required to construct an IOT at the global level is far from complete. Efforts were made by the Organisation for Economic Co-Operation and Development (OECD) and Groningen University to compile international IOTs with partial success; the datasets produced, the World Input–Output Database and the OECD input–output database, cover only a few Asian economies in addition to facing quality and granularity challenges. These issues preclude a fuller analysis and compromise the relevance of the results produced by applying the decomposition framework to the two databases. Thus, a concerted economic data development initiative is needed at the regional or global level to produce data and discern quantitative information in order to facilitate research and evidenced-based economic policy making.

ADB Initiatives Related to Global Value Chain Analysis

Recognizing the criticality of accurate, relevant, and timely information on the working of the highly interconnected global economy, ADB has been undertaking a number of statistical capacity building and data development initiatives, including those related to constructing SUTs and IOTs. Developing member economies are also being provided assistance in producing these datasets, even in non-benchmark years, by applying advanced estimation techniques so that there is an uninterrupted flow of important economic information to researchers and policy makers. Further, an effort to produce more Asia-focused IOTs—by articulating the transactional details of regional member economies—is well under way. Since the information gathered or produced are comprehensively verified and approved by national statistical offices with assistance

from experts in the field, there is an inherent mechanism in the data-production process to ensure the quality, relevance, and usability of the information produced. ADB has produced a value added exports database that will be updated and enhanced frequently with relevant current and additional information. ADB has also taken initiatives to collaborate with research institutions and other multilateral organizations to facilitate and promote the production and analysis of data on global value chains.

Summary

The trend over the last 2 decades toward globalizing productive processes in order to reap the benefits of location-specific efficiencies, and also for strategic considerations, has resulted in exponential growth in trade in intermediates, including service commodities. Traditional gross trade presentations and analyses of the international movement of goods and services have proven to be inadequate to capture the essence of the phenomenon of international production sharing. To fill the gap in the suite of information it presents to stakeholders, ADB has embarked on a major initiative to produce statistics that are specifically geared toward addressing research and policy issues stemming from the increasing interconnectedness of the global economy by collaborating with national statistical offices and multilateral organizations in data compilation and production processes, and by utilizing cutting edge computational and analytical methodologies to study critical elements and trends in modern day economic transactions. As part of this initiative, a section related to value added statistics has been introduced in the 2015 edition of ADB's flagship publication, *Key Indicators for Asia and the Pacific*. More theme- and issue-specific analyses will also be produced to address current topics. It is recommended that the additional information presented herein be used in complementarity with traditional statistics on production and trade.

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PART V
Definitions

This part contains the definitions of the indicators for the Millennium Development Goals (MDGs) and Regional Trends and Tables. The definitions are taken mostly from the Asian Development Bank's *Development Indicators Reference Manual,* including websites and publications of international and private organizations such as the Food and Agriculture Organization of the United Nations (FAO); International Labour Organization (ILO); International Monetary Fund (IMF); International Telecommunication Union (ITU); The Joint United Nations Programme on HIV/AIDS (UNAIDS); Organisation for Economic Co-operation and Development (OECD); Transparency International; United Nations Children's Fund (UNICEF); United Nations Educational, Scientific and Cultural Organization (UNESCO); United Nations Population Division (UNPD); United Nations Statistics Division (UNSD); World Bank; World Health Organization (WHO); and United Nations World Tourism Organization (UNWTO). The indicators for the MDGs are arranged according to their respective goals and targets before they are defined, while the indicators for the Regional Trends and Tables are grouped according to their themes and subtopics before they are defined. In many instances, the indicators themselves, rather than their growth rates or ratios to another indicator, are defined.

Millennium Development Goals

Goals and Targets	Indicators for Monitoring Progress	Definition
Goal 1: Eradicate extreme poverty and hunger		
Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1.1 Proportion of population below $1 (PPP) per day	Proportion of the population living on less than $1.25 a day, measured at 2005 international prices, adjusted for purchasing power parity (PPP). PPP conversion factor for private consumption, is the number of units of a country's currency required to buy the same amount of goods and services in the domestic market as a US dollar would buy in the United States.
	1.2 Poverty gap ratio	Mean shortfall of the total population from the poverty line (counting the nonpoor as having zero shortfall), expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence.
	1.3 Share of poorest quintile in national consumption	Percentage share of consumption or income that accrues to the poorest fifth (bottom quintile) of the population.
Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of gross domestic product (GDP) per person employed	Growth rate of output per unit of labor input. Output is measured as "value added", which is the total production value minus the value of intermediate inputs, such as raw materials, semi-finished products, services purchased, and energy inputs. Value added, called "GDP" in the national accounts, represents the compensation for input of services from capital (including depreciation) and labor directly engaged in the production. Labor input is defined as persons employed.
	1.5 Employment-to-population ratio	Proportion of a country's working-age population that is employed. Employment is defined as persons above a specified age who performed any work at all, in the reference period, for pay or profit (or pay in kind), or were temporarily absent from a job for such reasons as illness, maternity or parental leave, holiday, training, or industrial dispute. Unpaid family workers who work for at least 1 hour should be included in the count of employment, although many countries use a higher hour limit in their definition. For most countries, the working-age population is defined as persons aged 15 years and older, although this may vary slightly from country to country.
	1.6 Proportion of employed people living below $1 (PPP) per day	Share of individuals who are employed, but nonetheless live in a household whose members are estimated to be living below the international poverty line of $1.25 a day, measured at 2005 international prices, adjusted for PPP.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
	1.7 Proportion of own-account and contributing family workers in total employment	Own-account workers are workers who, working on their own account or with one or more partners, hold the type of jobs defined as self-employment jobs (i.e., remuneration is directly dependent upon the profits derived from the goods and services produced), and have not engaged on a continuous basis any employee to work for them during the reference period. Contributing family workers, also known as unpaid family workers, are workers who are self-employed, as own-account workers in a market-oriented establishment operated by a related person living in the same household.
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under five years of age	Percentage of children aged 0–59 months whose weight for age are less than two standard deviations below the median weight for age of the international reference population. The international reference population, often referred to as the NCHS/WHO reference population, was formulated by the National Center for Health Statistics (NCHS) as a reference for the United States and later adopted by the World Health Organization (WHO). The NCHS/WHO reference standard represents the distribution of height and weight by age and sex in a well-nourished population. In a well-nourished population, 2.3% of children fall below minus two standard deviations. Percentage of children under 5 years old that are underweight = (number of children under age 5 that fall below minus two standard deviations from the median weight for age of the NCHS/WHO standard [moderate and severe])*100/ total number of children under age 5 that were weighted.
	1.9 Proportion of population below minimum level of dietary energy consumption	Percentage of the population that is undernourished or food-deprived, whose food intake falls below the minimum level of dietary energy requirements.
Goal 2: Achieve universal primary education		
Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrollment ratio in primary education	Number of children of official primary school age (according to International Standard Classification of Education [ISCED97]) who are enrolled in primary education as a percentage of the total children of the official primary school age population. Total net primary enrollment rate also includes children of primary school age enrolled in secondary education. Where more than one system of primary education exists within the country, the most widespread or common structure is used for determining the official school age group.
	2.2 Proportion of pupils starting grade 1 who reach last grade of primary	Percentage of a cohort of pupils enrolled in grade 1 of the primary level of education in a given school year who are expected to reach the last grade of primary school, regardless of repetition. Primary education is defined by ISCED97 as programs normally designed on a unit or project basis to give pupils a sound basic education in reading, writing, and mathematics along with an elementary understanding of other subjects such as history, geography, natural science, social science, art, and music.
	2.3 Literacy rate of 15–24-year-olds, women and men	Percentage of the population aged 15–24 years who can both read and write with understanding a short, simple statement on everyday life.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
Goal 3: Promote gender equality and empower women		
Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	3.1 Ratio of girls to boys in primary, secondary, and tertiary education	Ratio of the number of female students enrolled at primary, secondary, and tertiary levels of education to the number of male students in each level. To standardize the effects of the population structure of the appropriate age groups, the gender parity index (GPI) of the gross enrollment ratio (GER) for each level of education is used. The GER is the number of pupils enrolled in a given level of education, regardless of age, expressed as a percentage of the population in the theoretical age group for the same level of education.
	3.2 Share of women in wage employment in the nonagricultural sector	Number of women in nonagricultural paid employment divided by the total number of persons in paid employment in the nonagricultural sector. It is expressed as a percentage of total wage employment in that same sector.
	3.3 Proportion of seats held by women in national parliament	Number of seats held by women members in single or lower chambers of national parliaments, expressed as a percentage of all occupied seats. National parliaments can be bicameral or unicameral. This indicator covers the single chamber in unicameral parliaments and the lower chamber in bicameral parliaments. It does not cover the upper chamber of bicameral parliaments. Seats are usually won by members in general parliamentary elections. Seats may also be filled by nomination, appointment, indirect election, rotation of members, and by election. Seats refer to the number of parliamentary mandates or the number of members of parliament.
Goal 4: Reduce child mortality		
Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	4.1 Under-five mortality rate	Probability (expressed as a rate per 1,000 live births) of a child born in a specified year, dying before reaching the age of 5, if subject to current age-specific mortality rates.
	4.2 Infant mortality rate	Probability (expressed as a rate per 1,000 live births) of a child born in a specified year, dying before reaching the age of 1 year, if subject to current age-specific mortality rates.
	4.3 Proportion of 1-year-old children immunized against measles	Percentage of children under 1 year of age who have received at least one dose of a measles vaccine.
Goal 5: Improve maternal health		
Target 5.A: Reduce by three- quarters, between 1990 and 2015, the maternal mortality ratio	5.1 Maternal mortality ratio	Ratio of the number of maternal deaths during a given time period per 100,000 live births during the same time-period. A maternal death refers to a female death from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy.
	5.2 Proportion of births attended by skilled health personnel	Percentage of deliveries attended by health personnel trained in providing life-saving obstetric care, including giving the necessary supervision, care, and advice to women during pregnancy, labor, and the postpartum period; conducting deliveries on their own; and caring for newborns. Traditional birth attendants, even if they receive a short training course, are not included.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 5.B: Achieve, by 2015, universal access to reproductive health	5.3 Contraceptive prevalence rate	Percentage of women married or in union aged 15–49 years who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used.
	5.4 Adolescent birth rate	Annual number of births to women 15–19 years of age per 1,000 women in that age group. It represents the risk of childbearing among adolescent women 15–19 years of age. Also referred to as the age-specific fertility rate for women aged 15–19 years.
	5.5 Antenatal care coverage (at least one visit and at least four visits)	For coverage of at least one visit, refers to the percentage of women aged 15–49 years with a live birth in a given time period that received antenatal care provided by a skilled health personnel (doctors, nurses, or midwives) at least once during pregnancy, as a percentage of women aged 15–49 years with a live birth in a given time period. For coverage of at least four visits, refers to the percentage of women aged 15–49 years with a live birth in a given time period that received antenatal care four or more times from any provider (whether skilled or unskilled), as a percentage of women aged 15–49 years with a live birth in a given time period.
	5.6 Unmet need for family planning	Women with unmet need are those who are fecund and sexually active women but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child. It is expressed as a percentage of women aged 15–49 years who are married or in a consensual union. The concept of unmet need points to the gap between women's reproductive intentions and their contraceptive behavior. For MDG monitoring, unmet need is expressed as a percentage based on women who are married or in a consensual union.
Goal 6: Combat HIV/AIDS, malaria, and other diseases		
Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS	6.1 HIV prevalence among population aged 15–24 years	Estimated number of persons aged 15–24 years living with Human Immunodeficiency Virus (HIV) divided by the population aged 15–24 years. HIV prevalence among population aged 15–49 years is the percentage of individuals aged 15–49 years living with HIV. HIV is a virus that weakens the immune system, ultimately leading to Acquired Immune Deficiency Syndrome (AIDS), the acquired immunodeficiency syndrome. HIV destroys the body's ability to fight off infection and disease, which can ultimately lead to death.
	6.2 Condom use at last high-risk sex aged 15–24 years	Percentage of young men and women to number of respondents aged 15–24 reporting the use of a condom during sexual intercourse with a non-cohabiting, non-marital sexual partner in the last 12 months.
	6.3 Proportion of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS	Percentage of young persons aged 15–24 years who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.
	6.4 Ratio of school attendance of orphans to school attendance of nonorphans aged 10–14 years	Ratio of the current school attendance rate of children aged 10–14 whose biological parents have died to the current school attendance rate of children aged 10–14 whose parents are still alive, and who currently live with at least one biological parent.
Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it	6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs	Percentage of adults and children with advanced HIV infection currently receiving antiretroviral therapy according to nationally approved treatment protocols (or WHO/Joint UN Programme on HIV and AIDS standards) among the estimated number of people eligible for treatment.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	6.6 Incidence and death rates associated with malaria	Incidence refers to the number of reported new cases of malaria per 100,000 people each year; death rate refers to the number of deaths caused by malaria per 100,000 people each year.
	6.7 Proportion of children under 5 years old sleeping under insecticide-treated bednets	Percentage of children aged 0–59 months who slept under an insecticide treated mosquito net the night prior to the survey.
	6.8 Proportion of children under 5 with fever who are treated with appropriate antimalarial drugs	Percentage of children aged 0–59 months with fever in the 2 weeks prior to the survey who received any antimalarial medicine.
	6.9 Incidence, prevalence, and death rates associated with tuberculosis (TB)	Incidence is the estimated number of new TB cases arising in 1 year per 100,000 population. All forms of TB are included, as are cases in people with HIV. Prevalence rate is the number of cases of TB (all forms) in a population at a given point in time (sometimes referred to as point prevalence). It is expressed as the number of cases per 100,000 population. Estimates include cases of TB in people with HIV. Death rate is the estimated number of deaths due to TB in a given time period. It is expressed as the number of deaths per 100,000 population per year. Deaths from all forms of TB are included. However, deaths in HIV positive people with TB as a contributory cause are coded under HIV chapters of ICD10 and therefore, not included in this indicator.
	6.10 Proportion of tuberculosis cases detected and cured under directly observed treatment short course (DOTS)	Case detection, as used here, means that TB is diagnosed in a patient and is reported within the national surveillance system, and then to WHO. The case detection rate is the percentage of estimated new infectious tuberculosis cases detected under the internationally recommended tuberculosis control strategy DOTS. Success rate is the proportion of new smear-positive TB cases registered under DOTS in a given year that successfully completed treatment, whether with bacteriologic evidence of success (cured) or without (treatment completed). At the end of treatment, each patient is assigned one of the following six mutually exclusive treatment outcomes: cured; completed; died; failed; defaulted; and transferred out with outcome unknown. The proportions of cases assigned to these outcomes, plus any additional cases registered for treatment but not assigned to an outcome, add up to 100% of cases registered.
Goal 7: Ensure environmental sustainability		
Target 7.A: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources	7.1 Proportion of land area covered by forest	Area of forest as a share of total land area, where land area is the total country area excluding the area of inland water bodies (major rivers, lakes, and water reservoirs). Forest is land spanning more than 0.5 hectare with trees higher than 5 meters and a canopy cover of more than 10%; or trees able to reach these thresholds *in situ*; and does not include land that is predominantly under agricultural or urban land use.
	7.2 Carbon dioxide (CO_2) emissions, total, per capita and per $1 GDP (PPP)	Estimates of total CO_2 emissions include anthropogenic emissions less removal by sinks of CO_2. The term "total" implies that emissions from all national activities are considered. The typical sectors for which CO_2 emissions/removals are estimated are energy, industrial processes, agriculture, waste, and the sector of land use, land-use change, and forestry (LULUCF). Carbon emissions per capita are measured as the total amount of CO_2 emitted by the country divided by the population of the country. CO_2 emissions per $1 GDP (PPP) are total CO_2 emissions divided by the total value of GDP expressed in PPP.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
	7.3 Consumption of ozone-depleting substances	Sum of the national annual consumption in weighted tons of the individual substances in the group of ozone-depleting substances multiplied by their ozone-depleting potential. Ozone-depleting substance is any substance containing chlorine or bromine that destroys the stratospheric layer, which absorbs most of the biologically damaging ultraviolet radiation.
	7.4 Proportion of fish stocks within safe biological limits	Percentage of fish stocks of which abundance is at or above the level that produces the maximum sustainable yield.
	7.5 Proportion of total water resources used	Proportion of total renewable water resources withdrawn is the total volume of groundwater and surface water withdrawn from their sources for human use (in the agricultural, domestic, and industrial sectors), expressed as a percentage of the total volume of water available annually through the hydrological cycle (total actual renewable water resources). Water resources and water withdrawal are terms understood as freshwater resources and freshwater withdrawal.
Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss	7.6 Proportion of terrestrial and marine areas protected	Proportion of a country's total terrestrial and marine area that is designated as a protected area. The sum of the country's terrestrial area and marine area is also referred to as territorial area. Terrestrial area includes total land area and inland waters. Marine areas, also known as territorial seas, are defined as belts of coastal waters extending at most twelve nautical miles from the coast. Protected area is an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.
	7.7 Proportion of species threatened with extinction	The indicator Changes in the Status of Species measures the change in threatened status of species in their natural habitat, based on population and range size and trends, as quantified by the categories of the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species™ (hereafter 'IUCN Red List'; http://www.redlist.org). The IUCN Red List Index (IUCN RLI) uses data from the IUCN Red List to show changes over time in the overall threat status (relative projected extinction risk) of representative sets of species. The IUCN Red List is widely recognized as the most authoritative and objective method of classifying the status of species. It uses quantitative criteria based on population size, rate of decline, and area of distribution to assign species to the following categories of relative extinction risk: Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild, Extinct, and Data Deficient (IUCN 2001).
Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	7.8 Proportion of population using an improved drinking water source	Percentage of the population who use any of the following types of water supply for drinking: piped water into dwelling, plot, or yard; public tap/standpipe; borehole/tube well; protected dug well; protected spring; rainwater collection and bottled water (if a secondary available source is also improved). It does not include unprotected well, unprotected spring, water provided by carts with small tanks/drums, tanker truck-provided water and bottled water (if secondary source is not an improved source) or surface water taken directly from rivers, ponds, streams, lakes, dams, or irrigation channels.
	7.9 Proportion of population using an improved sanitation facility	Percentage of the population with access to facilities that hygienically separate human excreta from human contact. Improved facilities include flush/pour flush toilets or latrines connected to a sewer, septic tank, or pit, ventilated improved pit latrines, pit latrines with a slab or platform of any material which covers the pit entirely, except for the drop hole and composting toilets/latrines. Unimproved facilities include public or shared facilities of an otherwise acceptable type, flush/pour-flush toilets or latrines which discharge directly into an open sewer or ditch, pit latrines without a slab, bucket latrines, hanging toilets or latrines which directly discharge in water bodies or in the open and the practice of open defecation in the bush, field, or bodies of water.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	7.10 Proportion of urban population living in slums	Proportion of urban population living in slum households defined as a group of individuals living under the same roof lacking one or more of the conditions below: • access to improved water • access to improved sanitation • sufficient living area • durability of housing • security of tenure However, since information on secure tenure is not available for most of the countries, only the first four indicators are used to define slum households, and then to estimate the proportion of urban population living in slums. Durability of housing: A house is considered "durable" if it is built on a non-hazardous location and has a structure permanent and adequate enough to protect its inhabitants from the extremes of climatic conditions, such as rain, heat, cold and humidity. Sufficient living area: A house is considered to provide a sufficient living area for the household members if not more than three people share the same habitable (minimum of four square meters) room. Secure tenure: Secure tenure is the right of all individuals and groups to effective protection by the State against arbitrary unlawful evictions. People have secure tenure when there is evidence of documentation that can be used as proof of secure tenure status or when there is either de facto or perceived protection against forced evictions.
Goal 8: Develop a global partnership for development *Some of the indicators listed below are monitored separately for the least developed countries, Africa, landlocked developing countries, and small island developing states.*		
Target 8.A: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system Includes a commitment to good governance, development, and poverty reduction—both nationally and internationally	Official Development Assistance (ODA) 8.1 Net ODA, total and to the least developed countries, as percentage of OECD/DAC donors' gross national income	Net ODA comprises grants or loans to developing countries and territories on the Organization For Economic Cooperation and Development/Development Assistance Committee (OECD/DAC) list of aid recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms. Technical cooperation is included. Grants, loans, and credits for military purposes are excluded. Also excluded are aid to more advanced developing and transition countries as determined by the DAC. Donors' gross national income (GNI) at market prices is the sum of gross primary incomes receivable by resident institutional units and sectors. GNI at market prices was called gross national product (GNP) in the 1953 System of National Accounts. In contrast to GDP, GNI is a concept of income (primary income) rather than value added.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 8.B: Address the special needs of the least developed countries Includes: tariff and quota free access for the least developed countries' exports; enhanced program of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction	8.2 Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation)	ODA comprises grants or loans to developing countries and territories on the OECD/DAC list of aid recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms. Technical cooperation is included. Grants, loans, and credits for military purposes are excluded. Also excluded are aid to more advanced developing and transition countries as determined by the DAC. Basic education comprises primary education, basic life skills for youth and adults, and early childhood education. Primary health care includes basic health care, basic health infrastructure, basic nutrition, infectious disease control, health education, and health personnel development. Population policies/programs and reproductive health includes population policy and administrative management, reproductive health care, family planning, sexually transmitted disease (STD) control including HIV/AIDS, and personnel development (population & reproductive health). Basic social services (BSS) also include basic drinking water supply and basic sanitation, and multi-sector aid for BSS. Bilateral ODA is from one country to another.
	8.3 Proportion of bilateral ODA of OECD/DAC donors that is untied	ODA comprises grants or loans to developing countries and territories on the OECD/DAC list of aid recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms. Technical cooperation is included. Grants, loans, and credits for military purposes are excluded. Also excluded are aid to more advanced developing and transition countries as determined by the DAC. Untied bilateral ODA is assistance from country to country for which the associated goods and services may be fully and freely procured in substantially all countries.
	8.4 ODA received in landlocked developing countries as a proportion of their gross national incomes	ODA comprises grants or loans to developing countries and territories on the OECD/DAC list of ODA recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms. Technical cooperation is included. Grants, loans, and credits for military purposes are excluded. Also excluded are aid to more advanced developing and transition countries as determined by the DAC. Recipient countries' GNI at market prices is the sum of gross primary incomes receivable by resident institutional units and sectors. GNI at market prices was called GNP in the 1953 System of National Accounts. In contrast to GDP, GNI is a concept of income (primary income) rather than value added.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 8.C: Address the special needs of landlocked developing countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly)	8.5 ODA received in small island developing States as a proportion of their gross national incomes	ODA comprises grants or loans to developing countries and territories on the OECD/DAC list of aid recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms. Technical cooperation is included. Grants, loans, and credits for military purposes are excluded. Also excluded are aid to more advanced developing and transition countries as determined by the DAC. Recipient countries' GNI at market prices is the sum of gross primary incomes receivable by resident institutional units and sectors. GNI at market prices was called gross national product in the 1953 System of National Accounts. In contrast to gross domestic product, GNI is a concept of income (primary income) rather than value added.
	Market Access 8.6 Proportion of total developed country imports (by value and excluding arms) from developing countries and least developed countries, admitted free of duty	Proportion of duty free imports (excluding arms) into developed countries from developing and least developed countries.
	8.7 Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries	Average tariffs imposed by developed countries on subsets of selected items (agricultural products, textile, and clothing exports) that are deemed to be of interest to developing countries. Average tariffs are the simple average of all applied ad valorem tariffs (tariffs based on the value of the import) applicable to the bilateral imports of developed countries. Agricultural products comprise plant and animal products, including tree crops but excluding timber and fish products. Clothing and textiles include natural and synthetic fibers and fabrics and articles of clothing made from them.

continued.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 8.C: *(continued)*	8.8 Agricultural support estimate for OECD countries as a percentage of their gross domestic product	Agricultural support is the annual monetary value of all gross transfers from taxpayers and consumers, both domestic and foreign (in the form of subsidies arising from policy measures that support agriculture), net of the associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products. Total support estimate for agricultural products represents the overall taxpayer and consumer costs of agricultural policies. When expressed as a percentage of GDP, the total support estimate is an indicator of the cost to the economy as a whole.
	8.9 Proportion of ODA provided to help build trade capacity	ODA comprises grants or loans to developing countries and territories on the OECD/DAC list of aid recipients that are undertaken by the official sector with promotion of economic development and welfare as the main objective and at concessional financial terms (if a loan, having a grant element of at least 25 percent). Technical cooperation is included. Grants, loans, and credits for military purposes are excluded. Also excluded is aid to more advanced developing and transition countries as determined by DAC. Activities to help build trade capacity enhance the ability of the recipient country: • To formulate and implement a trade development strategy and create an enabling environment for increasing the volume and value-added of exports, diversifying export products and markets, and increasing foreign investment to generate jobs and trade; • To stimulate trade by domestic firms and encourage investment in trade-oriented industries; and • To participate in the benefit from the institutions, negotiations and processes that shape national trade policy and the rules and practices of international commerce. Those activities are further classified by the First Joint WTO/OECD Report on Trade-Related Technical Assistance and Capacity-Building (2002) under two main categories: trade policy and regulations (divided into nineteen subcategories) and trade development (divided into six subcategories). • Donors differ in defining what constitutes a single "activity". Some donors split individual activities into components in order to obtain detailed data on aid allocated to each subcategory. Others classify the whole activity under the most relevant subcategory. For some donors, the number of records in the database is larger than the actual number of activities. • In the Joint Report by the World Trade Organization and the Organisation for Economic Co-operation and Development, the data are based on the actual number of activities.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 8.D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	Debt Sustainability 8.10 Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative)	The indicator is the number of heavily indebted poor countries that have qualified for HIPC initiative assistance and that have reached their decision (or completion) point under the enhanced HIPC initiative. Countries reach HIPC decision point if they have a track record of macroeconomic stability, have prepared an Interim Poverty Reduction Strategy through a participatory process, and have cleared or reached an agreement on a process to clear the outstanding arrears to multilateral creditors. The amount of debt relief necessary to bring countries' debt indicators to HIPC thresholds is calculated, and countries begin receiving debt relief. Countries reach HIPC completion point if they maintain macroeconomic stability under a Poverty Reduction and Growth Facility-supported program, successfully complete key structural and social reforms agreed on at the decision point, and implement satisfactorily the Poverty Reduction Strategy for one year. The country then receives the bulk of debt relief under the HIPC initiative without any further policy conditions.
	8.11 Debt relief committed under HIPC and Multilateral Debt Relief Initiative (MDRI) Initiatives	Debt relief is committed under the HIPC Initiative when a country reaches its decision point. It is calculated as the amount needed to bring the net present value (NPV) of the country's debt level to the thresholds established by the HIPC Initiative (150% of exports, or in certain cases 250% of fiscal revenues). MDRI assistance is the net present value of debt relief from four multilateral agencies—the International Development Association, IMF, African Development Fund, and Inter-American Development Bank—delivered in full to countries having reached the completion point under the enhanced HIPC Initiative.
	8.12 Debt service as a percentage of exports of goods and services	Debt service is the sum of principle repayments and interest payments made to non-residents in foreign currency, goods, or services. This series differs from the standard debt to exports ratios. It covers only long-term public and publicly guaranteed debt and repayments (repurchases and charges) to the IMF. Long-term refers to debt that has an original or extended maturity of more than one year. IMF repurchases are total repayments of outstanding drawings from the general resources account during the year specified, excluding repayments due in the reserve tranche. Exports of goods, services, and income are the sum of goods (merchandise) exports, exports of (nonfactor) services, and income (factor) receipts and do not include workers' remittances.
Target 8.E: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries	8.13 Proportion of population with access to affordable essential drugs on a sustainable basis	Percentage of population that has access to a minimum of 20 most essential drugs.

Goals and Targets	Indicators for Monitoring Progress	Definition
Target 8.F: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	8.14 Fixed-telephone subscriptions per 100 inhabitants	This indicator is defined as the number of fixed-telephone subscriptions per 100 inhabitants. Fixed-telephone subscriptions refers to the sum of active number of analogue fixed-telephone lines, voice-over-IP (VoIP) subscriptions, fixed wireless local loop (WLL) subscriptions, integrated services digital network (ISDN) voice-channel equivalents, and fixed public payphones.
	8.15 Mobile-cellular subscriptions per 100 inhabitants	This indicator is defined as the number of mobile-cellular telephone subscriptions per 100 inhabitants. Mobile-cellular telephone subscriptions refers to the number of subscriptions to a public mobile-telephone service that provide access to the PSTN using cellular technology. The indicator includes the number of postpaid subscriptions and the number of active prepaid accounts (i.e. that have been used during the last three months). The indicator applies to all mobile-cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging, and telemetry services.
	8.16 Internet users per 100 inhabitants	This indicator is defined as the number of individuals using the internet per 100 inhabitants. The internet is a world-wide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer - it may also be by mobile-cellular telephone, other wireless devices, games machine, digital TV etc.). Access can be via a fixed or mobile network. Individuals using the Internet refers to those that used the Internet in the last 12 months from any location. As of 2013, the definition has been updated and the reference period is the last three months instead of 12. While some countries already used the narrower reference period in the past, most countries may still take some time to adhere to the new reference period. Data are based on surveys generally carried out by national statistical offices or estimated based on the number of Internet subscriptions.

Regional Trends and Tables

Indicator	Definition
PEOPLE	
Population	
Midyear Population	Estimates of the midyear de facto population. De facto population includes all persons physically present in the country during the census day, including foreign, military, and diplomatic personnel and their accompanying household members; and transient foreign visitors in the country or in harbors.
Growth Rates in Population	Number of people added to (or subtracted from) a population over a given period of time because of natural increase and net migration expressed as a percentage of the population at the given period of time.
Net International Migration Rate	Number of immigrants minus the specified number of emigrants over a period, divided by the person-years lived by the population of the receiving country over that period. It is expressed as net number of migrants per 1,000 population.
Urban Population	Population living in urban areas, defined in accordance with the national definition or as used in the most recent population census. Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between urban and rural populations is not amenable to a single definition that would be applicable to all countries. National definitions are most commonly based on size of locality. Population that is not urban is considered rural.
Urban population (as % of total population)	The estimated population living in urban areas at midyear as a percentage of the total midyear population in a country.
Age Dependency Ratio	Ratio of the nonworking-age population to the working-age population. Since countries define working age differently, a straightforward application of the definition will lead to noncomparable data. ADB therefore uses the following UN definition that can be computed directly from an age distribution: $\frac{\text{Population aged (0–14) + (65 and over) years} \times 100}{\text{Population aged (15–64) years}}$
Labor Force and Employment	
Labor Force Participation Rate	Percentage of the labor force to the working-age population. The labor force is the sum of those employed and unemployed seeking work. The labor force participation rate measures the extent of economically active working-age population in an economy. It provides an indication of the relative size of the supply of labor available for the production of goods and services in the economy. It must be noted that definition of working-age population varies across countries.
Unemployment Rate	Percentage of unemployed to the labor force. Unemployed are persons without work but available and actively seeking it. This is probably the best known labor market measure. Together with the employment rate, it provides the broadest indicator of the status of the country's labor market. It must be noted that definition of unemployed varies across countries for some of them do not consider availability to work as part of the definition.
Unemployment Rate of 15–24-Year-Olds	Number of unemployed people aged 15–24 years divided by the labor force of the same age group.
Employment in Agriculture	Employment in agriculture that corresponds to division 1 (International Standard of Industrial Classification [ISIC] revision 2), tabulation categories A and B (ISIC revision 3), and category A of ISIC revision 4; includes hunting, forestry, and fishing.
Employment in Industry	Employment in industry that corresponds to divisions 2–5 (ISIC revision 2), tabulation categories C-F (ISIC revision 3), or tabulation categories B-F (ISIC revision 4), and includes mining and quarrying (including oil production); manufacturing; construction; and public utilities (electricity, gas, and water).
Employment in Services	Employment in services that corresponds to divisions 6–9 (ISIC revision 2), tabulation categories G–P (ISIC revision 3), or tabulation categories G–U (ISIC revision 4) and includes wholesale and retail trade and hotels and restaurants; transport, storage, and communications; financing, insurance, real estate, and business services; and community, social, and personal services.
Poverty Indicators	
Proportion of Population below $2 (PPP) a day	Percentage of the population living on less than $2 a day at 2005 international prices.
Income Ratio of Highest 20% to Lowest 20%	Income or consumption share that accrues to the richest 20% of the population divided by the income share of the lowest 20% of the population.

continued.

Indicator	Definition
Gini Coefficient/Index	Measure of the degree to which an economy's income distribution diverges from perfect equal distribution. A value of zero (0) implies perfect equality while a value of one (1) implies perfect inequality.
Human Development Index	Composite index of longevity (measured by life expectancy at birth), knowledge (measured by expected years of schooling and mean years of schooling), and decent standard of living (measured by the adjusted per capita income in PPP US$).
Social Indicators	
Life Expectancy at Birth	Number of years that a newborn is expected to live if prevailing patterns of mortality at the time of his/her birth are to stay the same throughout his/her life.
Crude Birth Rate	Ratio of the total number of live births in a given period to the midyear total population of the same period, expressed per 1,000 people.
Crude Death Rate	Ratio of the number of deaths occurring within a given period to the midyear total population of the same period, expressed per 1,000 people.
Total Fertility Rate	Number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates.
Primary Education Completion Rate	Total number of new entrants in the last grade of primary education, regardless of age, expressed as percentage of the total population of the theoretical entrance age to the last grade of primary. This indicator is also known as "gross intake rate to the last grade of primary." The ratio can exceed 100% due to over-aged and under-aged children who enter primary school late/early and/or repeat grades.
Adult Literacy Rate	The percentage of population aged 15 years and over who can both read and write with understanding a short simple statement on his/her everyday life. Generally, literacy also encompasses numeracy, the ability to make simple arithmetic calculations.
Primary Pupil–Teacher Ratio	Average number of pupils (students) per teacher at the primary level of education in a given school year. This indicator is used to measure the level of human resources input in terms of number of teachers in relation to the size of the primary pupil population.
Secondary Pupil–Teacher Ratio	Average number of pupils (students) per teacher at the secondary level of education in a given school year. This indicator is used to measure the level of human resources input in terms of number of teachers in relation to the size of the secondary pupil population.
Physicians	Physicians, including generalist and specialist medical practitioners, expressed in terms of 1,000 people.
Hospital Beds	In-patient beds for both acute and chronic care available in public, private, general, and specialized hospitals and rehabilitation centers expressed in terms of 1,000 people.
Number of Adults Living with HIV	All adults, defined as men and women aged 15 and over years old, with HIV infection, whether or not they have developed symptoms of AIDS.
ECONOMY AND OUTPUT	
National Accounts	
Gross Domestic Product	Unduplicated market value of the total production activity of all resident producer units within the economic territory of a country during a given period. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Transfer payments are excluded from the calculation of GDP. GDP can be computed using the production, expenditure, and income approaches. Production-based GDP is the sum of the gross value added by all resident producers in the economy plus any taxes and minus any subsidies not included in the value of the products. Gross value added is the net output of an industry after adding up all outputs and subtracting intermediate inputs. Income-based GDP is the sum of the compensation of employees, mixed income, operating surplus, consumption of fixed capital, and taxes less subsidies on production and imports. Expenditure-based GDP is the sum of household (or private) consumption expenditure, general government consumption expenditure, gross fixed capital formation, changes in inventories, and exports minus imports of goods and services. GDP can be measured at current prices (i.e., the prices of the current reporting period) and constant prices, which are obtained by expressing values in terms of a base period.
GDP at PPP	Measures obtained by using PPP to convert the GDP into a common currency, and by valuing them at a uniform price level. They are the spatial equivalent of a time series of GDP for a single country expressed at constant prices. At the level of GDP, they are used to compare the economic size of countries.

continued.

Indicator	Definition
GDP per Capita at PPP	GDP at PPP divided by the midyear population.
GNI per Capita, Atlas Method	The gross national income (formerly GNP per capita) converted to US dollars using the World Bank Atlas method, divided by the midyear population. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. GNI, calculated in national currency, is usually converted to US dollars at official exchange rates for comparisons across economies, although an alternative rate is used when the official exchange rate is judged to diverge by an exceptionally large margin from the rate actually applied in international transactions. To smooth fluctuations in prices and exchange rates, a special Atlas method of conversion is used by the World Bank. This applies a conversion factor that averages the exchange rate for a given year and the two preceding years, adjusted for differences in rates of inflation between the country, and the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States).
Agriculture Value Added	The gross output of agriculture less the corresponding value of intermediate consumption. The industrial origin of value added is determined by ISIC revision 4 where agriculture corresponds to ISIC Section A and includes agriculture, forestry, and fishing.
Industry Value Added	The gross output of industry sectors less the corresponding value of intermediate consumption. The industrial origin of value added is determined by ISIC revision 4 where industry corresponds to ISIC Section B-F and includes mining and quarrying (B); manufacturing (C); electricity, gas, steam, and air conditioning supply (D); water supply, sewerage, waste management, and remediation activities (E); and construction (F).
Services Value Added	The gross output of services sectors less the corresponding value of intermediate consumption. The industrial origin of value added is determined by ISIC revision 4. Services corresponds to ISIC Sections G-U and includes among others, wholesale and retail trade; transport and storage; accommodation and food service activities; financial and insurance activities; real estate, and professional and technical services.
Household Consumption Expenditure	Market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased or received as income in kind by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. The expenditure of nonprofit institutions serving households is also recorded as the consumption of households.
Government Consumption Expenditure	Includes all current outlays on purchases of goods and services (including wages and salaries). It also includes most expenditure on national defense and security, but excludes government military expenditures that are part of public investment.
Gross Capital Formation	Total value of gross fixed capital formation, changes in inventories, and acquisitions less disposals of valuables. Gross fixed capital formation is the value of acquisitions less disposals of tangible goods such as buildings and intangible goods such as computer software that are intended for use in production during several accounting periods. Changes in inventories are changes in stocks of produced goods and goods for intermediate consumption, and the net increase in the value of work in progress. Valuables are goods such as precious metals and works of art that are acquired in the expectation that they will retain or increase their value over time.
Exports of Goods and Services	Consist of sales, barter, or gifts or grants, of goods and services from residents to nonresidents. The treatment of exports in the System of National Accounts (SNA) is generally identical with that in the balance of payments accounts as described in the Balance of Payments Manual.
Imports of Goods and Services	Consist of purchases, barter, or receipts of gifts or grants, of goods and services by residents from nonresidents. The treatment of imports in the SNA is generally identical with that in the balance of payments accounts as described in the Balance of Payments Manual.
Gross Domestic Saving	Difference between GDP and total consumption, where total consumption is the sum of household consumption expenditure and government consumption expenditure.
Production	
Agriculture Production Index	Relative level of the aggregate volume of agricultural production for each year in comparison with the base period. It is based on the sum of price-weighted quantities of different agricultural commodities produced after deductions of quantities used as seed and feed weighted in a similar manner. The resulting aggregate represents, therefore, disposable production for any use except as seed and feed.

continued.

Indicator	Definition
Manufacturing Production Index	An index covering production in manufacturing. The exact coverage, the weighting system, and the methods of calculation vary from country to country but the divergences are less important than, for example, in the case of price and wage indexes.
MONEY, FINANCE, AND PRICES	
Prices	
Consumer Price Index (CPI)	An index that measures changes in prices against a reference period of a basket of goods and services purchased by households. Based on the purpose of the CPI, different basket of goods and services can be selected. For macroeconomic purposes, a broad-based basket is used to represent the relative price movement of household final consumption expenditure.
Food Consumer Price Index	An index that measures the change over time in the general level of prices of food and non-alcoholic beverage items that households acquire, use, or pay for consumption. This is done by measuring the cost of purchasing a fixed basket of consumer food and beverage of constant quality and similar characteristics, with the products in the basket being selected to be representative of households' expenditure during a specified period.
Nonfood Consumer Price Index	An index that measures the change over time, in general level, the prices of nonfood items that household acquire, use, or pay for consumption. Nonfood index includes items such as clothing, housing and repairs, water, electricity, fuel, services, and miscellaneous goods or all items in the basket of goods and services other than food and non-alcoholic beverages.
Wholesale Price Index	A measure that reflects changes in the prices paid for goods at various stages of distribution up to the point of retail. It can include prices of raw materials for intermediate and final consumption, prices of intermediate or unfinished goods, and prices of finished goods. The goods are usually valued at purchasers' prices.
Producer Price Index	A measure of the change in the prices of goods and services either as they leave their place of production or as they enter the production process. A measure of the change in the prices received by domestic producers for their outputs or of the change in the prices paid by domestic producers for their intermediate inputs.
GDP Deflator	A measure of the annual rate of price change in the economy as a whole for the period shown obtained by dividing GDP at current prices by GDP at constant prices.
Money and Finance	
Money Supply (M2)	A measure of the money supply in an economy, with broad coverage. In the latest definition of the IMF, Broad Money includes currency in circulation outside depository corporations, deposits in depository corporations. For some countries, money-holding sectors' deposits in other depository corporations (ODCs) only are included. In other countries, some types of central bank deposits are included in broad money along with money-holding sectors' deposits in ODCs. In addition, some countries' definitions of broad money include deposits of all maturities, whereas other countries' definitions include only those deposits with maturities up to a specified maximum (up to two-year maturity, up to three-year maturity, etc.). In some countries, broad money is defined to include some types of liabilities of nonfinancial corporations. The most prevalent types are deposits in public nonfinancial corporations (typically, savings deposits in the post office) and electronic deposits issued by other nonfinancial corporations (a relatively new type of deposit account in a few countries). For some countries, broad money is defined to include central bank-issued and/or ODC-issued securities other than shares. To qualify as securities other than shares in the Monetary and Financial Statistics Manual methodology, a financial instrument must be tradable in the secondary market. If nontradable, the financial instrument usually is classified as a loan. However, if included in broad money, the nontradable financial instrument should be classified as a deposit.
Interest Rate on Savings Deposits	Rate paid by commercial and similar banks for savings deposits.
Interest Rate on Time Deposits	Rate paid by commercial and similar banks for time deposits.
Lending Interest Rate	Bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing.
Yield on Short-Term Treasury Bills	Rate at which short-term securities are issued or traded in the market.
Domestic Credit Provided by Banking Sector	Includes all credits to various sectors on a gross basis, except credit to the central government, which is net. The banking sector includes monetary authorities, deposit money banks, and other banking institutions for which data are available (including institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other banking institutions are savings and mortgage loan institutions and building and loan associations.

continued.

Indicator	Definition
Ratio of Bank Nonperforming Loans to Total Gross Loans	Value of nonperforming loans divided by the total value of the loan portfolio (including nonperforming loans before the deduction of loan loss provisions). The amount recorded as nonperforming should be the gross value of the loan as recorded in the balance sheet, not just the amount that is overdue.
Stock Market Price Index	Index that measures changes in the prices of stocks traded in the stock exchange. The price changes of the stocks are usually weighted by their market capitalization.
Stock Market Capitalization	The share price times the number of shares outstanding (also known as market value).
Exchange Rates	
Official Exchange Rate	The exchange rate determined by national authorities or the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on the monthly averages (local currency units relative to the US dollar).
Purchasing Power Parity Conversion Factor	Number of units of country B's currency that are needed in country B to purchase the same quantity of an individual good or service, which one unit of country A's currency can purchase in country A.
Price Level Index (PLI)	Ratio of the relevant PPP to the exchange rate. It is expressed as an index on a base of 100. A PLI greater than 100 means that, when the national average prices are converted at exchange rates, the resulting prices tend to be higher on average than prices in the base country (or countries) of the region (and vice versa). At the level of GDP, PLIs provide a measure of the differences in the general price levels of countries. PLIs are also referred to as comparative price levels.
GLOBALIZATION	
Balance of Payments	
Trade in Goods Balance	Difference between exports and imports of goods.
Trade in Services Balance	Difference between exports and imports of services.
Current Account Balance	Sum of net exports of goods, services, net income, and net current transfers.
Workers' Remittances and Compensation of Employees, Receipts	Consist of: (1) Current transfers from migrant workers who are residents of the host country to recipients in their country of origin. To count as resident, the workers must have been living in the host country for more than a year. (2) Compensation of employees of migrants who have lived in the host country for less than a year. (3) Migrants' transfers defined as the net worth of migrants who are expected to remain in the host country for more than 1 year that is transferred from one country to another at the time of migration.
Foreign Direct Investment	Refers to net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.
External Trade	
Merchandise Exports/Imports	Covers all movable goods, with a few specified exceptions, the ownership of which changes between a resident and a foreigner. For merchandise exports, it represents the value of the goods and related distributive services at the customs frontier of the exporting economy, i.e., the free-on-board value. Merchandise imports, on the other hand, are reported in cost, insurance, and freight values.
Trade in Goods	Sum of merchandise exports and merchandise imports.
International Reserves	
International Reserves	External assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing). Consist of monetary gold, special drawing rights holdings, reserve position in the IMF, currency and deposits, securities (including debt and equity securities), financial derivatives, and other claims (loans and other financial instruments).

continued.

Indicator	Definition
Ratio of International Reserves to Imports	International reserves outstanding at the end of the year as a ratio to imports of goods from the balance of payments during the year, where imports of goods are expressed in terms of monthly average. It is a useful measure for reserve needs of countries with limited access to capital markets.
Capital Flows	
Official Flows	Net flows of long-term public and publicly guaranteed debt from official creditors and grants, including technical cooperation grants. Public and publicly guaranteed debt from official creditors includes loans from international organizations (multilateral loans) and loans from governments (bilateral loans). Loans from international organization include loans and credits from the World Bank, regional development banks, and other multilateral and intergovernmental agencies. Excluded are loans from funds administered by an international organization on behalf of a single donor government; these are classified as loans from governments. Government loans include loans from governments and their agencies (including central banks), loans from autonomous bodies, and direct loans from official export credit agencies. Net flows (or net lending or net disbursements) received by the borrower during the year are disbursements minus principal repayments. Grants are defined as legally binding commitments that obligate a specific value of funds available for disbursement for which there is no repayment requirement. Technical cooperation grants include free-standing technical cooperation grants, which are intended to finance the transfer of technical and managerial skills or technology for the purpose of building up general national capacity without reference to any specific investment projects; and investment-related technical cooperation grants, which are provided to strengthen the capacity to execute specific investment projects.
Net Private Flows	Sum of net foreign direct investment, portfolio equity net flows, net flows of long-term public and publicly guaranteed debt from private creditors, and net flows of total private nonguaranteed debt. Foreign direct investments are the net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors. Portfolio equity includes net inflows from equity securities other than those recorded as direct investment and including shares, stocks, depository receipts (American or global), and direct purchases of shares in local stock markets by foreign investors. Public and publicly guaranteed debt from private creditors include bonds that are either publicly issued or privately placed; commercial bank loans from private banks and other private financial institutions; and other private credits from manufacturers, exporters, and other suppliers of goods, and bank credits covered by a guarantee of an export credit agency. Net flows (or net lending or net disbursements) received by the borrower during the year are disbursements minus principal repayments. For (a) Nonguaranteed long-term commercial bank loans from private banks and other private financial institutions; and (b) Nonguaranteed long-term debt from bonds that are privately placed, net flows (or net lending or net disbursements) received by the borrower during the year are disbursements minus principal repayments.
Aggregate Net Resource Flows	Sum of net official and private capital flows. Net flow is disbursements less principal repayments.
External Indebtedness	
Total External Debt	Debt owed to nonresidents repayable in foreign currency, goods, or services. It is the sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt. Short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt.
Public and Publicly Guaranteed Debt	Public and publicly guaranteed debt comprises long-term external obligations of public debtors, including the national government, political subdivisions (or an agency of either), and autonomous public bodies, and external obligations of private debtors that are guaranteed for repayment by a public entity.

continued.

Indicator	Definition
External Debt as Percent of Gross National Income	Total external debt as a percentage of GNI. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad.
External Debt as Percent of Exports of Goods, Services, and Income	Total external debt as a percentage of exports of goods, services, and income. Exports of goods, services, and income constitute the total value of exports of goods and services, receipts of compensation of nonresident workers, and investment income from abroad.
Total Debt Service Paid	The sum of principal repayments and interest actually paid in currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the IMF.
Total Debt Service Paid as Percent of Exports of Goods, Services, and Income	Total debt service as a percentage of exports of goods, services, and income.
Tourism	
International Tourist Arrivals	The number of tourists (overnight visitors) who travel to a country other than in which they usually reside, and outside their usual environment, for a period not exceeding 12 months and whose main purpose of visit is other than the activity remunerated from within the country visited. In some cases, data may also include same day visitors when data on overnight visitors are not available separately. Data refer to the number of arrivals and not to the number of persons.
International Tourism, Receipts	The receipts earned by a destination country from inbound tourism and covering all tourism receipts resulting from expenditures made by visitors from abroad. These include lodging, food and drinks, fuel, transport in the country, entertainment, shopping, etc. This concept includes receipts generated by overnight as well as by same-day trips. It excludes, however, the receipts related to international transport contracted by residents of the other countries (for instance ticket receipts from foreigners travelling with a national company).
TRANSPORT AND COMMUNICATIONS	
Transport	
Road Traffic Deaths	Death caused by a road traffic crash within 24 hours (Azerbaijan, the Federated States of Micronesia, Solomon Islands, Timor-Leste, Vanuatu); 7 days (Afghanistan, the PRC, Kiribati, Tajikistan, Viet Nam); 30 days (Australia, Bhutan, Brunei Darussalam, Cambodia, Georgia, Indonesia, Kazakhstan, the Republic of Korea, Malaysia, the Maldives, the Marshall Islands, Myanmar, New Zealand, Pakistan, Singapore, Sri Lanka); 35 days in Nepal; 1 year (Japan, the Kyrgyz Republic , the Lao People's Democratic Republic, Mongolia, Tonga); unlimited time period (Armenia, Bangladesh, Cook Islands, India, Palau, the Philippines, Thailand); no definition for other countries.
Road Network	The road network refers to the Asian Highway that consists of highway routes of international importance within Asia, including highway routes substantially crossing more than one subregion; highway routes within subregions that connected neighbouring subregions; and highway routes located within member States that provide access to: (a) capital cities; (b) main industrial and agricultural centres; (c) major air, sea, and river ports; (d) major container terminals and depots; and (e) major tourist attractions.
Motor Vehicles	Include cars, buses, freight vehicles, and two-and-three wheeled vehicles.
Container Port Traffic	Measures the flow of standard-size containers from land to sea transport modes, and vice versa, in twenty-foot equivalent units (teu). Data refers to coastal shipping as well as international trips.
Air Transport, Passengers Carried	Domestic and international aircraft passengers of air carriers registered in the country.
Air Transport, Registered Carrier Departures Worldwide	Domestic and international take offs of carrier registered in the country.
Air Transport, freight	Volume of freight, express and diplomatic bags carried on each flight stage (operation on an aircraft from take offs to its next landing), measured in metric tons in kilometers traveled.

continued.

Indicator	Definition
Rail Lines	Length of railway route available for train service (measured in kilometers), irrespective of the number of parallel tracks.
Rail Network	Length of rail lines divided by the land area (in square kilometers).
Railways, Passengers Carried	Number of passengers transported by rail in kilometers travelled.
Railways, Goods Transported	Volume of goods transported by railway, measured in metric tons in kilometers travelled.
Communications	
Fixed Telephone Lines	*Please see MDG 8.14.*
Mobile Cellular Telephone Subscriptions	*Please see MDG 8.15.*
Internet Access	*Please see MDG 8.16*
Fixed (wired) Broadband Internet Subscriptions	Subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This can include, for example, cable modem, DSL, fiber-to-the-home/building, and other fixed (wired) broadband subscriptions.
ENERGY AND ELECTRICITY	
Energy	
GDP per Unit of Energy Use	The ratio of GDP to total energy use (measured in terms of per kilogram of oil equivalent) with GDP converted to 2011 constant international dollars using PPP rates. An international dollar has the same purchasing power over GDP as a US dollar has in the United States.
Energy Production	Forms of primary energy—petroleum (crude oil, natural gas liquids, and oil from nonconventional sources); natural gas; solid fuels (coal, lignite, and other derived fuels); and combustible renewables and waste—and primary electricity, all converted into oil equivalents. Primary electricity is electricity generated by nuclear, hydro, wind, and solar power.
Energy Use	Usage of primary energy before its transformation to other end-use fuels, which is equal to indigenous production plus imports and stock changes, minus exports and fuels supplied to ships and aircraft engaged in international transport.
Energy Exports, Net	Estimated as energy exports less imports, both measured in oil equivalents.
Energy Imports, Net	Estimated as energy use less production, both measured in oil equivalents.
Electricity	
Electricity Production	Total amount of electricity generated by a power plant. It includes own-use electricity, as well as transmission and distribution losses.
Sources of Electricity	Electricity is produced as primary as well as secondary energy. Primary electricity is obtained from natural sources such as hydro, wind, solar, tide, and wave power. Secondary electricity is produced from the heat of nuclear fission of nuclear fuels, from geothermal heat and solar thermal heat, and by burning primary combustible fuels such as coal, natural gas, oil and renewables and wastes. After electricity is produced, it is distributed to final consumers through national or international transmission and distribution grids.
Electric Power Consumption Per Capita	Measure of the production of power plants and combined heat and power plants less transmission, distribution, and transformation losses and own use by heat and power plants, divided by midyear population.
Household Electrification Rate	Percentage of households with an electricity connection.
ENVIRONMENT	
Land	
Agricultural Land/Area	Land area that is arable, under permanent crops, and under permanent meadows and pastures.
Arable Land	Land under temporary agricultural crops (multiple-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow (less than 5 years). The abandoned land resulting from shifting cultivation is not included. Data for arable land are not meant to indicate the amount of land that are potentially cultivable.

continued.

Indicator	Definition
Permanent Cropland	Land cultivated with long-term crops which do not have to be replanted for several years (such as cocoa and coffee); land under trees and shrubs producing flowers, such as roses and jasmine; and nurseries (except those for forest trees, which should be classified under "forest"). Permanent meadows and pastures are excluded from land under permanent crops.
Deforestation Rate	Rate of permanent conversion of natural forest area into other uses, including shifting cultivation, permanent agriculture, ranching, settlements, and infrastructure development. Deforested areas do not include areas logged but intended for regeneration or areas degraded by fuelwood gathering, acid precipitation, or forest fires. A negative rate indicates reforestation or increase in forest area.
Pollution	
Nitrous Oxide Emissions	Emissions mainly from fossil fuel combustion, fertilizers, rainforest fires, and animal waste. It is a powerful greenhouse gas, with an estimated atmospheric lifetime of 114 years, and a per kilogram warming potential 310 times that of carbon dioxide within 100 years.
Methane Emissions	Emissions largely from agricultural activities, industrial production landfills and wastewater treatment, and other sources such as tropical forest and vegetation fires. This gas has an estimated warming potential 21 times as a kilogram of carbon within 100 years.
Other Greenhouse Gases	By-product emissions of hydrofluoro-carbons, perfluoro-carbons, and sulfur hexafluoride.
Agricultural Nitrous Oxide Emissions	Emissions produced through fertilizer use (synthetic and animal manure), animal waste management, agricultural waste burning (nonenergy, on-site), and savannah burning.
Agricultural Methane Emissions	Emissions from animals, animal waste, rice production, agricultural waste burning (nonenergy, on-site), and savannah burning.
Freshwater	
Internal renewable water resources	Internal renewable water resources (IRWR) refer to long-term average annual flow of rivers and recharge of aquifers generated from endogenous precipitation. Double counting of surface water and groundwater resources is avoided by deducting the overlap from the sum of the surface water and groundwater resources. IRWR in billion cubic meters per year refers to surface water produced internally plus groundwater produced internally deducted by the overlap between surface water and groundwater. IRWR in cubic meter per inhabitant per year is calculated as total annual internal renewable water resources divided by total population.
Annual freshwater withdrawals	Sum of surface water withdrawal and groundwater withdrawal. Total water withdrawal summed by sector deducted by: desalinated water produced, direct use of treated wastewater, and direct use of agricultural drainage water.
Water productivity	GDP in constant US$ prices divided by annual total water withdrawal.
GOVERNMENT AND GOVERNANCE	
Government Finance	
Fiscal Balance	Difference between total revenue (including grants) and total expenditure (including net lending). This provides a picture of the overall financial position of the government. When the difference is positive, then the fiscal position is in surplus; otherwise, it is in deficit.
Tax Revenue	Compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue.
Total Government Revenue	Includes current and capital revenues. Current revenue is the revenue accruing from taxes, as well as all current nontax revenues except transfers received from foreign governments and international institutions. Major items of nontax revenue include receipts from government enterprises, rents and royalties, fees and fines, forfeits, private donations, and repayments of loans properly defined as components of net lending. Capital revenue constitutes the proceeds from the sale of nonfinancial capital assets.

continued.

Indicator	Definition
Total Government Expenditure	Sum of current and capital expenditures. Current expenditure comprises purchases of goods and services by the central government, transfers to noncentral government units and to households, subsidies to producers, and interest on public debt. Capital expenditure, on the other hand, covers outlays for the acquisition or construction of capital assets and for the purchase of intangible assets, as well as capital transfers to domestic and foreign recipients. Loans and advances for capital purposes are also included.
Government Expenditure on Education	Consists of expenditure by government to provide education services at all levels.
Government Expenditure on Health	Consists of expenditure by government to provide medical products, appliances, and equipment; outpatient services; hospital services; public health services; among others.
Government Expenditure on Social Security and Welfare	Consists of expenditure by government to provide benefits in cash or in kind to persons who are sick, fully or partially disabled, of old age, survivors, or unemployed, among others.
Governance	
Cost of Business Start-Up Procedure	Cost to register a business normalized by presenting it as a percentage of GNI per capita. It includes all official fees and fees for legal or professional services if such services are required by law. Fees for purchasing and legalizing company books are included if these transactions are required by law. Although value added tax registration can be counted as a separate procedure, value added tax is not part of the incorporation cost. The company law, the commercial code, and specific regulations and fee schedules are used as sources for calculating costs. In the absence of fee schedules, a government officer's estimate is taken as an official source. In the absence of a government officer's estimate, estimates of incorporation lawyers are used. If several incorporation lawyers provide different estimates, the median reported value is applied. In all cases, the cost excludes bribes.
Time Required to Start Up a Business	Number of calendar days needed to complete the procedures to legally operate a business. If a procedure can be speeded up at additional cost, the fastest procedure, independent of cost, is chosen.
Corruption Perceptions Index	The Corruptions Perception Index ranks countries and territories based on how corrupt their public sector is perceived to be. It is a composite index–a combination of polls–drawing on corruption-related data collected by a variety of reputable institutions. The index reflects the views of observers from around the world, including experts living and working in the countries and territories evaluated. The scores range between 0 (highly corrupt) and 100 (very clean) . A country's rank indicates its position relative to the other countries/territories included in the index. It is important to keep in mind that a country's rank can change simply because new countries enter the index or others drop out.

Key Indicators for Asia and the Pacific 2015

The *Key Indicators for Asia and the Pacific 2015*, the 46th edition of this series, includes the latest available economic, financial, social, and environmental indicators for the 48 regional members of the Asian Development Bank. It presents the latest key statistics on development issues concerning the economies of Asia and the Pacific to a wide audience, including policy makers, development practitioners, government officials, researchers, students, and the general public. Part I of this issue is a special chapter—A Smarter Future: Skills, Education, and Growth in Asia. Parts II and III are composed of brief, nontechnical analyses and statistical tables on the Millennium Development Goals and eight other themes. Part IV presents key statistics and stylized facts on the phenomenon of global value chains.

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ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to the majority of the world's poor. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

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