

ECONOMIC ANALYSIS

A. Macroeconomic Context

1. The Kyrgyz Republic went through a difficult transition following the dissolution of the former Soviet Union—involving the breakdown of inter-republic trade and payment mechanisms, the withdrawal of subsidies, and a general economic decline—which severely disrupted the economy. However, the Kyrgyz Republic was one of the first former Soviet republics to implement economic reforms and move toward a market-based economy. With a per capita gross domestic product of \$1,133 in 2015, the Kyrgyz Republic is classified as a low-income country. It is experiencing a number of structural changes, however, with strong expansion in the industrial and (in particular) service sectors.

B. Labour Market Situation and Skills Development

2. The labor force of the Kyrgyz Republic is young. The population of 6.0 million is growing at 2.1% per year. About 60% of the population is under the age of 30, and 33% under 15 years of age;¹ the number of youth and young adults aged 15–22 years is expected to continue to increase, and reach 1,052,223 in 2028. The education level in the Kyrgyz Republic is relatively high: transition from primary to lower secondary education is nearly universal, with a net enrollment rate in lower secondary of about 90%.

3. Shifts in economic structure are changing the demand for skills in the Kyrgyz Republic toward higher-order analytical and organizational skills.² More generally, the Kyrgyz Republic's aspiration to become a middle-income economy will require a labor force with diverse, high-quality skills. Micro, small, and medium-sized enterprises, which provide the majority of private sector jobs, seek employees who can combine solid practical skills with an entrepreneurial mindset.³

4. Skilled and qualified workers are in short supply, as evidenced by employment and wage data. The lowest unemployment rates are among workers who have completed vocational education, followed by those with a tertiary education. The gaps between wages by level of education are much larger in the Kyrgyz Republic than in Armenia or the Russian Federation. Skilled labor shortages result in low labor productivity, and pose a major constraint to economic growth in the Kyrgyz Republic.⁴

5. The technical and vocational education and training (TVET) system includes primary TVET (provided in lyceums), and secondary TVET (provided in colleges). A recent national study found very low rates of vocational participation (only 2.3% of youth aged 15–24 were enrolled in primary TVET, and 8.3% in secondary TVET). Among school graduates (grades 9,10, and 11), 27.9% enroll in vocational education, and 21% enter higher education; over 51% enter the labor market or are part of the population not in education, employment or training.⁵

¹ National Statistics. National Statistical Committee of the Kyrgyz Republic.

² World Bank. 2014. *The Skills Road: Skills for Employability in the Kyrgyz Republic*. Washington, DC.

³ Asian Development Bank. Forthcoming. *Good Jobs for Inclusive Growth – Background Paper on Education and Skills*. Manila.

⁴ Asian Development Bank. 2014. *The Kyrgyz Republic Strategic Assessment of The Economy: Promoting Inclusive Growth*. Manila.

⁵ *Technical and Vocational Education and Training - System Rationalization: Strategies and Implementation Plans*. A study conducted by the ADB. Kyrgyz Republic. [Second Vocational Education and Skills Development Project](#).

C. Justification of the Program

6. The shortage of skilled workers is a major constraint to inclusive growth. A better skilled workforce is needed to increase productivity and accelerate private sector development. Improved skills also help people access better paid jobs and earn higher incomes. The proportion of the workforce that has vocational skills needs to increase from the current proportion of about 20% of the total workforce in order to meet needs in key economic sectors.⁶ An inadequately educated workforce was listed as a major constraint to business development by 33% of firms in the Kyrgyz Republic, well above the regional average of 22%.⁷ These are indications that workers do not meet labor market needs. In addition, labor force participation among women (53%) must be increased to promote inclusive economic growth.

7. In line with increased governance of the subsector, a coherent skills development approach is reflected in mid- and long-term national sustainable development strategies and related economic policy, as well as the national education strategy.⁸ An important aspect of policy reform is the definition and approval of key Kyrgyz Republic industries, and their respective priority occupations.

8. ADB successfully completed one TVET project in 2012, and a second TVET project is ongoing until 2018.⁹ ADB assistance in skills development has mostly supported building capacity, improving the quality of primary TVET, and focusing on skills that lead to immediate employment. In addition to rehabilitating and equipping schools, important labor market-oriented methods and mechanisms have been introduced such as: (i) occupational standards formulation through sector skills councils, (ii) competency based training, and (iii) teachers' in-service training. The shift in economic structure and resulting changes in labor market demands requires that assistance be provided to modernize secondary TVET, along with systematic reform of the TVET system. In addition to shifting the TVET focus from schools to colleges, efforts are needed to increase cooperation with employers, and entrepreneurship education and practice. The program will seek to address TVET structure and content with a view to decreasing the gap between economic strategy and labor market needs.

D. The Program

9. The program has three outputs: (i) strengthened TVET management, governance, and finance in support of key economic sectors; (ii) improved teaching quality and learning environments; and (iii) cooperation with industry increased and entrepreneurship skills developed. The program is estimated to cost \$33 million equivalent, of which \$30 million will be financed from ADB's Asian Development Fund. The government will provide counterpart support in form of taxes and duties, office accommodation, provision of data, remuneration of counterpart staff, and other in-kind contributions.

⁶ ADB. Forthcoming. *Good Jobs for Inclusive Growth – Background Paper on Employment and Labor Market Policy in the Kyrgyz Republic*. Manila.

⁷ World Bank. 2014. *The Skills Road: Skills for Employability in the Kyrgyz Republic*. Washington, DC.

⁸ Ministry of Education and Science. 2011. *Education Development Strategy of the Kyrgyz Republic 2012-2020*. Bishkek.

⁹ ADB. Kyrgyz Republic. [Vocational Education and Skills Development Project](#); and ADB. Kyrgyz Republic. [Second Vocational Education and Skills Development Project](#).

E. Economic Analysis

10. The economic analysis determined the economic viability of the program, based on Asian Development Bank (ADB) guidelines.¹⁰ All economic benefits and costs were presented in constant 2017 prices and estimated using the world price numeraire method. A standard conversion factor of 1 was used for non-tradable wages, and a shadow wage rate factor of 0.75 was applied for unskilled worker wages.¹¹ Program life was assumed to be 25 years, and a discount rate of 9% was applied in calculating the program's economic internal rate of return (EIRR).

11. There are two incremental benefit streams. The first benefit stream is composed of the higher wages earned by the increased number of people who attend primary and secondary TVET lyceums and colleges in the medium and long term. It is assumed that the program will have an impact on all secondary TVET students (100%), and that they are better skilled when entering the labor market as TVET graduates; for primary TVET it is assumed that 50% of students will be better skilled as a result of the new program.

12. It is expected that as a result of enhanced access and improved quality the program will increase enrollment in vocational institutions to 77,043 students by 2022 (an increase of 6% over the baseline). This includes 53,670 students in selected primary TVET lyceums and 28,048 secondary TVET students in colleges.

13. The baseline employment rate 1 year after graduation is estimated at 70%. In addition, the program will implement various means to measure the quality and relevance of primary and secondary TVET institutions, which is expected to increase the employment rate by 30%, with the graduates' employment rate assumed to reach 91% due to program implementation.¹²

14. The second stream of benefits incorporated in the EIRR is the moderate (3%) expected wage premium resulting from skills obtained through vocational training institutions that are better aligned with and more relevant to the needs of the job market. Technology, mechanical and computer skills, which are expected to improve according to the above programs, have a high wage premium, making the 3% average wage increase for TVET graduates conservative. In addition, it is well above the expected improvement of 2.7% in the standard of living by 2022. Entry-level annual wages of graduates are expected to increase 34% by 2028, and to double by 2042, reaching \$5,360. Benefits are expected to begin to accrue in 2021—3 years after the program begins, when graduates enter the workforce—and continue to 2042.

15. The incremental total annual income of TVET graduates is estimated at \$777,142 in 2022. It is projected to steadily increase each year during 2018–2042. By 2022, the accumulated number of those employed in their first year after graduating from primary TVET is projected to be 17,318, compared to the baseline of employed first-year graduates of 15,870. Those employed within their first year of graduation from secondary TVET institutions is projected to reach 21,824 by 2022, compared to 20,000 without the program. The employment rate of the graduates that benefit from the ADB program is estimated to be 91%.

¹⁰ ADB. 2017. *Guidelines for Economic Analysis of Projects*. Manila.

¹¹ ADB. 2004. Shadow Exchange Rates for Project Economic Analysis: Towards Improving Practice *ERD Technical Note Series*. No. 11; and ADB, Economics and Research Department. *Conversion to Economic Prices: Introductory Course on Economic Analysis of Investment Projects*, session 2.3. <https://www.adb.org/sites/default/files/page/149401/conversion-economic-prices-oct2013.pdf>. A standard conversion factor of 1.0 is applied on all benefits and costs on the program lifetime of 25 years.

¹² The assumptions regarding target graduation and employment rates are based on local labor specialist estimates.

16. The employment figures in para. 15 are projected to remain stable during 2023–2042. Key assumptions for projecting the number of students completing primary and secondary TVET are in Table 1.

Table 1: Assumptions Used in Projecting the Number of Students Completing Primary and Secondary Technical and Vocational Education and Training by 2022

Assumptions	Primary TVET			Secondary TVET		
	Without Program	With Program	Increment	Without Program	With Program	Increment
Graduate growth rate (%)	1.9%	4.0%	2.1%	1.9%	3.7%	1.8%
Number of graduates ^a	22,671	24,740	2,068	28,571	31,178	2,606
Entry level wage (\$) ^b	2,893	2,893	0.000	2,893	2,893	0.000
Employment rate	70%	91%	31.0%	70%	91%	31.0%
No. employed first year after graduation ^c	15,870	17,318	1,448	20,000	21,824	1,824
Value of additional year of experience for TVET graduate (% of wage) ^d	1.0%	3.0%	2.0%	1.0%	3.0%	2.0%

TVET = technical and vocational education training.

^a Number of “without program” students was obtained from National Statistic Committee, Ministry of Education, and Science while the number of “with program” students is the target to be achieved under the program.

^b The “without program” wage level was obtained from local labor market specialists, while the “with program” level is the program target.

^c The “without program” no. employed in the first year after graduation was obtained from the Statistics Committee and local labor market specialists, while the “with program” no. employed in the first year after graduation is the program target.

^d The values for an additional year of experience for both “without program” and “with program” were estimated by local labor market specialists.

Source: Asian Development Bank estimates.

17. The economic analysis shows the proposed program to be economically viable, with a calculated EIRR of 16.1%, exceeding the EOCC of 9% (Table 2).

Table 2: Economic Rate of Return Analysis (\$ million)

Benefits					Costs		
	Incremental income of graduates	TOTAL	Capital	O&M	Foregone wages of students	TOTAL	Net Benefits
2018	(0.1)	(0.1)	3.5	1.0	6.6	11.1	(11.2)
2019	(0.2)	(0.2)	8.5	2.0	9.6	20.1	(20.3)
2020	(0.3)	(0.3)	10.0	3.1	12.1	25.3	(25.6)
2021	(0.3)	(0.3)	5.0	4.3	13.2	22.5	(22.9)
2022	(0.2)	(0.2)	3.0	5.5	12.8	21.3	(21.5)
2023	1.9	1.9	0.0	5.2	12.3	17.5	(15.6)
2024	5.7	5.7	0.0	5.0	11.7	16.6	(11.0)
2025	10.9	10.9	0.0	4.6	11.1	15.7	(4.8)
2026	15.9	15.9	0.0	4.3	10.4	14.7	1.3
2027	21.2	21.2	0.0	4.0	9.6	13.6	7.6
2028	26.8	26.8	0.0	3.7	8.7	12.4	14.5
2029	33.0	33.0	0.0	3.3	7.8	11.1	21.9
2030	39.9	39.9	0.0	2.9	6.8	9.7	30.1
2031	47.4	47.4	0.0	2.6	5.7	8.3	39.1
2032	55.6	55.6	0.0	2.2	4.5	6.7	49.0

	Incremental income of graduates	TOTAL	Capital	O&M	Foregone wages of students	TOTAL	Net Benefits
2033	64.7	64.7	0.0	1.8	3.2	5.0	59.7
2034	74.5	74.5	0.0	1.3	1.8	3.2	71.3
2035	85.1	85.1	0.0	0.9	0.6	1.5	83.6
2036	96.6	96.6	0.0	0.5	0.0	0.5	96.2
2037	109.0	109.0	0.0	0.0	0.0	0.0	109.0
2038	122.3	122.3	0.0	0.0	0.0	0.0	122.3
2039	136.4	136.4	0.0	0.0	0.0	0.0	136.4
2040	151.6	151.6	0.0	0.0	0.0	0.0	151.6
2041	167.8	167.8	0.0	0.0	0.0	0.0	167.8
2042	185.1	185.1	0.0	0.0	0.0	0.0	185.1
Total	1450.5	1450.5	30.0	58.2	148.4	236.7	1213.8
ENPV							148.7
EIRR							16.1%

() = negative, EIRR = economic internal rate of return, ENPV = economic net present value, O&M = operation and maintenance.

Source: Asian Development Bank estimates.

18. The results of the sensitivity analysis are also satisfactory against all downside risks (Table 3).

Table 3: Economic Internal Rate of Return and Sensitivity Analysis

Particulars	EIRR	Switching Value
Base case	16.1%	
O & M Costs (+20%)	15.7%	79.5%
Benefits (-20%)	13.9%	123.3%
Delay in operation by 1 year	15.5%	108.6%
All combined	11.8%	101.0%

EIRR = economic internal rate of return, O&M = operation and maintenance.

Source: Asian Development Bank estimates.