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BOX 7
Education Reforms to Break Free from the Middle Income Trap

Introduction

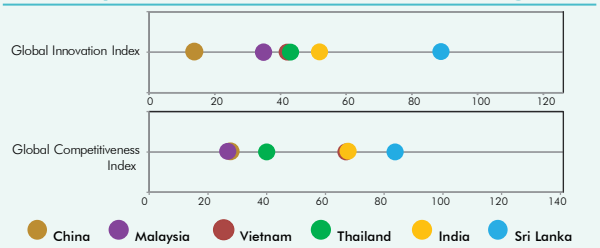
Many countries which grew out of 'poor country' status fairly easily experience a slowdown in economic growth once they reach the middle income stage. On the one hand, these countries are unable to compete with low wage, poor economies who have labour intensive, imitation driven merchandise export sectors. Conversely, they also fail to compete with advanced economies that export innovation driven manufactured goods produced using highly productive skilled labour. As a result, these middle income countries do not make a timely transition from resource led growth to productivity driven growth, and this phenomenon is termed the 'middle income trap'. Escaping the middle income trap is challenging for Sri Lanka as well, but is crucial for the country to achieve a sustainable, high growth path.

As per the World Bank classification, Sri Lanka surpassed the lower middle income threshold in 1997, but 21 years lapsed until the country was elevated to the upper middle income status. If the country grows at a 5 per cent annual growth rate,[1] Sri Lanka may require another 22-23 years to transcend to a high income nation. Therefore, Sri Lanka could be caught in a 'middle income trap' for over 40 years, unless growth focused structural reforms and strategies are urgently implemented alongside policies for macroeconomic stability that are essential for sustainable high economic growth.

Although there are numerous factors that are vital to ensure high economic growth at the middle income stage, a sound education system is always of paramount importance to accumulate human capital and thereby raise a country's competitiveness. A good education system equips the labour force with marketable skills while spurring innovations and productivity growth. Often, public investment in a country is aimed at improving the general level of education. For example, Sri Lanka adopted an education policy to offer free education at primary, secondary and tertiary levels in 1945, and today the country enjoys an impressively high literacy rate among both males (93.4 per cent in 2018) and females (91.6 per cent in 2018). Although increasing literacy levels are important for the country to move ahead of the regional peers in terms of human development; as Figure B 9.1 depicts, the country still lags behind in terms of innovation and competitiveness, factors which are core to accelerate economic growth during the middle income stage.

1 The annual GDP growth rate of Sri Lanka has been at or below 5 per cent since 2013.

Figure B 7.1
Global Innovation Index (GII) and Global Competitiveness Index (GCI) – 2019 Rankings[2]



Sources: Global Innovation Index Report - 2019
Global Competitiveness Index Report - 2019

With economic development, skills requirements in an economy also evolve over time. Therefore, education policies and investments need to be dynamically adjusted to align with the evolving skills requirements of the economy, in order to achieve simultaneous progress in human and economic development. If the education system is not aligned with the economic growth needs, the country will face persistent skills gaps and mismatches hindering further economic growth. Persistent skills gaps and mismatches can hamper economic growth in three ways: first, firms will not be able to expand their operations and compete in global markets without the required skilled labour; second, firms will be restricted to lower rungs of global value chains as they fail to upgrade their technologies; third, lack of skilled labour will discourage foreign direct investment inflows. Countries such as Singapore and South Korea, which successfully evaded the middle income trap, have implemented major education sector reforms from time to time and phased in public education investments to align their education system with the needs of the evolving economy. For example, from 1965 to 1978, Singapore's education policies were striving to provide universal access to primary and secondary education and enhance technical skills that are essential for labour intensive production. But with the intensifying competition for labour intensive exports from their regional peers, during the 1980s, Singapore focused on equipping the labour force with skills that are needed for capital intensive production. Since the 1990s, Singapore has gradually transformed into a knowledge based economy. In parallel, the country's education policies refocused on strengthening tertiary education by establishing new universities, building partnerships with foreign universities and improving labour productivity through innovation. However, replication of the education system reforms of these successful countries within the Sri Lankan economy may not be feasible without suitable adjustments, since many socio-economic factors in Sri Lanka, such as the level of human development, structure

2. Lower the rank in GII and GCI, higher the country's innovativeness and competitiveness.

of the economy, culture and fiscal space for education spending, vastly differ from those of such countries. Hence, Sri Lanka today is at a critical juncture where the education sector needs to be reassessed in consideration of the economic structure, persistent skills gaps and mismatches as well as future growth potential, and education policies and reforms should be aligned with the country's economic development goals in order to escape the middle income trap.

Issues in the Sri Lankan Education System

Higher Education

Although successive governments have striven to provide free university education to students, limited resources available in the university system obstruct higher education opportunities for a majority of the youth. In 2018, the gross tertiary enrolment rate in Sri Lanka was merely 19.6 per cent. The average gross tertiary enrolment rate in upper middle income countries and lower middle income countries stood at 53.0 per cent and 24.8 per cent, respectively, in 2018, suggesting that Sri Lanka lags far behind than an average lower middle income country in terms of tertiary education enrolment.

With economic development, a country needs to adopt advanced technologies to remain competitive within global markets. To this end, the country should have a highly skilled labour force, particularly a bank of Science, Technology, Engineering and Mathematics (STEM) literate employees. Although overall literacy rates that capture only the reading and writing ability are high in Sri Lanka, the level of STEM literacy in the country is not adequate to achieve an innovation led growth. The graduate output of the public university system in Sri Lanka is more biased towards Arts and Humanities subjects and less towards STEM fields. In 2018, the percentage of university students enrolled in STEM fields for undergraduate studies was 14.8 per cent. As indicated in Table B 9.1, the share of student enrolment in STEM fields in Sri Lanka is lower than in industrialised countries and other middle income countries.

Table B 7.1
Share of Student Enrolments in STEM Fields at Tertiary Education Level

Country(a)	Share (%)
Hong Kong (2017)	38
Germany (2017)	46
India (2018)	39
Indonesia (2018)	34
Israel (2017)	40
Malaysia (2018)	43
Myanmar (2017)	48
Philippines (2017)	39
South Korea (2017)	48
Thailand (2016)	31

Note: (a) Reference year is in parentheseis

Source: UNESCO – UIS database

The disconnect between tertiary student enrolment and the labour demand is evident from the employment rates among the graduates. According to the Tracer Study of Graduates conducted by the University Grant Commission in 2016/2017, unemployment rates among graduates of state universities in the fields of Performing Arts, Arts and Management are 57.1 per cent, 50.4 per cent and 27.7 per cent, respectively, even after 2-3 years of graduation, indicating a mismatch of skills with the labour market demand. On the other hand, graduates from STEM fields such as Allied Health Science, Engineering, Science and Agriculture have reported higher employment rates of 95.7 per cent, 92.2 per cent, 83.0 per cent and 82.6 per cent, respectively. While there is an excess supply of non-STEM graduates from universities, skill gaps are persistent in certain fields in the job market. For example, according to the ICT/BPM workforce survey -2019 conducted by the Information and Communication Technology Agency (ICTA), the demand for IT graduates have increased from 6,246 in 2014 to 21,216 by 2019, although the supply of total IT graduates has increased only to 12,307 in 2018, indicating a widening skill gap in the IT field.

Universities are expected not only to disseminate knowledge, but also to be forerunners in creating new knowledge through research activities. Knowledge created through research can be transformed into real world applications for technological enhancements and productivity improvements. However, the applicability and intensity of research work done by tertiary education institutions are substantially low since both state and non-state degree providing institutions mainly focus on teaching rather than on research. Due to the low research intensity in the country, Sri Lanka was ranked at the 75th position in the Citable Documents H index[3] in 2019, compared to China, India, Malaysia, Pakistan, Indonesia, Vietnam and Bangladesh which were ranked at 13th, 21st, 43rd, 50th, 55th, 57th and 63rd positions, respectively. Meanwhile, in 2018, the number of patent applications by residents in Sri Lanka was 15 applications per one million population. However, countries such as China, Singapore and Malaysia are far ahead of Sri Lanka, recording 1,000 patent applications, 276 patent applications and 35 patent applications per one million population, respectively.

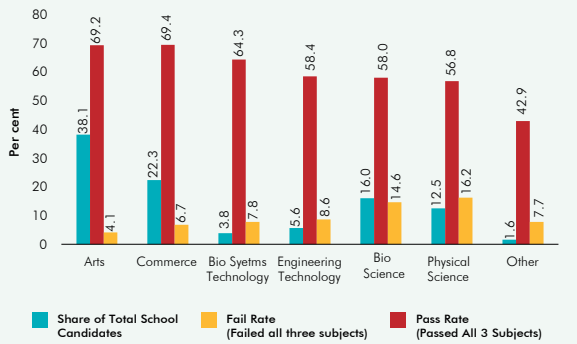
General Education

Lower levels of student enrolment in STEM fields at the tertiary level are a reflection of the student enrolment patterns at the upper secondary (Advanced Level) stage and poor student performance in mathematics and science at both upper secondary and lower secondary (Ordinary Level) stage (Figures B 9.2 and B 9.3). In 2018, 32 per cent of the school applicants at the G.C.E O/L examination either failed or conditionally passed

3. Citable documents H-index measures the impact of the research work in a country in terms of the number of citable publications and citation frequency. Lower the rank, higher the productivity and impact of the research work of the country.

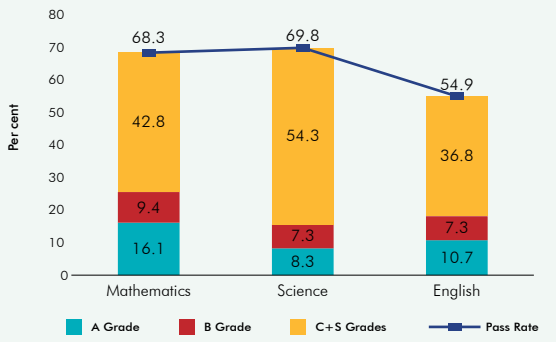
the examination as a result of failing mathematics. A majority of such students will drop out from school and will be curtailed from receiving further education since mathematics is a prerequisite for most higher education programmes. Where science education is concerned, according to the School Census – 2017 conducted by the Census and Statistics Department, out of 10,194 schools in the country, 2,847 schools offer A/L classes of which only 1,029 schools have the science stream (i.e. 36 per cent of the schools with A/L classes). There are significant regional disparities in terms of availability of science A/L classes. For example, of the schools with A/L classes, the percentage of schools with the A/L science stream in Central, North Western, Uva and North Central provinces was as low as 26 per cent, 29 per cent, 29 per cent and 33 per cent, respectively. This legacy issue in general education is translated into non-STEM biased programme choices at the university level.

Figure B 7.2
Performance of School Candidates by Subject at the G.C.E. (A/L) Examination - 2018



Source: Department of Examinations

Figure B 7.3
Performance of School Candidates (1st Attempt) by Subject at the G.C.E. (O/L) Examination - 2018



Source: Department of Examinations

Meanwhile, with the increasing globalisation, technological advancements and service oriented nature of the country, English literacy has become a key determinant of the employability of a person. According to the World Bank Skills Towards Employment and Productivity (STEP) survey-2012, 80 per cent of the employers expect the high-skilled workers to possess English language skills while 40 per cent of the employers expect the same from low-skilled workers. However, low pass rates for English language at G.C.E (O/L) indicate the lack of English proficiency among those who enter the labour market.

Poor student performance at the G.C.E. (O/L) examination in science, mathematics and English subjects can be attributed to shortages in skilled teachers[4] and teacher deployment issues. Although the availability of science, mathematics and English teachers at the national level exceeds numbers recommended by the Ministry of Education (MOE), skilled teachers in these fields are below the recommended levels for science and mathematics. There are considerable disparities in skilled teacher availability across national and provincial schools as well as across regions indicating the issues in teacher deployment. For example, national schools have more than the required number of science teachers while provincial schools have a shortage. Both national and provincial schools in Western, Central, Southern and North-Western provinces have more than the required number of skilled English teachers, though schools in other provinces experience a dearth of skilled teachers for the subject (Arunatilake and Abayasekara, 2017, pp.16-17).

Technical and Vocational Education and Training (TVET) Sector

Since a majority of the students who qualify for university entrance fail to enter universities primarily due to the lack of resources in the university system, the TVET sector is expected to train potential new entrants to the labour market and upskill the existing labour force. However, Sri Lanka's TVET sector is plagued by a myriad of shortcomings resulting in lower efficiency of the sector in terms of meeting the country's skill demand. Currently, the TVET sector is highly fragmented and poorly coordinated with a large number of state and non-state education providers (1,290 registered TVET institutions by end 2019), and numerous governing agencies with their own regulatory panels and procedures. Since there is no central planning mechanism for the TVET sector, the designing of training programmes, student enrolment, and quality standards and accreditations are not aligned with the country's growth policies and labour market needs. Although the National Vocational Qualification (NVQ) system has been introduced with the aim of defining training standards on the basis of occupational requirements, the quality assurance process in the TVET system is still not fully effective since many private TVET institutions are neither accredited nor registered. Meanwhile, the TVET sector

4. Teachers who have a degree in the particular subject or have been specially trained to teach the subject

also suffers from the scarcity of qualified training staff, particularly those with industrial experience. In addition, employers' involvement in designing the courses and delivering training programmes is minimal in most TVET courses, resulting in low relevance of TVET training for employment. Meanwhile, the student demand for TVET is at a subdued level as a result of the social stigma associated with technical jobs as well as lack of knowledge on the employment opportunities for the people with vocational training. Recently there have been attempts to route the youth who fail at the G.C.E O/L examination hurdle to receive NVQ level education through the '13 Years of Guaranteed Education' policy. However, this programme is still at an incipient stage with shortages of qualified staff particularly in rural areas, where the TVET system is most needed.

Way Forward

Sri Lanka's economic growth has been tepid in recent years, not only due to global and domestic headwinds which are of a transitory nature, but also due to persistent structural obstacles in the economy, such as issues in the labour market. Although past education policies of successive governments have focused on providing universal education opportunities to students, Sri Lanka now must refocus the country's education policies to align with the economic development goals to become globally competitive and thereby escape the middle income trap. In this regard, emphasis of the education system should be on STEM fields as well as improving English literacy, which are crucial in building linkages with the global markets. Hence, Sri Lanka needs integrated policy reforms at all levels of education in order to build a STEM literate workforce.

At the general education level, education policies should focus on improving the relevance of curricula for economic development goals and quality of education delivery. Meanwhile, the range of education streams at the A/L stage should be widened in all schools while allocating resources and trained staff equitably across schools for STEM subjects and English. Equitable access to STEM and English education is vital to achieve inclusive economic growth. Resource allocation to national schools and provincial schools are primarily made through the Central Government and Provincial Councils, respectively, which inevitably results in large disparities in physical resource allocation and teacher deployment across schools. Hence, resource and teacher cadre requirements and shortages at school level should be monitored through a central database system. Further, the allocation of resources and teacher deployment should be made on a needs basis through a central mechanism. An incentive scheme needs to be introduced for teachers in STEM fields to work in underprivileged schools. Building partnerships with the private sector to enhance digital technology resources in underprivileged schools will not only reduce the digital divide within the economy, but will also provide a better learning experience for children. This approach has been successfully utilised in other countries to increase access to digital learning.

One of the reasons for lower participation in tertiary education is the limited fiscal space for increasing government expenditure on education. Since the state sector alone cannot meet the skill demand in the economy, private sector engagement in tertiary education, supported by strong quality assurance and accreditation mechanisms, is vital to raise higher education and TVET enrolment rates. Further, concessionary education loans[5] should be promoted to encourage students who are unable to enrol in state universities to pursue higher education opportunities through non-state higher education institutions. The education/ training cost per student in STEM fields is generally high, since resources such as laboratories and equipment are costly though the resources may not be fully utilised due to the limited number of students/ trainees in one institution. Hence, resource sharing among several training institutions, particularly through public private partnerships, would be more effective in reducing per student training costs.

Addressing the bottlenecks in the education system that extend the time to graduate from universities will encourage more students, who at present choose not to pursue higher education considering the delay in entering the job market, to enrol in tertiary education programmes. A swift transition from school to employment ensures that fresh entrants to the labour market are young at the inception of employment. Generally, educated youth are more innovative, open for change and more risk-taking, which are essential qualities of a labour force for innovation led growth. Reduction in administrative inefficiencies in releasing examination results and student enrolments, prevention of disruptions to the university system caused by students and staff union action and a possible reduction in the number of years of schooling can significantly reduce the average age of Sri Lankan graduates. In addition, fallback options, such as diploma programmes within the normal undergraduate degree programme, also should be popularised to cater to students who are not willing to spend a long time in education. Tertiary education enrolments can be further increased by offering different trajectories to achieve the same level of education, creating flexibility within the education system to accommodate transitions between work and study as well as between educational programmes, and promoting lifelong learning.

5. Numerous countries use education loans to support tertiary education. For example, university education in Australia has not been free since 1989, but student loan schemes have been in place to financially support students. Currently, the Higher Education Loan Programme (HELP) allows the students to defer their education loan repayments until they are employed. The loan has to be repaid compulsorily over time through the taxation system.

Higher education institutes, both in state and non-state sectors, need to strengthen partnerships with reputable foreign higher education and research institutions, for exchange of student and teaching staff, and collaborative research work. Further, building linkages with domestic and foreign companies is essential to engage in market demanded research activities, and dissemination and commercialisation of research findings. Research grants need to be allocated by the University Grant Commission and research grant committees of the universities considering the impact of research work, which is measured not only in terms of research publications but also based on the commercial value and policy implications of research work.

Higher education institutions also need to offer more interdisciplinary degree programmes with the aim of fostering critical thinking, cognitive and transferable skills of graduates. In this regard, offering STEM courses such as mathematics, statistics and ICT modules in non-STEM degree programmes will enhance the employability of graduates. Currently, the government has made a policy decision to promote STEAM education, where A stands for Arts subjects, at the general and higher education level with the objective of allowing students to learn STEM in a creative manner by integrating with the Arts. This policy also aims to enhance employability of Arts graduates.

Effective coordination among various stakeholders for periodic review of knowledge and skill development strategies, strengthening the quality assurance and accreditation system and applying the same across both state and non-state higher education and TVET institutions, active involvement of the employers in designing demand driven education and training programmes, and building labour market information system are essential to strengthen the higher education and TVET system.. Encouraging students to work in short-term intensive projects of the private sector under the guidance of industry experts can be an effective method for students to acquire working experience. Meanwhile, employer surveys as well as tracer studies on university and TVET graduates will enable regular assessment of labour market dynamics and ensure relevance of the education and training programmes to labour market needs.

The government envisions achieving robust economic growth through technological revolution across sectors and productivity enhancement of human resources. In order to achieve the government's ambitious growth targets and enhance the country's competitiveness within global markets, education policy reforms are key to building a supportive workforce who are well versed in STEM related skills and knowledge, adept at critical and creative thinking, and linguistically competent in global languages.

References

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