

ECONOMIC ANALYSIS

A. Rationale for public financing of skills development

1. Sri Lanka is a middle income economy that has been growing rapidly since the civil conflict ended five years ago at an average annual growth rate of 6.5% (2009-12).¹ The GDP growth rate is expected to climb to 7.2% in 2014 with improvements in external conditions.² Sri Lanka has achieved middle income economy status with a GDP per capita of \$2,923 in 2012 with a target to achieve \$4,000 GDP per capita by 2016 (footnote 1). The *Mahinda Chintana*, which is the Sri Lankan government's vision document for the country, emphasizes the need for careful planning and implementation to achieve this target. The challenges it highlights include the need to step up investment and enhance productivity. It also describes the government strategies such as providing incentives for entrepreneurs, access to technology and credit, and assisting small and medium enterprises, which will support priority sectors in agriculture, industry, and services to help accelerate the growth rate of the economy. It emphasizes initiatives to improve the international competitiveness of Sri Lankan industries including facilitating private investment in new industrial zones and improving the efficiency of state-owned enterprises.³

2. While the economy has grown at a reasonable pace, the human development sector has also made substantial progress over the recent decades. According to the UNDP 2012 Human Development Report on Sri Lanka, it ranked higher than all SAARC countries in terms of the Human Development Index (HDI) (and 97th among 187 countries worldwide) as well as average years of schooling (8.2 years).⁴ Sri Lanka now needs to invest substantially to develop skilled labor force that is essential to achieving and sustaining the higher economic growth rates. Unlike neighboring South Asian countries, Sri Lanka has a limited window to benefit from the demographic dividend with the working age population expected to be larger than the dependent population only until 2017. This is an opportune time for enhanced and strategic public investments in skills development to benefit from the demographic dividend.

3. In Sri Lanka, while overall economic growth has been strong and unemployment is low at 4%, youth unemployment (among 15-24 year olds) remains persistently high at 17.3%.⁵ About 140,000 youth enter the labor market every year having completed no more than general secondary education and lacking job-specific technical and vocational skills.⁶ The 2011 Labor Force Survey also revealed that almost three-quarters of the unemployed did not have any vocational training.⁷ In addition, underemployment in 2012 was as high as 18%.⁸ High youth unemployment and underemployment are a drain on the economy's resources and can also have a negative impact on society. These are important reasons for the Sri Lankan public sector to finance wider access to better quality skills training to enable youth of all socio-economic backgrounds to be gainfully employed at home and abroad. Unless the economy increases its supply of skilled workers, especially at the middle skill levels, the growth goal may not be met. In fact, successful countries have historically had substantial public investment in skills

¹ Central Bank of Sri Lanka. 2013. *Economic and Social Statistics*. Colombo.

² ADB. 2013. *Asian Development Outlook*. Manila.

³ Government of Sri Lanka, 2006. *Mahinda Chintana: Vision for the Future*. Colombo.

⁴ UNDP Sri Lanka. 2012. *Sri Lanka Human Development Report*. Colombo.

⁵ Government of Sri Lanka. Department of Census and Statistics. *Labor Force Survey 2012*. Colombo.

⁶ Government of Sri Lanka. 2012. *National Human Resources and Employment Policy*. Colombo.

⁷ ADB. 2013. *Sri Lanka Country Report on TVET*. Consultant's Report. Manila (RETA-6337).

⁸ World Bank. 2013. *Sri Lanka Skills Development Report*. Washington DC.

development as a key strategy for economic growth.⁹ There are other social benefits causing positive externalities to skills development such as a skilled workforce and reducing youth unemployment that creates a critical mass of well-trained workers which aids in attracting foreign investment to accelerate growth (footnote 9).

4. There is a high share of workers who are in the informal sector in Sri Lanka, most of whom are school graduates and drop-outs without a TVET diploma or degree. The 2012 Labor Force Survey shows that 61% of those employed work in the informal sector. While it did not collect data on skills training, it does illustrate that there is an inverse relationship between the level of education and share of employment in the informal sector. Of the workers employed in the informal sector, only 22% had completed high school while 72% had completed Grades 5-9 (footnote 5). Table 1 summarizes the distribution of workers in the formal and informal sectors by level of education. Since the informal sector is associated with significantly lower wages, Sri Lanka's public sector investment in educating and skilling workers to gain employment in the formal sector would raise incomes and enable accelerated economic growth.

Table 1: Sector Employment by Level of Education

Level of Education	Employed in formal Sector	Employed in informal Sector
Below Grade 5	20.3%	79.7%
Grade 5-9	28.0%	72.0%
G.C.E. O level	51.5%	48.5%
G.C.E. A level	77.4%	22.6%
Total (all categories)	38.9%	61.1%

5. The TVET system currently does not produce enough Sri Lankan workers with the skills demanded by both domestic and foreign employers. In a survey of enterprises in Sri Lanka, the results of one of the key questions reflecting the unmet demand for good quality skilled workers was, "In your opinion, do you agree or disagree with the following statements describing the technical and vocational training education system in Sri Lanka" (footnote 8). Table 2 summarizes the results. It illustrates that about half the employers interviewed think that the TVET system in Sri Lanka does not produce enough skilled workers of adequate quality to meet their needs. This underlines the urgent need to expand reform and revitalize the TVET system.

Table 2: Enterprise Survey Results

	Agree (%)	Disagree (%)	Don't know (%)
Does not meet the skill needs of employers adequately	47	48	6
Does not produce enough people with the level of skills needed by employers	53	40	8
Does not produce enough people with the kinds of skills needed by employers	54	38	8
Does not produce enough people with the up to date knowledge of methods, materials, and technology	50	42	7
Does not produce enough people with practical skills	50	42	8
Does not produce enough people with good attitude and self-discipline	45	43	12

⁹ ADB. 2009. *Good Practice in Technical and Vocational Education and Training*. Manila.

6. Sri Lankan workers who are employed abroad can be a major source of income for the country. In 2012, about \$4 billion (7% of GDP) were remitted by Sri Lanka workers in foreign countries to their home country. In 2012 about 250,000 workers were among the over one million new emigrants from Sri Lanka to other countries (footnote 8). While in past years most emigrant workers have been unskilled, there has been a gradual increase in the demand of skilled workers in recent years. For example, in 2002, only 27% of all Sri Lankan workers employed abroad were skilled, middle level or professional. By 2012, this percentage had increased slightly to 31%.¹⁰ Increasing the supply of skilled workers from Sri Lanka could further benefit the country if more skilled workers are gainfully employed abroad.

7. Sri Lankan government investment in the medium term skills training program will help reduce the substantial inequities in the access to quality TVET programs. Workers from low income backgrounds can often not afford good quality skills training programs and this is widely cited in the literature as another important reason for public financing of TVET (footnote 9). Regional disparities in access to skills training are also wide. Low TVET enrolments occur in the poorer districts of the country due to lack of access to TVET institutions (footnote 7). In addition, compared to gender balance found in education, TVET enrollments are gender imbalanced and women are limited to a narrow range of skills that disadvantage them in the labor market. For example, female TVET participation in 2010 was 42% (footnote 9). This has repercussions for women's labor market participation which is 28.6%, substantially lower than that of men at all ages and in all districts in the country. In fact, the youth unemployment rate among women is even higher than the male youth unemployment rate and stands at 23.5%. Underemployment is also higher for women at 22% than it is for men.

8. The skills development sector in Sri Lanka needs to be modernized to ensure improved equitable access, enhanced quality, and better labor market relevance. The medium term program of the Sri Lankan government, the SSDP, aims to do this. The program's initiatives such as increasing seats in priority training sectors, expanding middle level training (NVQ 5-6) by establishing University Colleges, transforming the NVQ program to better align with market needs and priority sectors, among others, will help to lower youth unemployment rates and spur economic growth. Skills development is a public good with high investment costs (typically much higher than general education), which makes it difficult for the private sector to invest in skills development. Public-private partnerships are therefore an optimal opportunity to also maximize private sector participation. The partnerships with the private sector for provision of TVET are being enhanced and deepened in the course of the medium term program as well, enabling better public-private partnerships in skills development, particularly through the apprenticeships program. Service agreements will be signed with industry to share operational costs to strengthen public-private partnerships. This will help leverage public funds to stimulate greater private funding of skills development and maximize impact. The SSDP also includes targeted scholarship and stipend programs and focuses on reducing the socio-economic and regional inequities in availability of good-quality skills training facility highlighted earlier. The program focuses on promoting female enrolment in TVET, particularly in non-traditional sectors for females, to improve their labor force participation and employment opportunities in higher income jobs. MYASD plans to implement a gender and social equity framework as part of the program to achieve these goals.

¹⁰ Government of Sri Lanka, Tertiary and Vocational Education Commission. 2012. *Labour Market Information Bulletin*. Colombo.

B. Economic impact of medium term skills training program

9. Employers in Sri Lanka cite the quality and supply of skilled workers as “the third leading constraint on company growth, after concerns about electricity and taxes” (footnote 9). This is attributed both to inadequate numbers of trained workers and the mismatches between skills supplied and demanded, especially in priority sectors such as tourism. The Skills Toward Employment and Productivity (STEP) Employer Survey conducted by the World Bank showed that skills gaps related to TVET in Sri Lanka are correlated with 76% lower production. Various studies have cited the dilemma of the low employability of TVET graduates on the one hand, while youth unemployment rates continue to be very high in Sri Lanka, indicating the need to skill youth better to enhance their employability (footnote 8). Currently, Sri Lanka’s TVET system offers 27 subjects for around 148,000 students through registered public and private training providers. A large number of students (around 35,000) are enrolled in language and computer training, which are not directly relevant to job market.¹¹ The improved accessibility and increased seats in priority sectors combined with better industry participation and enhanced quality in line with an expanded NVQ framework under SSDP is therefore likely to have a significant impact on reducing youth unemployment and spurring economic growth. Increased access and better relevance to labor market will also reduce income disparities and gender inequities in the long run due to its focus on equity.

10. Micro-economic models focus on the private returns to education and skills training by way of increased earnings.¹² Studies in Sri Lanka confirm these hypotheses thus highlighting that SSDP is likely to raise earnings of the graduates. Two most recent studies on skills development in Sri Lanka find that there are high and increasing wage premiums to TVET at all levels (footnotes 8 and 9). The World Bank Skills Development Report used labor force survey data from 2000 and 2004 and STEP household survey data for 2012 to study the wage premiums to various levels of education and to TVET. Wage premiums for higher levels of education (completing A level examinations to graduate high school and completing a bachelor’s degree and above) and TVET have increased between 2000 and 2012. In contrast, wage premiums to the lower levels of education have fallen. Furthermore, incorporating technical skills such as technology and computer skills into the wage equation decreases the magnitude of the education coefficients (for the various levels of education) suggesting that the market values technical skills in particular over and above education level completed. Also, for employment probability, education level and TVET in and of themselves do not have a statistically significant relationship. Nevertheless, completing a skills training program does reduce job search time (footnote 8).

11. Economic analysis for project-based lending to the skills training sector draws on these models to estimate economic internal rates of return (EIRR) for the project. However, the Results Based Lending (RBL) approach shifts the focus from supporting inputs and monitoring

¹¹ The fields of study offered by the TVET system include (i) information communication and multimedia technology; (ii) languages; (iii) building and construction; (iv) automobile repair and maintenance; (v) electrical, electronics and telecommunications; (vi) textile and garments; (vii) personal and community development; (viii) metal and light engineering; (ix) finance, banking and management; (x) hotel and tourism; (xi) human resource management; (xii) office management; (xiii) refrigeration and air conditioning; (xiv) wood related; (xv) food technology; (xvi) printing and packaging; (xvii) agriculture, plantation and livestock; (xviii) gem and jewelry; (xix) medical and health science; (xx) heavy vehicle operations; (xxi) trainer training; (xxii) art design and media; (xxiii) leather and footwear; (xxiv) mechatronics technology; (xxv) marine and nautical science; (xxvi) rubber and plastic; and (xxvii) others.

¹² J. Mincer. 1958. *Investment in Human Capital and Personal Income Distribution- Journal of Political Economy*, 66(4). Germany.

expenditures to key results of the program using disbursement-linked indicators (DLIs) based on the government's own program. Using this financing modality implies that ADB assessments should be done for the entire government program rather than any particular aspect of it. Therefore, an EIRR analysis has been done for GOSL's medium term framework and expenditure program for the SSDP.

12. The EIRR analysis for SSDP incorporates two incremental benefits streams. The first benefit stream is composed of the higher wages earned by the increased number of people who have a TVET certificate or diploma in the medium term. It is expected that the enhanced access that SSDP will provide will increase the enrollment in TVET institutions substantially by 66,600 students by 2020 (an increase of about 45% over the baseline). This includes additional enrollment of 50,000 students in selected TVET agencies, 6,000 students in university colleges, 600 students in NVQ 7 programs at UNIVOTEC and 10,000 in-service workers benefiting from in-industry based training. These numbers are drawn from the SSDP results framework.

13. In addition, the planned improvements in quality are expected to increase the average graduation rate from the current 71.3% to 80% by 2020. The program will implement various measures for quality and relevance of TVET to increase employability of the graduates and thus increase the average employment rate of TVET graduates from 50% to 70% in 2020. These assumptions regarding target graduation and employment rates are based on the SSDP results framework. The assumption of the wage premium of 17% that TVET graduates earn is based on a wage earnings equation which includes a dummy variable for getting a TVET degree or diploma controlling for other factors such as age and education level (footnote 9).

14. The second stream of benefits incorporated in the EIRR is the moderate 2% increase in the expected wage premium due to skills training in TVET institutions that is better aligned with and more relevant to the needs of the job market. Several studies have commented on the costs of in-house training done by firms to compensate for skill shortages of their workers. The data from the World Bank STEP survey reveal that almost 40% and 58% of employers of high-skilled and low-skilled workers reported to have provided training to their workers in 2012. They spent an average of SLR 313,547 and SLR 151,035 respectively on this training.¹³ Employers will be willing to provide higher salary if the new recruits are job-ready, and do not need in-service training. In addition, the program will aim at expanding middle level skills to increase the number of qualified technicians, which are only 2.2% in Sri Lanka, in comparison to 23% in Korea.¹⁴ According to the World Bank's STEP survey, those who have technology related skills have higher wage premium like 38% (technology), 25% (mechanical), and 21% (computer skills) than the average 17% across different TVET qualifications. SSDP plans to increase access and improve relevance of middle-level skills training, filling the skills gap at technician level. Considering the high wage premium in technology, mechanical and computer skills, 2% increase in the average wage premium for graduates of TVET institutions is conservative. Benefits are expected to begin to accrue only in 2016, two years after the program begins, when graduates begin to enter the workforce and continue working up to 2034, i.e., a total working life of 18 years, which is again a conservative estimate.

15. The EIRR analysis is based on narrowly defined, easily quantifiable benefits of skills development. There are several positive externalities of investing in skills development including less social unrest due to lower youth unemployment rates, potential reduction in job search

¹³ Data provided by World Bank based on 2012 STEP survey of enterprises in Sri Lanka.

¹⁴ International Labour Organization. 2013. *Labour Force Statistics*. Geneva.

time, lower likelihood of being under-employed, among others. Therefore, the rate of return presented can be regarded as a lower limit on the returns to the skills development program.

16. The capital and recurrent costs of MYASD's medium term expenditure framework (2014-2020) which supports SSDP have been incorporated in the EIRR analysis as the costs of the program. Financial costs are converted to economic costs using the standard conversion rate of 1.03 (domestic price numeraire).¹⁵ Only new capital and recurrent costs have been included from 2014-2020 as these are the incremental costs of the program. It is assumed that additional recurrent costs to the extent of 50% of the total estimated costs in 2020 will continue to accrue from 2021 onwards. This is an estimate based on the past spending pattern of the MYASD as a review of past budgets reveals that the recurrent expenditures are typically about 50% of total expenditures in the sector. The inflation rate is assumed to be the current rate of 7.5%. Standard discounting techniques are applied and a conservative time period of 20 years (until 2034) is assumed for both the benefits and costs streams.

17. The EIRR analysis reveals that the government's medium program (2014-2020) for skills development has a rate of return of 15.3% and a net present value (NPV) of \$53.1 million when the standard 12% discount rate is used (Table 3).

Table 3: Economic Rate of Return Analysis
(\$ millions)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023-34 (total)
A. Benefits										
1) Increased wages from increase in TVET graduates employed	0	0	1.9	6.0	11.9	18.3	26.8	29.7	33.1	397.3
2) Increased wages from higher wage premium due to system-wide improvements in skills profile	0	0	3.1	7.0	12.1	18.4	26.3	35.2	45.3	1,668.6
Annual incremental benefits (1+2)	0	0	5.0	13.0	24.0	36.7	53.1	64.9	78.4	2,065.9
B. Costs										
3) New capital and recurrent costs of SSDP	4.7	39.6	45.9	53.1	61.5	71.2	82.5	0	0	0
4) Additional recurrent costs	0	0	0	0	0	0	0	44.3	47.7	943.8
Annual incremental costs (3+4)	4.7	39.6	45.9	53.1	61.5	71.2	82.5	44.3	47.7	943.8
C. Annual net incremental benefit (A-B)	(4.7)	(39.6)	(40.9)	(40.1)	(37.5)	(34.6)	(29.4)	20.5	30.7	1,122.1
D. Base case EIRR			15.3%							
E. Net present value @ 12%			\$ 53.1 million							

18. A sensitivity analysis was conducted to test how robust the rate of return is to changes in the underlying assumptions. Table 4 summarizes the results. It demonstrates that the EIRR remains reasonably robust under different sets of assumptions. The rate of return is not very sensitive to different graduation and employment rates varying from a low of 12.9% to a high of 17.5%. However, a more conservative wage increase of 1.5% would be associated with a

¹⁵ A standard conversion factor of 0.97 for international price numeraire has been use in the Economic and Financial Analysis of Southern Road Connectivity Project (2013).

considerably lower return of 9.9%. Since there are many externalities and non-monetary benefits associated with skills development, a rate of return of 9.9% is nevertheless considered adequate. Also, the baseline assumption of a 2% wage premium increase is conservative given the systemic improvements in improving access and quality of middle level skills that SSDP will undertake. The sensitivity analysis demonstrates that if the program is able to successfully improve graduation and employment rates to higher levels than expected, the returns will be considerably higher.

Table 4: Sensitivity Analysis

Assumption	EIRR	NPV (\$ millions)
Lower wage premium increase of 1.5%	9.9%	(28.7)
Lower employment rate of 65%	12.9%	14.6
Lower graduation rate of 75%	13.3%	20.8
Higher graduation rate of 85%	17.1%	84.3
Higher employment rate of 75%	17.5%	92.0