Public Expenditure Review of the Education Sector in Jamaica

June 2021

Education Global Practice

Latin America and the Caribbean

CURRENCY AND EQUIVALENT UNITS

Currency Unit = Jamaican dollar (JMD)

US$1.00 = JMD 149.10

(Exchange Rate Effective as of May 31, 2021)

FISCAL YEAR

April 1 - March 31

WEIGHTS AND MEASURES

Metric System

ACRONYMS AND ABBREVIATIONS

CAPE	Caribbean Advanced Proficiency Examination
CSEC	Caribbean Secondary Education Examination
ECC	Early Childhood Commission
ECE	Early Childhood Education
ESP	Education Sector Plan
GDP	Gross Domestic Product
HLO	Harmonized Learning Outcomes
IMF	International Monetary Fund
JSLC	Jamaica Survey of Living Conditions
LAC	Latin America and the Caribbean
MOEYI	Ministry of Education, Youth and Information
MOFPS	Ministry of Finance and the Public Service
OECD	Organization for Economic Cooperation and Development
PER	Public Expenditure Review
STR	Student-Teacher Ratio
TALIS	Teaching and Learning International Survey
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
WDI	World Development Indicators

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Objective and methodology

The objective of this Public Expenditure Review (PER) is to analyze the adequacy, efficiency and equity of public spending on education in Jamaica. These three aspects will be compared to national and international standards, in line with Jamaica's educational challenges and goals. To this end, Caribbean countries will serve as regional peers; select top performing education systems (Finland and Estonia) will serve as aspirational comparators; and the Organization for Economic Cooperation and Development (OECD) member countries, which represents a composite of high-income country systems, will serve as an international comparator.[1] This report uses data from the Ministry of Finance and the Public Service (MOFPS), the Ministry of Education, Youth and Information (MOEYI), the Statistical Institute of Jamaica, and the UNESCO Institute for Statistics (UIS). The analysis focuses on the last two years (2018 – 2019), for which spending data was provided. Longer trend analysis was impeded due to lack of additional years of data, although analysis was corroborated by other sources where possible. The PER incorporates results from national and regional assessments to provide information on education system performance. However, as Jamaica has not recently participated in any internationally benchmarked learning assessments, the PER could not include a deeper evaluation of the quality of education from an international perspective. Within the scope of the available data, the review follows the World Bank Education Global Practice guidelines, which establishes content and quality standards for PERs in the sector (World Bank Group, 2017).

Country Context

Jamaica's macroeconomic context shows positive trends after a long period of modest performance. The long-term macroeconomic context has been characterized by low growth, high public debt, and exposure to external shocks. Gross Domestic Product (GDP) growth was below 1 percent on average for the last two decades.[2] In 2013, Jamaica implemented reforms to stabilize the economy, reduce debt, and fuel growth. As a result, the Government has made significant progress in fiscal management, substantial reductions of debt relative to GDP, and maintained stability in monetary indicators.

Jamaica is fast approaching a turning point in its demographic transition, requiring efficient investments in human capital to increase productivity levels. By 2025, the working age population will be the largest share of the total population, and proportions are expected to remain steady until 2050. In order to leverage the demographic dividend and achieve an increase in productivity levels, efficient investments in human capital will be required. Once the share of working age population

[1] For the international benchmarking analysis, education expenditures and outcomes of Jamaica are contrasted to three groups: regional, aspirational, and international peers. The regional peers were other Caribbean small states, which share several socioeconomic and cultural similarities. Aspirational countries were chosen included relatively small countries in the world that rapidly became high-performing educational systems and currently combine high quality with widespread equity, such as Finland and Estonia. Member countries of the Organization for Economic Cooperation and Development (OECD) were selected as the international comparator, since this organization promotes and establishes evidence-based international standards in education and in other areas of world development.

[2] World Development Indicators (WDI)

begins to decline in 2050, human capital growth will be critical in order to compensate for the drop in workforce and sustain economic growth.

The Education Sector Plan (ESP) in the Vision 2030 Jamaica National Development Plan sets four major goals for the sector. These are: (i) Teaching and Learning Systems that are of International Standards; (ii) World Class School Environment; (iii) Attainment of equal and inclusive access and retention to ensure completion of secondary education and continuation to the Tertiary level; and (iv) Decentralized systems for quality leadership, management and resourcing.

Low learning outcomes impede human capital accumulation in Jamaica. According to the World Bank's Human Capital Index (HCI), a child born in Jamaica today will be 53 percent as productive when they grow up as they could be if they enjoyed complete education and full health. This is lower than the average for Latin America and the Caribbean (LAC) region as well as lower than the average for upper middle-income countries. The low level of human capital can mainly be explained by the low quality of education: in Jamaica, a child who starts school at age 4 can expect to complete 11.4 years of schooling by her 18th birthday, but this represents the equivalent of only 7.1 Learning-Adjusted Years of Schooling (LAYS).

Jamaica has achieved nearly universal attendance up to age 16, but learning outcomes remain low. The attendance rate at formal education institutions is close to 100 percent up to the age of 16.[3] However, a large proportion of Jamaican students do not achieve minimum learning standards, especially in numeracy. Low learning levels start to show early: in 2018, only 65 percent of fourth grade students acquired mastery of foundational skills in numeracy (and 85 percent of fourth grade students achieved mastery of literacy). Outcomes deteriorate further as students advance to secondary school, with only 47 percent of applicants passing Mathematics in the 2018 Caribbean Secondary Education Certificate (CSEC) examinations (68 percent passed English Language). According to the World Bank Harmonized Learning Outcomes score, Jamaican students perform below their peers in other Caribbean countries (387 versus 416 respectively).

Completion of secondary education and attendance at the tertiary level remains a challenge. On a national level, about 90 percent of the school age population completes secondary education. However, 85 percent of students from the lowest socioeconomic quintile complete secondary education, compared to 98 percent of students from the highest socioeconomic quintile. Inequitable access to education continues at the tertiary level, where male, rural, and socioeconomically disadvantaged populations are less likely to attend. Tertiary enrolment is also low overall, at 27 percent total.

The COVID-19 pandemic risks exacerbating the pre-existing learning crisis and reversing recent socioeconomic progress. During 2019/20, the economy is estimated to have contracted by 10 percent, affecting in particular economic activities such as mining, construction, and tourism (World Bank, 2021). The unemployment rate had fallen to its lowest levels of 7.2 percent in January 2020 but increased to 12.6 percent in July 2020. The poverty levels prior to the pandemic were the lowest recorded in ten years, but the shock to the economy is expected to reduce labor income, and risks pushing 400,000 Jamaicans into poverty. According to World Bank simulations, Jamaica risks losing 1.3 year in LAYS (from 7.1 to 5.8) with a ten-month school closure. This translates into an average annual earning loss per student of US $1,099 (2017 PPP), which aggregates to a total lifetime earning loss of US$5.5 billion – a third of Jamaica's annual GDP.

[3] Survey of Living Conditions (2017)

Education spending: Adequacy, efficiency, and equity

Adequacy

The level of public education spending over time in Jamaica is adequate. Expenditure on education in Jamaica is high when compared to other Caribbean states and in line with international standards.[4] Over the last three decades, public education expenditure has averaged 5 percent of GDP. In 2019, education expenditure represented 5.2 percent of GDP and 19 percent of total Government expenditure, which is relatively high compared to regional peers as well as top-performing education systems. Education expenditure is also high in terms of per-student expenditure as a share of GDP per capita, with wide differences by education level. In 2019, the per-student government expenditure as a share of the GDP per capita at the primary level (18 percent) was slightly higher than other Caribbean states, and similar to that of the OECD and other aspirational comparators. Per-student expenditure at the secondary level (26 percent) was high in comparison to other Caribbean countries and aspirational comparators. At the tertiary level, expenditure levels (35 percent) were equal to aspirational comparators, but much higher than other Caribbean countries and the OECD average. In contrast, in early childhood education the per-student government expenditure (7 percent) was significantly lower than all comparators. Notably, this level is mostly financed privately. These levels point to an overall adequate level of public education spending, which has been sustained over time, with some discrepancy between education levels.

The COVID-19 pandemic is imposing additional needs on the education system, in a context of increased fiscal constraints. School closure has caused major learning losses across the word, jeopardizing years of progress. As health conditions allow, schools must get ready to receive students and begin to recover learning. This requires getting school facilities ready to meet health and hygiene protocols to guarantee safe operations as well as planning for learning remediation, which might entail reorganizing school shifts or even hiring complementary teachers to support tutoring programs. In Jamaica, the operational aspects of school reopening could cost as much as JMD 1.8 billion (USD 12.1 million). Despite fiscal constraints, the GoJ is committed to continue financing emerging demands in the education sector, as evidenced by the increase in the budget for fiscal year 2021/2022.

Efficiency

The high expenditure levels in education in Jamaica have not resulted in comparably high education outcomes, suggesting that there is room to improve efficiency. Jamaica's learning-adjusted years of schooling score are in line with countries at similar income levels. However, when compared to countries with similar expenditure levels, Jamaica is lagging behind. Taking into account income level, education expenditure and population size, Jamaica's learning-adjusted years of schooling are 10 percent lower than expected, indicating that there is room to improve spending efficiency within the sector. Furthermore, learning-adjusted years of schooling in Jamaica are lower than peers with similar income level. High budget execution rates show a strong overall execution capacity suggesting that efficiency gains must be generated by addressing inefficiencies, for example

in the use and allocation of human resources, non-salary recurrent and capital spending, distribution of resources across and within education levels, and through potential cost savings.

Reallocation of resources across education levels could increase efficiency of spending. Unit cost in tertiary education is higher than for other education levels. Furthermore, the share of education spending allocated to tertiary education is also high when compared to other countries. Reducing the per-student cost in tertiary education to OECD levels could translate into cost savings of approximately JMD 3.7 billion annually (USD 24.8 million), which could be reallocated to early childhood education. This could help alleviate the current high student-teacher ratios in infant schools and improve learning outcomes. Additionally, global evidence has shown that investments in early childhood education are amongst the most effective interventions in development, particularly for low-income students, and a critical step in human capital accumulation. To ease this reallocation, strategies to improve the efficiency of tertiary education will have to be urgently explored.

Relatively high expenditure on staff compensation given low learning achievements presents an opportunity to improve spending efficiency. Given the importance of teachers for learning and the large share of budget devoted to staff compensation, adjustments to salaries and/or teacher output could improve spending efficiency, through various mechanisms in the short and longer-term. About 76 percent of the total education expenditure is devoted to staff compensation, which is high compared to benchmark countries, especially in primary and secondary education. Nevertheless, teachers' salaries are low compared to similar professionals within Jamaica and other countries. Additionally, student-to-teacher ratios are high compared to other countries. In the short term, therefore, a reduction in the wage bill may not be feasible, but the demographic transition might represent an opportunity to adopt a more flexible hiring scheme to gradually adapt the number of teachers to changing demands such as a decreasing student population in the longer-term. Sources of labor inefficiencies that could be addressed to improve outcomes include: i) uneven distribution of number and qualification of teachers within education levels and between schools; ii) ineffective pre-service teacher education; iii) inefficient use of classroom time; and iv) migration of qualified teachers from Jamaica. Addressing some of these inefficiencies will require management and financing reforms.

Capital expenditure is low relative to Jamaica's infrastructure needs, in particular at the secondary level, however there are opportunities to optimize the school network. Over the last six years, capital expenditure has been 2 percent of total education spending, which is low compared to benchmark countries (7 percent). Notably, executed capital spending was only 77% of allocated budget during 2019. In the 2018/19 academic year, 18 percent of secondary school students studied in schools that operated double shifts due to insufficient infrastructure. Overall, at 17 percent of all schools, enrollment was 20 percent higher than school capacity. There is a large rural-urban divide; whilst schools in urban areas are overcrowded, with 11,032 missing seats (4 percent of the current capacity in urban areas), schools in rural areas operate under capacity, with a total of 36,197 available seats across all types of schools (25 percent of total capacity in rural areas). Efficiency could be improved by optimizing the school network through the consolidation of (usually smaller) All Age, Primary and Junior High Schools (in both rural and urban areas) into (larger) Primary Schools and Secondary High Schools, taking into consideration a geographic analysis to guarantee that all children have access to education within an accessible distance. School consolidation could lead to efficiency gains given the economies of scale of running larger schools.

Equity

Expenditure in education is pro-poor in early childhood and primary education, neutral in secondary education, and favors the richest at the tertiary level. Considering the distribution of school attendance by socioeconomic quintile groups, the poorest population is more likely to benefit from public investment in education at the primary level. At the secondary level, there is little difference in attendance by socioeconomic status. At the tertiary level, investments disproportionally benefit the richer quintile, as better-off students are more likely to attend tertiary institutions. In order to ensure progressive expenditure across education levels in Jamaica, funding could be redistributed to the lower levels of education, and remaining spending at tertiary could be better targeted towards the most vulnerable.

Households bear a significant share of education costs, especially at the secondary level, impacting both school attendance and learning outcomes. Household expenditure on early childhood, primary and secondary education is around 3 percent of GDP, and includes items such as school fees, registration and examination fees, school meals, uniforms, and learning materials. According to the Survey of Living Conditions, "money problems" is stated most frequently as the reason students drop out before grade 11 and for not attending school on a daily basis, in particular by the most vulnerable population. This contributes to further inequities as daily attendance is closely correlated with school achievement, in turn impacting future earning potential.

The Government has implemented several policies to support households, with various degrees of progressivity. There is scope to improve the equity and efficiency of these policies. The Government introduced a non-mandatory fee policy for infant, primary and secondary schools, in which no fees are required, and contributions to support co-curricular, sports and special school development initiatives are voluntary. Nonetheless, fees continue to be paid equally by the rich and poor, and thus efforts to investigate the implementation of this policy could be useful to ensure progressivity. The Government also has a school feeding program which has been implemented progressively by targeting vulnerable students but could be further improved through enhanced targeting of the most marginalized students and making the program more efficient. During the pandemic, funds from the school feeding program have been given directly to parents to ensure that they are able to provide lunch for their children.

Amid the COVID-19 pandemic, ensuring support to vulnerable families is critical. The COVID-19 pandemic is expected to affect the welfare of households through reductions in labor income. In addition, learning losses and drop out will affect the future earning potential of children. Both will disproportionally affect the poor. As such, the continuation of social programs and improving their efficiency and the targeted support to vulnerable children is critical.

School financing mechanisms and data for decision making

The adequacy, efficiency and equity of school financing formulas could be improved. Jamaica allocates financial resources on a per-student basis for some programs, which may promote increased enrollment rates. However, the financing mechanism does not encourage spending efficiency as it is mainly input-based. For instance, this does not promote a better allocation of teachers across schools and does not encourage school consolidation when there is a low

enrollment. Additionally, the grants are not adjusted for the actual operation cost of schools: the per-student cost of operating rural schools may be proportionally higher than the cost of operating urban schools, which could have major implications in terms of equity. Formulas could be also more transparent to ensure clarity, objectivity and predictability, and there could be scope to consolidate some of the many grants. To further strengthen the reallocation process, the governance in the sector could be strengthened by giving more capacity and decision-making power to the Regional Education Authorities to monitor and adjust the teaching workforce.

Evidence-based decision-making could also support more efficient and equitable public spending. Current information systems and data collection processes are inadequate and do not allow for timely and informed decision making across the sector. Access to reliable and timely data on school budgets and system performance have the potential to improve education spending efficiency and equity as well as improving overall education delivery in Jamaica.

Policy Recommendations

Building on the challenges identified in terms of adequacy, efficiency, equity, and cross-cutting financing mechanisms and data needs, this report presents several policy recommendations. The table below provides a summary of these recommendations, with timeline and fiscal implications highlighted. The table aims to help the GoJ in the prioritization and planning of actions to improve the adequacy, efficiency and equity of education spending.

Recommendations	Short term	Medium term	Long term
1. Recovery from COVID-19			
1.1 Mitigate learning losses due to the COVID-19 pandemic	(i) Support for health and safety requirements for school reopening; (ii) Undertake reenrollment campaigns and outreach activities; (iii) Provide targeted support for the most at-risk students; (iv) Mitigate and prevent dropout; (v) Facilitate remedial education to minimize learning losses **(Fiscal impact: JMD 2.4-3.9 billion annually for 1 – 2 years; Long term cost of inaction: JMD 828 billion)**		
2. Optimizing investments across and within education levels			
2.1 Resource reallocation from tertiary education to early childhood education	(i) Improve equity in access to tertiary education; (ii) Conduct a comprehensive review of tertiary education and earmark non-progressive expenditure for reallocation. **(Fiscal impact: neutral)**		(i) Reallocate resources from tertiary to early childhood education to adequately resource infant and basic schools. **(Fiscal impact: neutral; JMD 3.7 billion from tertiary to early childhood education)**
2.2 Implement low-cost interventions and improve efficiency of social programs to tackle school	(i) Revitalize programs targeting school-age mothers, (ii) Provide information on the	(i) Improve efficiency of the school feeding program to mitigate and prevent student	

absenteeism and drop-outs.	economic benefits of remaining in school; (iii) Support for students at All Age or Junior Highs to transition to Secondary Schools. **(Fiscal impact: low – support from social partners is advisable)**	absenteeism and drop-out; (ii) Improve implementation of non-mandatory fee policy at the secondary level to ensure progressivity. **(Fiscal impact: low/neutral - Efficiency gains to support the expansion)**	
2.3 School network optimization	(i) Conduct feasibility study on school consolidation to establish an efficient school network **(Fiscal impact: neutral)**	(i) Convert All Age schools and Primary and Junior High schools into Primary schools and Secondary High schools reducing double-shift schools building on the feasibility study **(Fiscal impact: neutral)**	(i) Rural areas: consolidation of small schools, Urban areas: leverage demographic dividend. **(Fiscal impact: neutral)**
3. Improving teacher training			
3.1 Improve pre-service and in-service teacher training	(i) Focused in-service teacher training and school leaders on assessing students' post-COVID learning levels and tailoring instruction to promote learning recovery, including use of educational technology as appropriate. **(Fiscal impact: neutral using current expenditure on in-service training (JMD 106 million))**	(i) Improve the quality of pre-service teacher training with a focus on practical experience; (ii) Improve in-service teacher training to enhance teaching effectiveness; (iii) Include specialized training for school leaders. **(Fiscal impact: neutral using current expenditure on pre/in-service training (JMD 1.6 billion))**	(i) Update pre-service curriculum. **(Fiscal impact: neutral using current expenditure on pre-service training (JMD 1.6 billion))**
4. Enhancing the management and financing of the education system			
4.1 Enhance system's management capacity through strengthened institutional framework		(i) Strengthen education governance by decentralizing specific functions to regional authorities; (ii) Introduce greater flexibility in teacher contracts, allowing mobility to areas of staff shortage; (iii) Strengthening PFM systems **(Fiscal impact: neutral)**	
4.2 Revamp financing scheme to improve aspects of adequacy, efficiency and equity		(i) Revise and implement transparent allocation formulas; (ii) Consolidate grants to simplify administration **(Fiscal impact: neutral)**	(i) Introduce performance incentives in school transfers and teacher salary scales; (ii) Decentralize teachers' payroll; (iii) Consider bonds for teachers receiving government assistance. **(Fiscal impact: neutral; performance**

			incentives covered by declining number of teachers)
4.3 Support evidence-based decision-making across the education system	(i) Invest in integrated digital Education Management Information Systems; **(Fiscal impact: JMD 750 million)**	(ii) Participate in international learning assessments **(Fiscal impact: JMD 226 million - PISA 2024)**.	

I. Context of Educational Development in Jamaica

This chapter provides the country context and an overview of the education system in Jamaica. The first section summarizes the general characteristics of the country, including demographics, macroeconomics and public financial management arrangements. The second section describes the education system in terms of scope and structure, as well as institutional organization and sources of financing by education level. The third section provides a snapshot of current progress and challenges in terms of education outcomes in Jamaica. Learning outcomes are benchmarked to regional and international standards to provide perspective on the position of Jamaica.

A. Country context

Jamaica is the largest island in the English-speaking Caribbean, and the most populated with 2.93 million people. It is an upper middle-income economy, with a GDP per capita of USD 5,582 (2019). The long-term macroeconomic context has been characterized by low growth, high public debt, and exposure to external shocks. GDP growth was below 1 percent for the last three decades.

In 2013, Jamaica launched an ambitious reform program with positive impact on fiscal and monetary stability. The program included macroeconomic reforms to stabilize the economy, reduce debt and fuel growth. The government made significant progress in fiscal management and reduced the debt to GDP ratio by almost 45 percentage points from 2019 to 2013. Inflation remains low, and the central bank has maintained a relatively loose monetary policy stance to support economic activity. Total revenues grew steadily from 27 percent of GDP in FY2014/15 to 31 percent of GDP in FY2018/19, and increased at a faster pace than total expenditure.

During 2019, the global economic crisis resulting from the COVID-19 pandemic led to a contraction of the economy. During the fourth quarter of 2019, the economy contracted by 2.4 percent, the weakest quarter in six years, and in 2020, the economy fell by 9 percent (World Bank, 2021). Mining and construction contracted sharply as a result of the temporary closure of a large alumina refinery. Additionally, the Jamaican economy was affected by its heavy dependence on services, such as tourism, which accounts for 70 percent of GDP.[5] While the health impact of the pandemic in Jamaica has not been as grave as in some countries, the socio-economic impact has been particularly severe on tourism-dependent countries such as Jamaica, where the sector contributes approximately 31 percent of GDP and supplies a third of all jobs. The GoJ took early and aggressive measures starting in March 2020 to prevent the spread of infection, including cancelling all major public and private gatherings, closing schools, and quarantining entire communities. Curfews across the island remain in place, although the closure of the borders to incoming tourists was lifted on June 1, 2020 for returning Jamaican citizens and on June 15, 2020 for non-citizens.

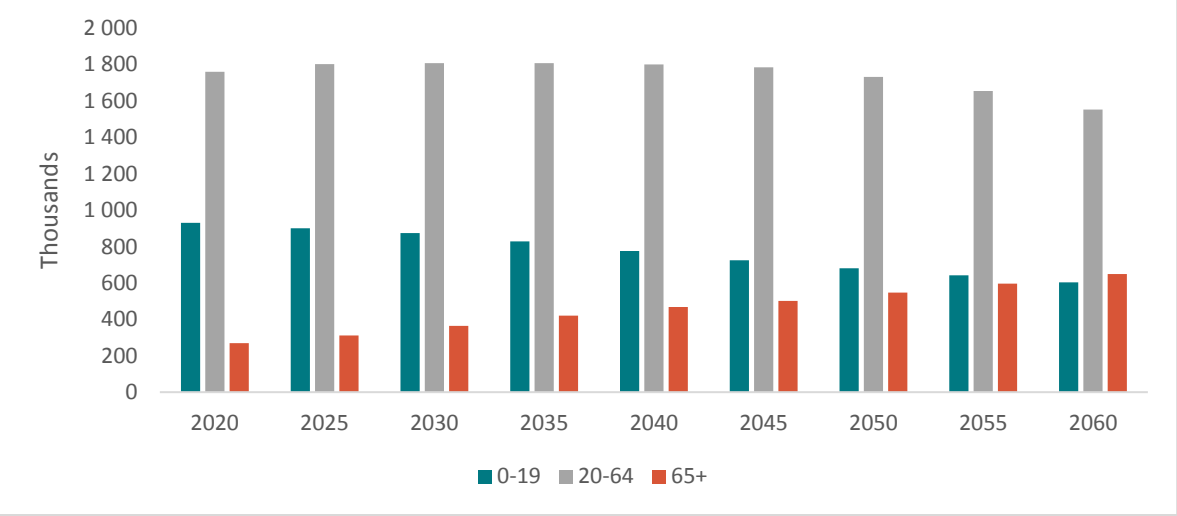
Poverty rates had been improving over the last decade, but the economic contraction may reverse the progress made so far. Inequality in Jamaica is lower than in most countries in the Latin America and Caribbean region, and poverty rates are at 12.6 percent. Nevertheless**,** the shock to the economy is expected to affect the welfare of households through reductions in labor income, which, if left unmitigated, could push at least 400,000 Jamaicans into poverty. The rise in unemployment by 5.3 percentage points from January 2020 to 12.6 percent as of July 2020 has also reinforced existing gender disparities. Female unemployment rates were approximately 14 percent during this

[5] The World Travel and Tourism Council (WTTC)

period, while the rate for males was 11.5 percent. In response to the pandemic, the GoJ instituted its COVID-19 Allocation of Resources for Employees (CARE) program to protect the poor and vulnerable who lost jobs and livelihoods, as well as several initiatives to support businesses to ensure a rapid and sustainable recovery.

Jamaica is fast approaching a turning point in its demographic transition, requiring efficient investments in human capital to increase productivity levels. In Jamaica, the working age population will be the highest share of the total population by 2025 and will remain at a steady plateau up to 2050 (Figure 1). In order to leverage the demographic dividend, efficient investments in human capital are required to achieve a sustained increase in productivity levels, even after the share of working-age population begins to decline. Overall, the magnitude of the demographic dividends could be greater if Jamaica is able to achieve policy outcomes in the areas of education, savings-investment, and employment (Ahmed, Vargas Da Cruz, Quillin, & Schellekens, 2016).

Figure 1. Population projections by age group, 2020 - 2060



***Source**: United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019*

Public Financial Management

The Government of Jamaica (GoJ) has undertaken a series of public financial management (PFM) reforms to establish processes that promote fiscal discipline. A recent Public Expenditure and Financial Accountability (PEFA) report prepared for Jamaica in 2017 provides a comprehensive overview of the performance of the PFM system based on the revised PEFA methodology of 2016 (which assesses the systems across 31 indicators and 94 dimensions). The PEFA 2016 assessment was timely as the GoJ has undertaken a number of key reforms that aimed to support improvement of major PFM elements.

The comparison of PEFA assessments[6] conducted in 2012 and 2016 highlighted a number of areas with improved scores reflecting improvements in:

[6] A PEFA assessment measures the extent to which PFM systems, processes and institutions contribute to the achievement of desirable budget outcomes: aggregate fiscal discipline, strategic allocation of resources, and efficient service delivery.

a) forecasting realistic revenue for the budget and meeting the revenue collection;
b) budget classification and comprehensiveness of information;
c) budget process – budget preparation timeline and approval;
d) predictability and control in budget execution; and
e) external and internal audit, among others.

However, addressing key weaknesses could strengthen accountability and efficiency of the service delivery sector, including the procurement system, delay and comprehensiveness of annual financial statements, lack of systematic program evaluation and data on available resources and expenditure arrears. Lack of consistent and reliable information potentially prohibit linking inputs to desired outcomes, which is key to informed decision making and sharper focus on service delivery.

The legal and regulatory framework pertinent to PFM system was consequently amended[7] to reflect key developments and enable the Ministry of Finance and Public Service to implement the on-going reforms and strengthen capacity across public sector. The PFM Reform Steering Committee, comprised of senior level officials of the Ministry of Finance, the Revenue Agencies, the Revenue Appeals Division and the Accountant General's Office, was established to oversee the implementation of the reforms.

While this PER does not analyze the links between the PFM reforms and service delivery, the PEFA indicator (PI-8) did not show any improvement in the indicator that assesses service delivery performance information pertaining to budget proposal, end-year reports and audit reports or performance evaluation reports. This indicator also evaluated the extent to which service delivery units received and utilized the allocated budget and was assigned the score "D" which indicated the performance was below the basic level.[8] Keeping in mind the limitations of the PEFA assessment, it could be noted that gaps in effective linkages between procurement processes and budget preparation could directly affect the outcomes for service delivery. The recent implementation of the PFM reforms could further strengthen the emphasis on planning and improve transparency. Using results of internal and external audits could further guide the sector in tackling major bottlenecks of service delivery.

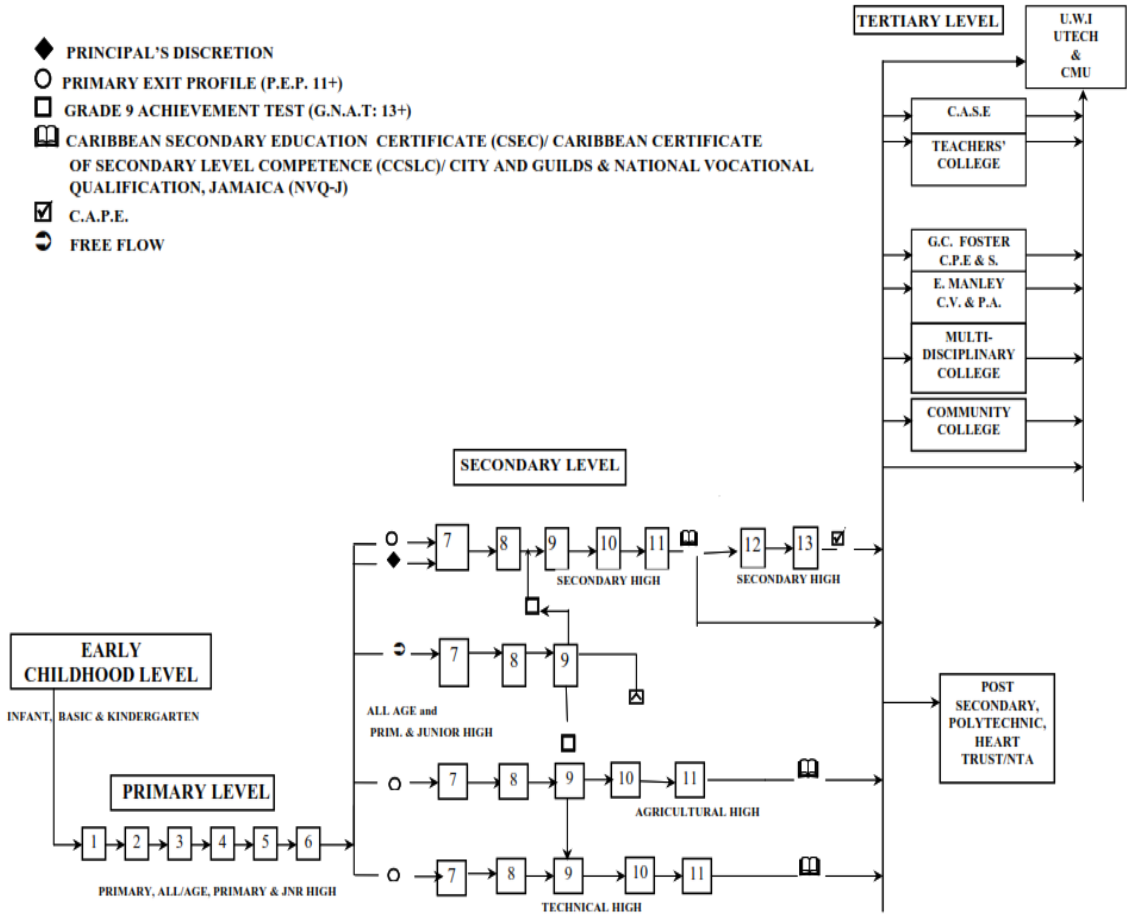
B. Structure of the Education System and Governance

Jamaica's formal education system is organized by four levels: early childhood, primary, secondary and tertiary education, as stipulated in the Education Act (1980).[9] Early childhood education pertains to children between ages 3 to 5 years and is not compulsory. Primary education, which is compulsory, is provided to pupils aged 6 to 11 years old, from grades 1 to 6. Secondary education is offered in two cycles. The first cycle spans three years from grades 7 to 9 for students aged 12 to 14 years old, and the second cycle spans two years of grade 10 and 11 for students aged 15 to 16 years old (often but not always at the same school). Some Secondary High and Technical High schools offer an additional two years at grades 12 and 13, for those who want to move on to

7 http://moj.gov.jm/laws/
8 The PFM system is scored between A to D, with A being the highest score and demonstrating achievement of an internationally-recognized level of good performance. A score of C reflects the basic level of performance for each indicator and dimension, consistent with good international practices.
9 https://moj.gov.jm/sites/default/files/laws/EA%20Regulations%201980.pdf

higher education. Special education spans the first three levels of the education system, designed for children who find it difficult to learn in a regular school setting without specialized support services. Tertiary education refers to both post-secondary and university education, offered to those who have successfully completed secondary education (Ministry of Education, 2019) (Figure 2).

Figure 2. Flow chart of the formal public education system



***Source**: MOEYI, 2019*

During the 2018/2019 academic year, about 590,312 students were enrolled in the formal education system, in both public and private schools,[10] of which 36 percent were enrolled in primary education, 36 percent secondary education, 16 percent early childhood education, 9 percent tertiary education and 1 percent special education. At the pre-university level, at least 33,282 teachers delivered formal education in around 3,021 educational facilities, of which 55 percent were early childhood institutions and 19 percent primary schools (Ministry of Education, 2019).

[10]Data represent institutions that responded to the Annual Schools Census Questionnaire. Excludes children in daycare institutions.

The school network consists of a wide variety of educational institutions. In early childhood education, the network consists of infant schools, kindergartens and community-operated basic schools. Primary education is delivered in Primary schools (Grades 1-6), All Age schools (Grades 1-9), and Primary & Junior High schools (Grades 1-9). Seven years of secondary education are offered in Secondary High and Technical High schools, while Agricultural High schools offer three years of upper secondary education. The school network in special education consists of government aided schools and special education units, as well as Independent Special Schools. Tertiary education is offered by over 50 tertiary institutions, many of which are private, including universities and a variety of community and teacher colleges (Table 1). A summary of type of school and distribution of the enrollment by type of school is provided below in Table 2.

Table 1. Types of educational institutions, 2019

Level of education	Type of institutions
Early childhood education	Public institutions: Kindergarten, Infant schools, Infant Departments of Primary schools, All Age schools, Primary and Junior High schools. Community-operated institutions: Kindergartens, Basic schools
Primary education	Public schools: Primary schools (Grades 1-6), All Age schools (Grades 1-6), Primary & Junior High schools (Grades 1-6)
Secondary education	Public schools: All Age schools (Grades 7-9), Primary & Junior High schools (Grades 7-9), Secondary High schools, Technical High schools, Agricultural High schools Private schools: Independent Secondary High schools
Special education	Public schools: Government aided schools, special education units Private schools: Independent Special Schools
Tertiary	Universities and community and teacher colleges (Public and Private)

***Source**: MOEYI, 2019*

Table 2. Percentage distribution of the enrollment by level of education and type of educational institutions (%), 2019

	Distribution of enrollment					Number of institutions
	EARLY CHILDHOOD	PRIMARY	SPECIAL SCHOOLS	SECONDARY	TOTAL	
Public Education						
Infant Schools	7	0	0	0	1	47
Primary	10	71	0	0	32	583
Primary & Junior High	1	10	0	1	5	83
All Age	2	8	0	0	4	97
Government / Government Aided***	0	0	62	0	0	10
Special Education Unit***	0	0	11	0	0	13
Secondary High	0	0	0	87	34	150
Technical High	0	0	0	10	4	14
Agricultural High	0	0	0	0	0	2
Subtotal	20	89	73	98	80	999

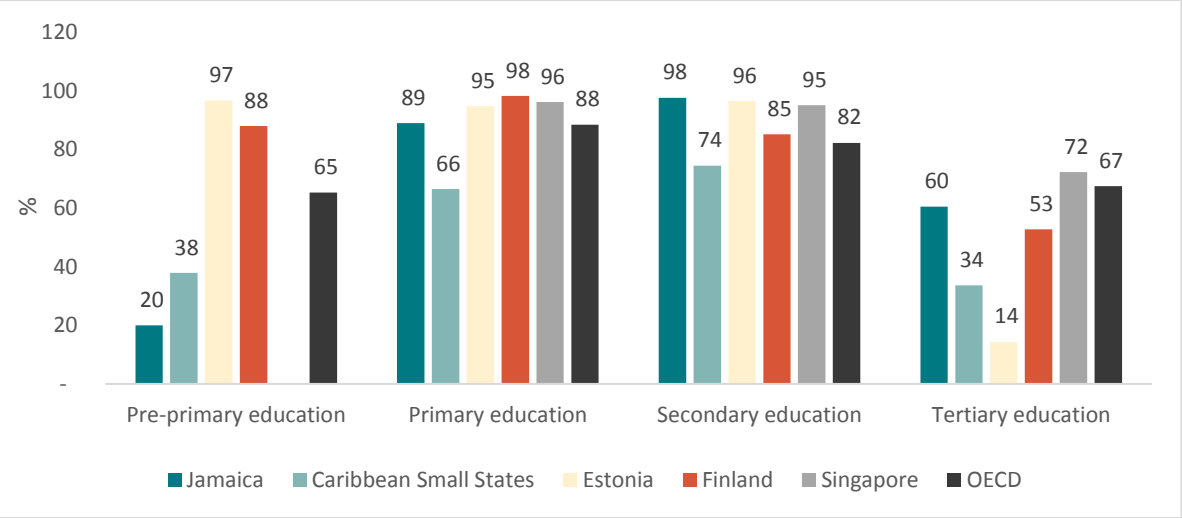
Non-public education*						
Early Childhood Institutions (Basic Schools)	73	0	0	0	13	1,673
Kindergarten***	6	0	0	0	1	143
Preparatory***	0	11	0	0	4	161
Independent Special Schools***	0	0	27	0	0	13
Independent Secondary Schools***	0	0	0	2	1	31
SUBTOTAL	80	11	27	2	20	2,021
Total	**100**	**100**	**100**	**100**	**100**	**3,020**
Number of students	*95,054*	*227,665*	*4,126*	*211,783*	*538,628*	

Note: ** Data represent institutions that responded to the Annual Schools Census Questionnaire (ii) infant departments of primary schools are registered under Primary schools.*

Source*: MOEYI, 2019*

Early childhood education is largely financed privately, with governmental support. The "Charter of Fundamental Rights and Freedom (Constitutional Amendment) Act, 2011" states that Jamaican citizens have the right to "publicly funded tuition in a public educational institution at the pre-primary and primary levels".[11] Nonetheless, there is a low share of public provision of early childhood education through government-run schools compared to regional and international peers (Figure 3). Community-operated basic schools and private kindergartens account for about 80 percent of the enrollment at this level, which are mainly financed through tuition fees and non-government support. Around 90 percent of basic schools meet minimum requirements to operate, as established by the MOEYI, and can receive funds for operation. Notably, only a small fraction of basic schools is fully certified by the Early Childhood Commission, meeting all standards for a quality education. Basic schools benefit from government subsidies for teachers' salaries, educational materials and school meals.

Figure 3. Jamaica and benchmark countries. Percentage of enrolment in public institutions (%), 2017 or latest



Source*: World Bank calculations based on UNESCO UIS (2020) and Jamaica's MOEYI - Education Statistics 2018/19.*

[11] Parents/students may pay auxiliary fees.

The Government is the main provider of primary and secondary education. Primary and secondary students in Jamaica are more likely to attend public schools compared to peers in other Caribbean countries. In primary education, 71 percent of student attend public Primary schools, 10 percent attend Primary & Junior High schools and 8 percent All Age schools. The latter two types of schools are being phased out.[12] Only 11 percent of primary students attend private schools. In secondary education, 87 percent of students attend public Secondary High Schools, 10 percent Technical High, and 1% in Primary and Junior High schools. Only 2 percent of secondary students attend private schools (Table 1, Figure 3).

In 2016, the GoJ implemented a non-mandatory fee policy to reduce cost of education across all pre-university levels. The policy covers infant, primary and secondary educational institutions, and stipulates that the government absorbs the costs for core operational services, while parents provide non-mandatory contributions to support co-curricular, sports and special school development initiatives. Under the policy, all students should be able to access schools regardless of socioeconomic status.

In Secondary High schools, government support has increased significantly since the introduction of the no tuition fee policy. Prior to 2007 and between 2011 and 2016, there was a policy of cost sharing, in which most students and/or their parents were expected to pay fees. Nonetheless, the MOEYI supported students with all or a portion of their fees due to financial hardships. During 2020/21, all schools received JMD 17,000 per secondary student to support the no tuition policy.

The budgetary allocation for Government funded tertiary institutions is supplemented by fees charged to students. In tertiary education, the enrollment in public institutions is relatively high compared to other Caribbean small states and top-performing education systems such as Estonia, and close to Finland and OECD levels (Figure 3). Most of students attend at the University of The West Indies, University of Technology and Community Colleges (Table 3). In public institutions, allocation from the Government is supplemented by fees charged to students.

Table 3. Student Enrollment in tertiary education, by type of educational institution, 2018-19

Type of Educational Institution	Number of students	Number of institutions	Number of teachers
Community Colleges	10,218	5	436
Teachers' Colleges	3,603	5	293
Moneague College	2,023	1	73
Bethlehem	441	1	57
Edna Manley College of The Visual & Performing Arts	607	1	193
College of Agriculture, Science & Education	1,413	1	73
G.C. Foster College of Physical Education & Sports	641	1	28
Caribbean Maritime University	3,356	1	-
University of Technology*	12,000	1	-
University of The West Indies	17,382	1	804
Total	**51,684**	**18**	**1,957**

**Estimated Note: Data represent institutions that responded to the Annual Schools Census Questionnaire*

[12] They deliver grades 1 through 9. Those schools have been reduced gradually: between 2012 and 2018, All Age schools were reduced by 14 schools and Primary and Junior High schools were reduced by 8 schools. In the past, Primary and Junior High covered up to grade 10.

Source: Annual Schools Census Questionnaire, (Ministry of Education, 2019)

The network of pre-service teacher training consists of fifteen universities, colleges and departments. These include traditional colleges, specialized colleges with teacher education departments, College of Agriculture and Science Education and the University of Technology. There are three private colleges offering teacher education. Post-graduate teaching diplomas are offered at the University of the West Indies and The Vocational Training Development Institute. The quality of teacher education and the standards of teacher education are assured through the Jamaica tertiary education commission and the Joint Board of Teacher's Education where the colleges hold membership. All teacher education programs are accredited by the University Council of Jamaica.

Education in Jamaica is primarily centralized, with some degree of decentralization. Education is centrally administered by the MOEYI in Kingston, with six regional offices that monitor and manage education across the country. In addition, MOEYI oversees and manages several statutory bodies and agencies, including National Education Trust (NET), a government agency that allocates funding (from individuals and organizations) to Jamaican schools. In Jamaica, there is some degree of school-based management as every educational institution is administered by a Board of Management, which can hire and fire the teachers, discipline students, conduct their own financial affairs and manage the day-to-day operations of the schools (Education Act, 1980).

In order to place Jamaica on the global map in terms of excellence of education, the Education Sector Plan (ESP) in the Vision 2030 Jamaica National Development Plan sets four major goals. These are: (i) Teaching and Learning Systems that are of International Standards; (ii) World Class School Environment; (iii) Attainment of equal and inclusive access and retention to ensure completion of secondary education and continuation to the Tertiary level; and (iv) Decentralized systems for quality leadership, management and resourcing. Major outcomes associated to each goal are described in Table 4.

Table 4. Jamaica Vision 2030: Goals and outcomes for the education sector

Goals	Outcomes
Teaching and Learning Systems that are of International Standards	Quality educators are attracted and retained
	A standards-based education system that is internationally recognized is instituted
	Readiness of schools, children and communities for early childhood education
	Each primary school graduate has achieved his/her fullest potential/talents and is fully prepared and ready to access secondary education
	Secondary school leavers attain standards necessary to access further education, training and/or decent work and be productive and successful Jamaicans
	Adequate and high-quality tertiary education provided with emphasis on interface with work and school
World Class School Environment	All schools (public and private) meet international standards
	School environments are safe, alcohol and drug-free, and individuals there are disciplined without violence, demonstrate respect for others and uphold equal rights
	Accountability Mechanisms are institutionalized at all levels of the education system

Attainment of equal and inclusive access and retention to ensure completion of secondary education and continuation to the tertiary level	Adequate number of school places are available to meet all needs and reflect emerging population trends
	Compulsory education is enforced at three levels (early childhood, primary and secondary)
Decentralized systems for quality leadership, management and resourcing	Networking, linkages, exchange, partnerships and interaction among stakeholders in education
	Sustained international partnerships for supporting decentralized systems
	An adequately managed and financed education system assured

Source: (Government of Jamaica, 2009)

C. Education Outcomes: Current Progress and Challenges

Jamaica has achieved close to universal attendance up to age 16.[13] According to the Survey of Living Conditions, the attendance rate at formal education institutions is almost a 100 percent up to the age of 16, before it drops significantly (Figure 4). However, the net attendance rates reveal that not all students attend the intended level of education given their age. The net attendance rate is about 86 percent in pre-primary and 91 percent in primary education, but only 72 and 58 percent in lower and upper secondary education respectively (Figure 5). As almost all students up to 16-years of age attend formal education, this indicates that many students attend below their expected grade level based on age. For example, 4 percent of first grade students and 14 percent of 11th grade students are overage.[14] The distribution by age-grade suggest that the internal efficiency could be improved. It is worth noting that although the attendance rates are close to 100 percent for 3-5-year-olds, 12 percent of students still attend day care institutions (intended for 0-3-year-olds), when they should be attending Infant or Basic schools.

Figure 4. Attendance rates by age, 2010, 2015 and 2017

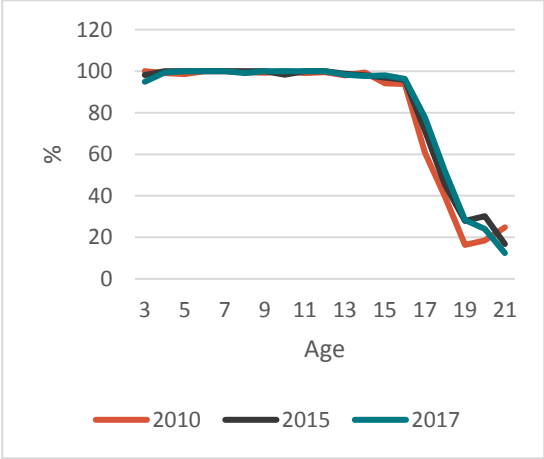
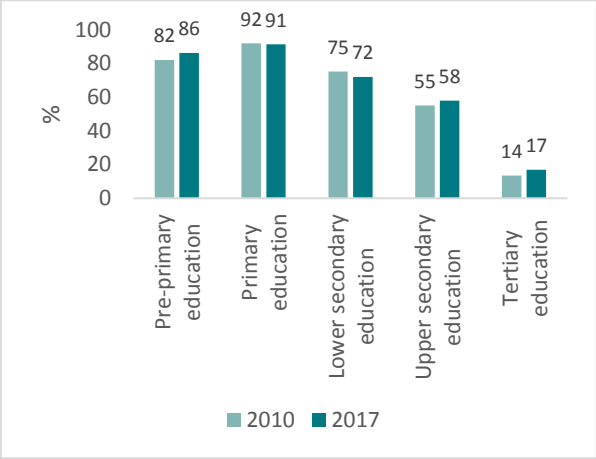


Figure 5. Net attendance rate by level of education, 2010 and 2017



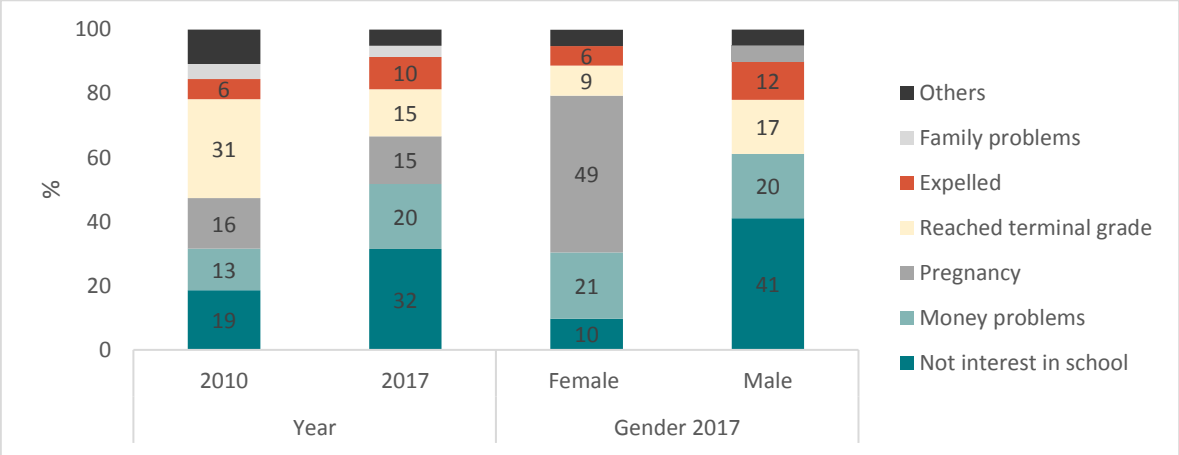
***Source**: World Bank based on Jamaica Survey of Living Conditions, 2010, 2015 and 2017*

"Money problems" and "no interest in school" are cited as the main two reasons students stop attending school. The percentage of 17-21-year-olds who did not complete secondary education (11th grade) and were not attending formal education declined from 14 percent in 2010 to 10 percent in 2017, according to the Survey of Living Conditions. In other words, in 2017 about 90 percent of 17-21-year-olds have at least completed secondary education (at least 11th grade) or were attending formal education. However, that proportion varies with socioeconomic level: it is 85 percent for the poorest and 98 percent for the richest. For those that did not complete secondary education (11th grade), the main reasons reported were "no interest in school" followed by "money problems". There are also differences by gender, as 14 percent of males did not reach 11th grade, compared to 7 percent of females. Notably, when considering females only, the main reason given

[13] Attendance, rather than enrollment, is being considered due to gaps in enrollment data.
[14] Percentage of pupils who are at least 2 years above the intended age for their grade.

was “pregnancy”, followed by “money problems” (Figure 6).[15] Between 2010 and 2017, the percent of students that cited “reached the terminal grade” offered at their school as reason for drop out declined by 15 percentage points, and there was little to no improvements in the other areas.

Figure 6. Reasons given for dropping out before grade 11, 2010 and 2017



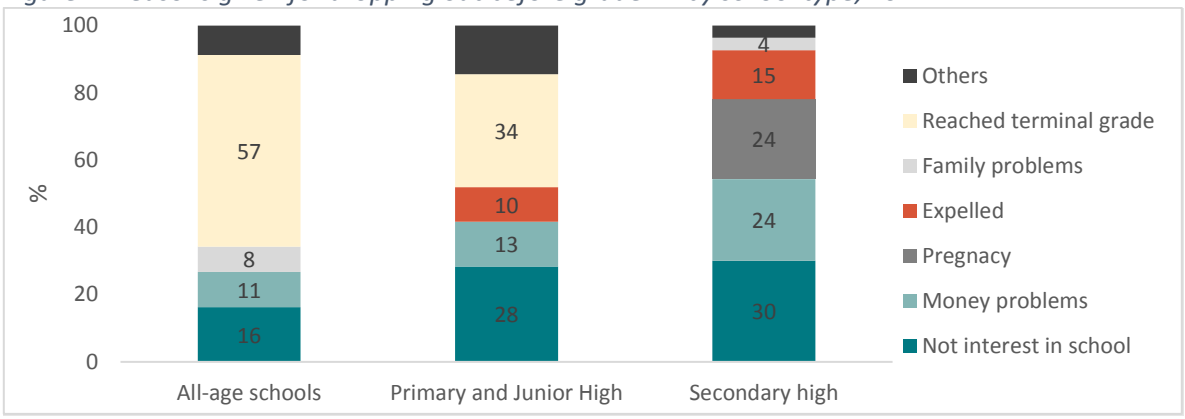
***Note**: Not attending school; Drop-out before grade 11; 17-21 years old*
***Source**: World Bank based on Jamaica Survey of Living Conditions, 2017*

Reasons for dropping out before grade 11 largely vary by school type. Of those who dropped out before grade 11, 63 percent were attending Secondary High Schools when they dropped out, 16 percent were attending All Age schools, and 10 percent Primary and Junior High schools. Additionally, of the students that dropped out before grade 11, 53 percent stopped attending in the 10th grade[16] and 34 percent in the 9th grade. “Reached the terminal grade” is the most common reason given for drop out for those attending All Age schools and Primary and Junior High Schools. Those schools only offer three grades of secondary education and currently are being phased out by the Government. In the short run, an effective transition from these schools to Secondary High Schools should be supported (until they are fully phased out). “No interest in school” followed by “pregnancy” and “money problems” are the main reasons given for drop out in Secondary High Schools (Figure 7).

[15] Jamaica implemented the “Reintegration of School-Age Mothers into the Formal School System” program in 2013. The findings cannot be considered as an evaluation of the program. During 2010 and 2017, the percentage of females that did not completed secondary education (eleventh grade) dropped from 9 to 7 percent, indicating some positive development, even though pregnancy remains an issue.

[16] According to administrative data, drop-out rates are close to 10 percent between grades 10 and 11 (Education statistics 2018-19).

Figure 7. Reasons given for dropping out before grade 11 by school type, 2017



***Note**: Not attending school; Drop-out before grade 11; 17-21 years old*
***Source**: World Bank based on Jamaica Survey of Living Conditions, 2017*

Educational attainment has improved but disparities persist. The educational attainment of the young workforce (25-34-year-olds) is higher than that of the overall Jamaican workforce (25-64-year-olds). In particular, 23 percent of the population between ages 25 – 34 attained post-secondary/tertiary education, as compared to 19 percent for total workforce. However, there are important differences in educational attainment by population groups, which have persisted as a structural problem in the Jamaican education system: males, rural, and socioeconomic disadvantaged populations are less likely to attain post-secondary/tertiary education (Figures 8-9).

Figure 8. Educational attainment of population aged 25-34 years old, 2017

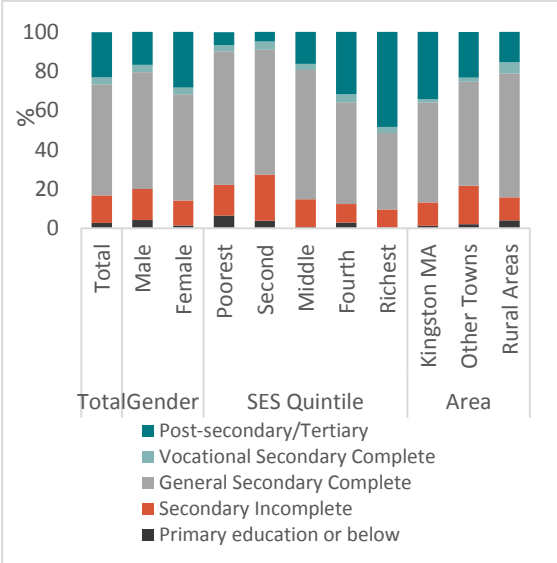
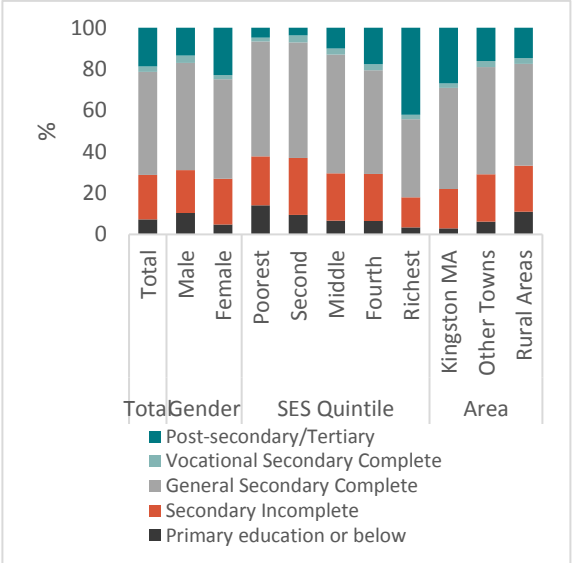


Figure 9. Educational attainment of population aged 25-64 years old, 2017



***Source**: World Bank based on Jamaica Survey of Living Conditions, 2017*

Labor market outcomes are closely correlated with educational attainment. The ILO School-to-work transition survey 2015 for Jamaica reveals that university-educated youth are more likely to complete their transition into a stable or satisfactory employment in 7.4 months, half the time that it takes for general secondary level graduates (15.7 months) and youth with primary education (29.5

months). The unemployment rate for the young population with tertiary education is half that of a young person with primary education only, at 19.9 versus 40 percent respectively (International Labour Office, 2016). The labor indicators suggest that Jamaica faces low level of labor force absorption, with professionals and highly skilled among the permanent emigrants. According to the International Organization for Migration (IOM), about 45 percent of Jamaican emigrants have tertiary education[17] . At the same time, "under-qualified applicants" is cited as the second most important challenge faced by employers when recruiting staff.[18]

A large proportion of Jamaican students do not achieve minimum learning standards, especially in numeracy. Low outcomes in education start showing early in the education system. In 2018, only 65 percent of fourth grade students have mastered foundational skills in numeracy, while 85 percent of fourth grade students master literacy. In 11th grade, only 47 percent of applicants passed the Mathematics assessment (grades I-III), while 68 percent passed the English Language test, in the Caribbean Secondary Education Certificate (CSEC) in 2018.[19] These results show advances in relation to 2017, with about 4.5 and 2.9 percentage points increase respectively, but still leaves room for improvement (Ministry of Education, 2019). Notably, considering that only 40 percent of students sit the CSEC examination, and that those students are considered more likely to perform well compared to those who do not take the examination, learning levels in the general population could be lower.

International measurements of learning outcomes show that Jamaican students underperform peers in other Caribbean countries. Jamaica has not recently participated in international learning assessments, such as the Programme for International Student Assessment (PISA)[20] or Trends in International Mathematics and Science Study[21], to enable up-to-date assessment of its performance relative to international peers. In order to produce a globally comparable achievement outcomes, the World Bank developed the Harmonized Learning Outcomes (HLO), which uses conversion factors to compare international and regional standardized achievement tests (Patrinos & Angrist, 2018). In Jamaica's case, it is based on nationally representative results from the Early Grade Reading Assessment (EGRA) from 2014. Jamaica's HLO reveals that quality of education is an important bottleneck to build a high-skilled workforce and society. Jamaica obtained one of lowest HLO in the Caribbean region, third to last after Guyana and Haiti (Figure 10a).

The positive effect of near universal access to education is reduced due to low quality, which will be exacerbated by the COVID-19 pandemic. A child in Jamaica can expect to complete 11.4 years of early childhood, primary and secondary school by age 18. According to the World Bank's Human Capital Index (HCI), however, when years of schooling are adjusted for quality of learning, this is only equivalent to 7.1 years, representing a learning gap of 4.3 years (Figure 10b).[22] The learning crisis could be exacerbated due to the COVID-19 pandemic. According to World Bank simulations,

[17] IOM 2018

[18] https://www.lmis.gov.jm/wp-content/uploads/2019/06/Labour-Market-Trends-volume-2.pdf

[19] Which is held at the end of secondary school, in 11th grade.

[20] The Programme for International Student Assessment (PISA) is a triennial survey of 15-year-old students that assesses the extent to which they have acquired the key knowledge and skills essential for full participation in society. The assessment focuses on proficiency in reading, mathematics, and science.

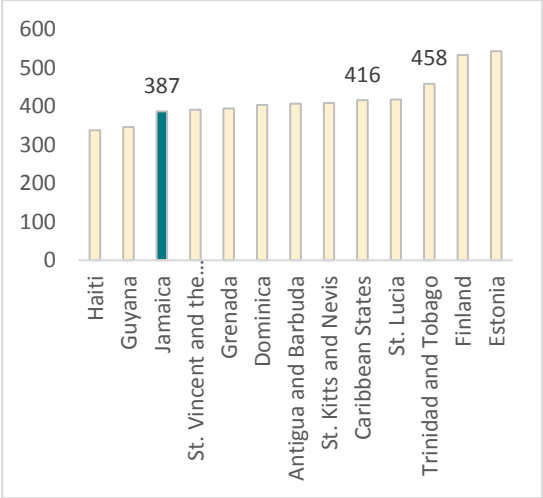
[21] The Trends in International Mathematics and Science Study is an international assessment that monitor trends in student achievement in mathematics, science, and reading.

[22] https://databank.worldbank.org/data/download/hci/HCI_2pager_JAM.pdf?cid=GGH_e_hcpexternal_en_ext

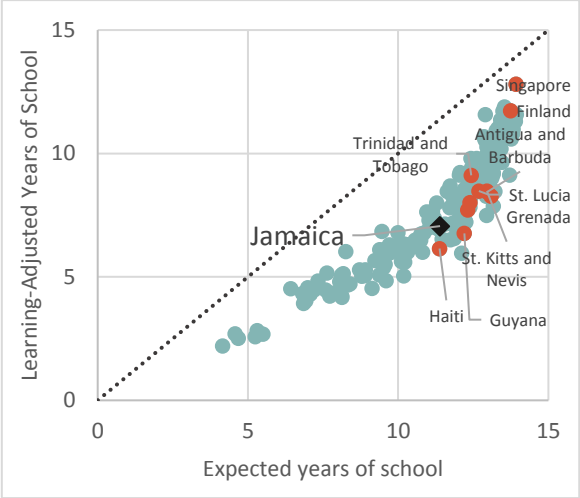
Jamaica will lose 1.3 year in learning-adjusted years of schooling (LAYS) (from 7.1 to 5.8 LAYS). This leads to an average annual earning loss per student of US $1,099 (2017 PPP), which aggregates to a total lifetime learning loss of US$5.5 billion – a third of Jamaica's annual GDP.

Figure 10. Quality of education, 2020

a) Harmonized learning outcomes, 2020



b) Learning adjusted years of school, 2020



***Source**: World Bank based on Human Capital Project (2020)*

II. Education expenditure

This chapter provides an overview of the level and composition of Jamaica's public spending on education. At the aggregate level, the analysis provides different metrics to assess education spending, presenting historical data when available. The overall education expenditure is also broken down by function and economic classification to analyze its composition. Throughout the chapter, education spending is disaggregated by level of education whenever possible. The analysis uses regional and international comparators to provide a benchmark for Jamaica.[23]

A. Level and Trends of Public Spending

Education expenditure in Jamaica is in line with international standards, and close to that of other Caribbean countries. The expenditure on education totaled JMD 111 billion (USD 744.5 million) in 2019, which, when represented as a share of the GDP, is close to the OECD average and other Caribbean countries. Overall, the expenditure on education is within the international standards: at least 4 percent to 6 percent of GDP according to The Third International Conference on Financing for Development (in Addis Ababa, July 2015). In addition, education expenditure represents 19 percent of the total government expenditure, which is higher than in most regional and international peers (Figures 11-12). The estimates of expenditure approved in March 2020 show that the education expenditure was expected to increase by 4 percent during the 2020/21 fiscal year (current prices). However, actual expenditures declined in 2020/21, although there is an approved expansion during 2021/2022 fiscal year.

Figure 11. Government expenditure on education as a share of the GDP (%), 2017 or latest

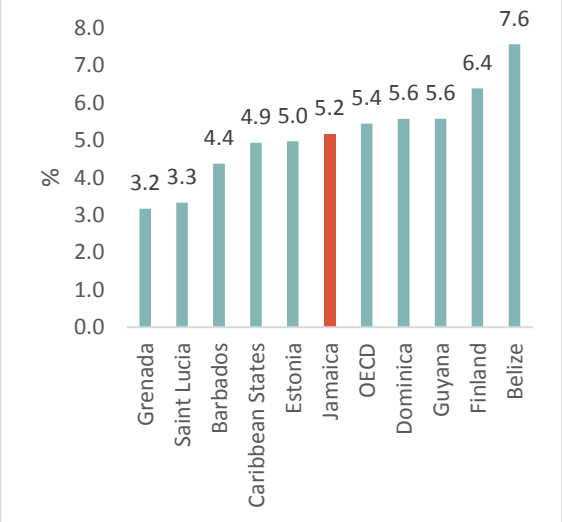
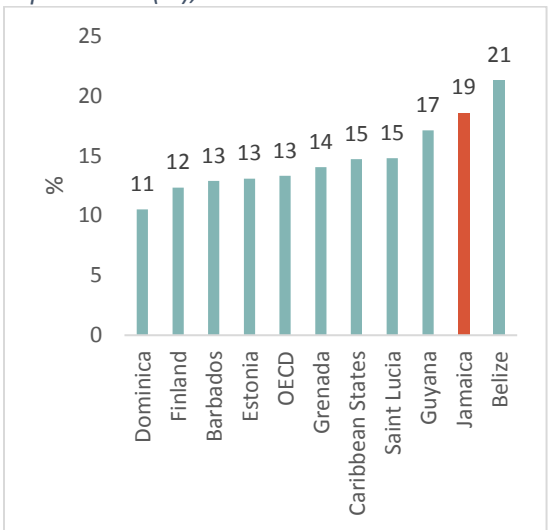


Figure 12. Government expenditure on education as a share of the total government expenditure (%), 2017 or latest

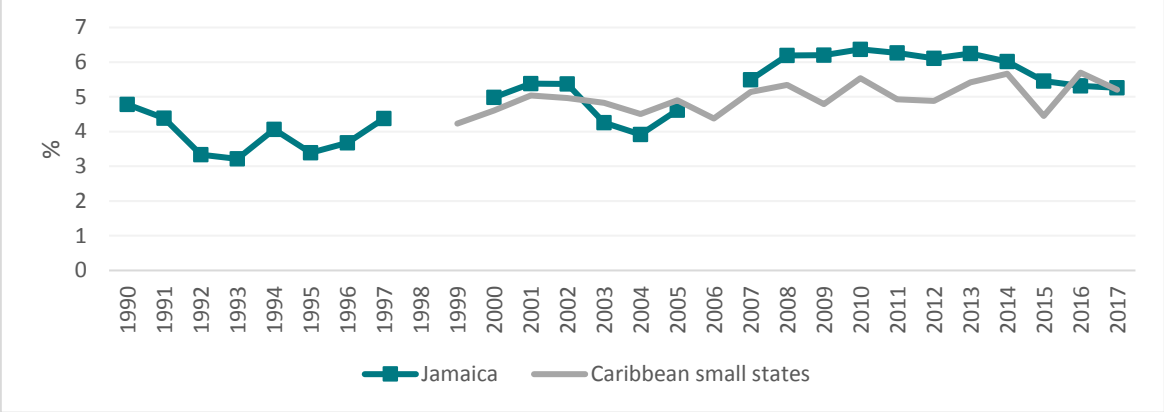


Note: Caribbean small states average excludes Jamaica. Source: UNESCO UIS, 2020 and MOEYI

[23] For the benchmarking analysis, the other Caribbean small states were chosen as regional peers, as they share socioeconomic and cultural similarities. Aspirational countries included relatively small countries in the world that rapidly became high-performing educational systems and currently combine high quality with widespread equity, including Finland and Estonia. Finally, the member countries of the OECD were chosen, since this organization promotes and establishes evidence-based international standards in education.

Education spending has been relatively high in recent years. The evolution of the expenditure over time shows that the expenditure on education has been 5 percent of the GDP on average since 1990, with variations over time. During a few years in the 1990s, the expenditure was lower than 4 percent of the GDP, but it peaked to around 6 percent of the GDP between 2008 and 2014, which is significantly higher than that of regional peers. More recently (2015-2019), the education expenditure has been around 5 percent of the GDP (Figure 13).

Figure 13. Jamaica and benchmark countries. Government expenditure on education as a share of the GDP (%), 1990-2017



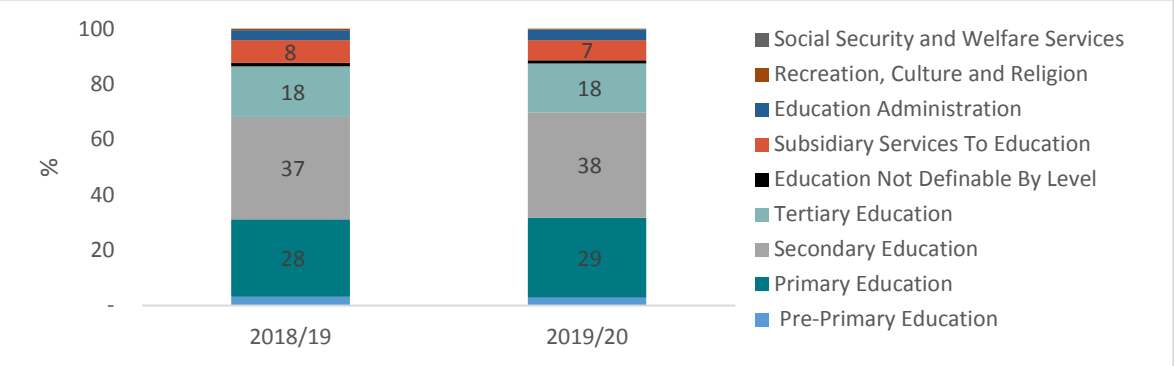
Source: World Bank based on UNESCO UIS, 2020

B. Spending Composition by function

The largest shares of the education expenditure are devoted to primary and secondary levels. In 2019, 29 percent of the education expenditure was allocated to the primary level and another 38 percent at the secondary level. The public expenditure on early childhood education (pre-primary education)[24] is only 3 percent of the total education expenditure. Special education, referred to as "Education not definable by level of education", accounts for 1 percent of the total education expenditure and tertiary education accounts for 18 percent. Another 7 percent is devoted to Subsidiary Services, such as provision for school feeding program. The MOEYI also finances Recreation, Culture and Religion as well as Social Security and Welfare Services. However, those functions only represent 0.2 percent of total expenditures (Figure 14). As compared to the OECD, the share devoted to secondary education in Jamaica is high: it was 33 percent of the total expenditure in OECD countries. Additionally, the share devoted to tertiary education is close to OECD average at 21 percent, but the enrollment rates in those countries are substantially higher (74 percent compared to 27 percent in Jamaica).

[24] Early Childhood Education and Pre-primary education is used interchangeably. In Jamaica the level is referred to as Early Childhood, whilst the term Pre-primary is used for international comparison – based on the International Standard Classification of Education ISCED (programs are targeted at children aged 3 years until the age to start primary education).

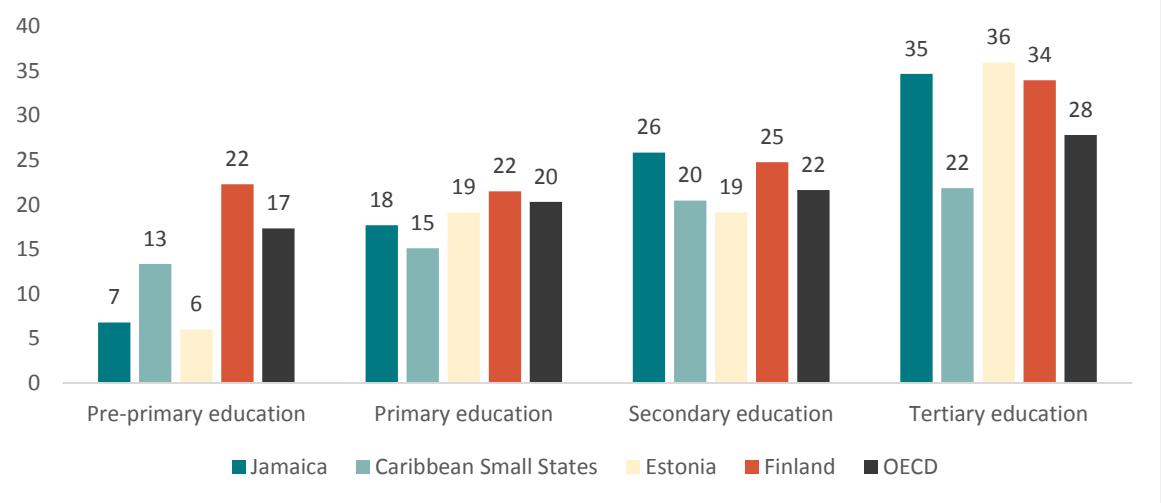
Figure 14. Jamaica. Distribution of Education expenditure by main functions and subfunctions (%), 2018/19 and 2019/20



Source: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)

Jamaica's public per-student expenditure is high in secondary and tertiary education and low in early childhood education, compared to benchmark countries. The per-student expenditure as a share of the GDP per capita is relatively low in early childhood education, which only represents 7 percent of the GDP per-capita. The per-student expenditure in primary education is 18 percent of the GDP per capita, slightly higher than in other Caribbean small states, and slightly lower than the OECD and other top performing systems such as Finland. The per-student expenditure in secondary education was 26 percent of the GDP per capita, which is relatively high compared to other Caribbean countries and top performing education systems. In tertiary education, the expenditure is at the levels of aspirational comparators, such as Finland and Estonia, but significantly higher than other Caribbean countries and the OECD average (with similar expenditure as a share of the GDP) (Figure 15). The total per-student expenditure in special education is relatively higher than at other levels, as expected. The per-student expenditure in 2018/19 represented 42 percent of the GDP per capita.

Figure 15. Jamaica and benchmark countries. Per-student expenditure as a share of GDP per capita (%), 2015 or latest



Note: *Jamaica: Adding the school feeding program. Caribbean small states average excludes Jamaica.*
Source*: UNESCO UIS (2020) and World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

C. Spending Composition by economic classification

The expenditure on education can be classified into three main types of expenses: (i) all staff compensation, which includes salaries, contributions for staff retirement programs, and other allowances and benefits; (ii) recurrent expenses other than staff compensation, which includes goods and services consumed within the current year such as textbooks, teaching materials, administration and other activities; and (iii) capital expenditure, which includes expenditure on assets that last longer than one year, including expenditure for construction, renovation and major repairs of buildings, as well as the purchase of heavy equipment or vehicles (UNESCO-UIS/OECD/EUROSTAT, 2019).

Jamaica's expenditure on staff compensation is relatively high, while spending on capital is low. In 2019/20, the expenditure on staff compensation totaled JMD 74 billion, which represented 76 percent of total government education expenditure and is high compared to the regional average and top-performing education systems. By contrast, the expenditure on capital was only 2 percent, very low compared to regional and international group of countries. It is worth noting that an additional of 0.67 percent of the total education budget in 2019/20 was devoted to "Rehabilitation and Maintenance Works", registered as a recurrent expense other than staff compensation. Nonetheless, it appears that low capital spending has remained constant in recent years. The expenditure on recurrent expenses other than staff compensation is slightly lower compared to other Caribbean small states, and close to OECD levels (Figures 16-17).

Figure 16. Jamaica and benchmark countries. Expenditure composition by economic classification, 2016 or latest

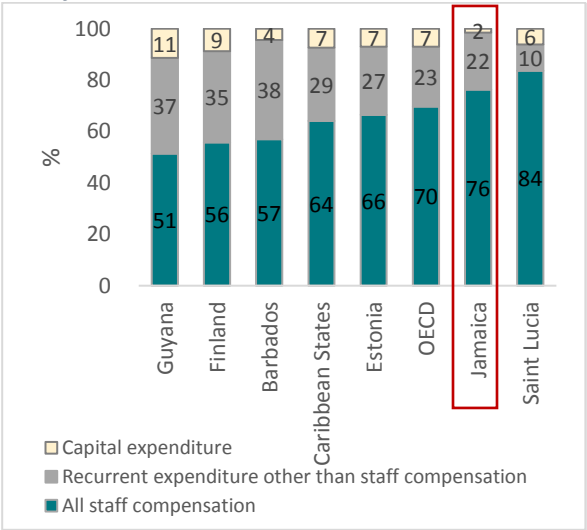
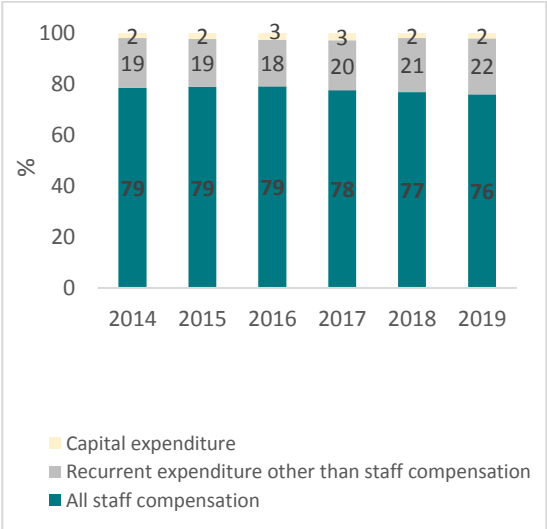


Figure 17. Jamaica. Expenditure composition by economic classification, 2018/19 and 2019/20 or latest

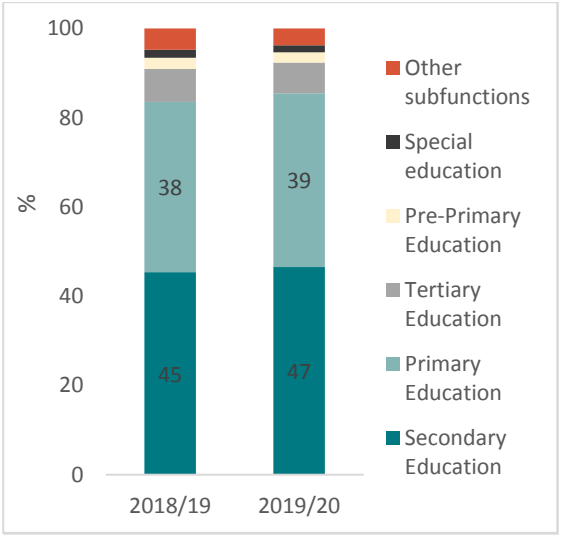


***Note**: (i) Caribbean small states average excludes Jamaica and includes: Guyana, Barbados and Saint Lucia (ii) For Jamaica and comparators, the spending distribution do not consider subventions and grants (iii) Jamaica: Excluding grants to university education, which makes up about 12 percent of the total education budget (2019/20). If grants to universities are included as recurrent expenses excluding salaries, the total expenditure on staff compensation would be 67 percent and recurrent expenditures other than staff compensation 32 percent.*

***Source**: UNESCO UIS (2020) and World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

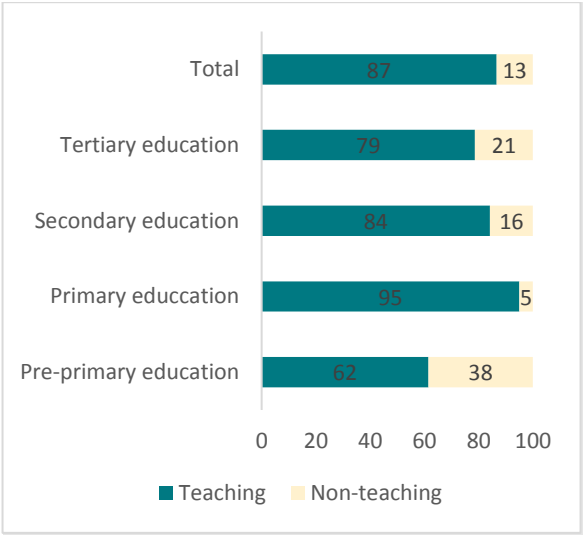
In terms of staff compensation, most of the budget is allocated to delivery of instruction, especially at primary and secondary levels. During 2019/20, about 47 percent of total expenditure on staff compensation was spent on secondary education, while primary education accounted for 39 percent. The expenditure at those levels is predominantly to deliver instruction (teacher salaries, as opposed to non-teaching salaries), especially in primary education. In total, 87 percent of the total expenditure cover teacher salaries, albeit at varying degrees across levels. In early childhood, only 62 percent of staff compensation is allocated to teachers, possibly due to private sources. At primary, 95 percent of staff compensation covers teacher salaries, 84 percent in secondary education and 79 percent in tertiary education. (Figure 16-17). Internationally, the spending on non-teaching staff is within global practices, while it is relatively high for teachers.

Figure 18. Distribution of Staff Compensation Expenditures by subfunction, 2018/19 and 2019/20



Source: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)

Figure 19. Distribution of Staff Compensation Expenditures by teaching/non-teaching staff, 2019/20



Source: World Bank on UNESCO UIS (2021)

The expenditure on staff compensation is fairly high in primary and secondary education, but low in early childhood education. Jamaica spends very little on staff compensation in early childhood education, only 3 percent of GDP on a per-student basis, significantly lower than the comparator countries. In primary education, the expenditure on staff compensation is about 90 percent of the total expenditure at the primary level. It represents 15 percent of the GDP per-capita on a per-student basis, which is slightly higher than regional peers and top performing education systems such as Finland and Estonia, and similar to OECD levels. In secondary education, the government per-student expenditure on staff compensation is the highest among comparators. On average, 81 percent of the total expenditure at this level is devoted to staff compensation. Additionally, in special education about 91 percent of total expenditure is allocated to staff compensation, which also appears high (Figures 20-23).

*Figure 20. Jamaica and benchmark countries. Distribution of the per-student expenditure as a share of GDP per capita by economic classification in **early childhood**, 2017 or latest*

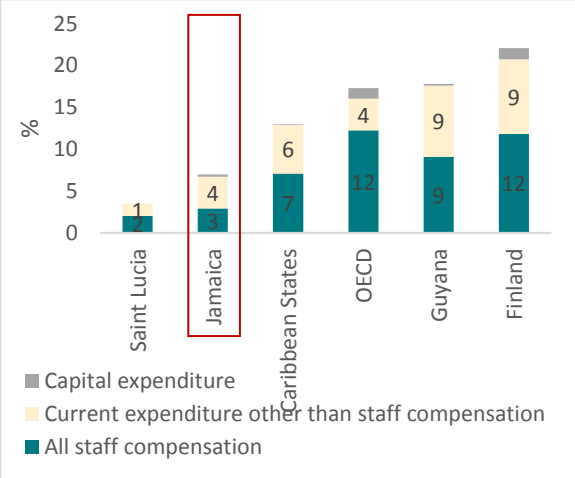


*Figure 21. Jamaica and benchmark countries. Distribution of the per-student expenditure as a share of GDP per capita by economic classification **in primary**, 2017 or latest*

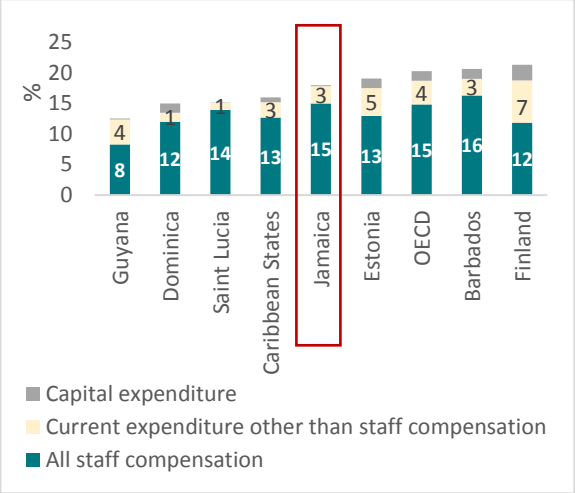


*Figure 22. Jamaica and comparators. Distribution of the per-student expenditure as a share of GDP per capita by economic classification **in secondary**, 2017 or latest*

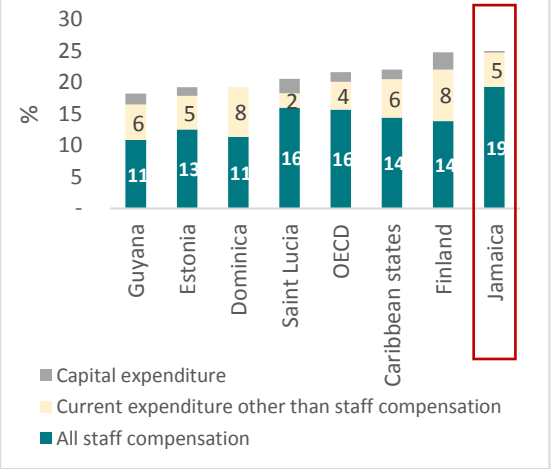
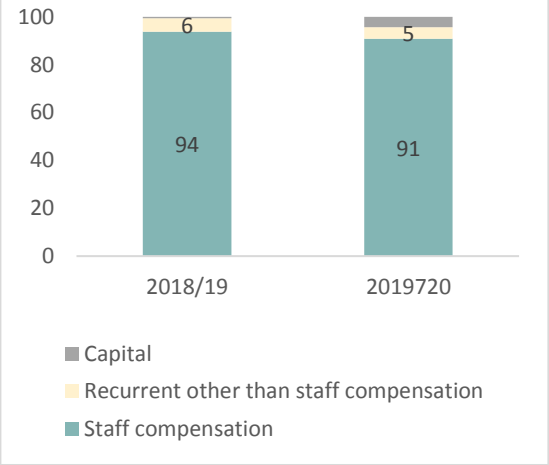


*Figure 23. Expenditure distribution in **special education** by economic classification, 2018/19 and 2019/2020*



***Note**: Figures 20-22 Including the school feeding program as a recurrent expenditure other than staff compensation (for international comparison).*
***Source**: World Bank calculations based on UNESCO UIS (2020) and Statements of Expenditure of the Jamaica's MOEYI (2020)*

International partners are an important contributor for capital expenditure. During the 2019/20 fiscal year, capital expenditure totaled JMD 1.5 billion (USD 10.1 million), of which about 57 percent of the capital expenditure was financed through GoJ's sources for construction, renovation, improvement and maintenance of buildings. Multilateral/bilateral funding accounted for about 41 percent of the total financing source for capital expenditure. The Education System Transformation Program financed by the World Bank and Interamerican Development Bank accounted for 23

percent, followed by the Partnership for Improve Safety and Security in Schools (USAID), which accounted 11 percent (Table 5).

Table 5. Jamaica: Main projects in capital expenditure by source of financing (%), 2018/19 and 2019/20

	2018/19	2019/20
International cooperation		
Construction of early Childhood Institutions Project[25]	2.3	0.3
Early Childhood Development Project (IBRD)	3.7	0.0
Education System Transformation Programme (IBRD/IADB)	20.0	22.9
Partnership for Improve Safety and Security in Schools (USAID)	11.8	11.1
Promoting Quality Education and Advancing the Reality of a Child Friendly Environment	0.8	0.4
School Renovation and Construction - Japanese Grassroots Project	9.2	5.2
Support for Sustainability of Education Sector Reform (IADB)	1.1	1.6
Total international cooperation	49.0	41.4
Jamaica's Government		
Construction, Renovation and Improvements	30.9	36.6
Maintenance of Buildings and Equipment	20.1	22.0
Total Jamaica's government	51.0	58.6
Total	**100**	**100**

Source: UNESCO UIS (2020) and World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)

Recurrent non-salary expenses are mainly allocated to secondary education and subsidiary services. During the 2019/20 fiscal year, recurrent expenditures (excluding salaries) totaled JMD 35.4 billion, of which 34 percent was devoted to secondary education, especially to tuition assistance. During 2019/20, the GoJ transferred JMD 17,000 per secondary student to schools as tuition assistance, to support the 'no tuition fee' policy implemented in 2016. Additionally, 29 percent of recurrent expenses cover subsidiary services to education, in which the School feeding program accounts for 19.5 percent of total expenditure on recurrent expenses other than staff compensation.[26] Assistance to community and private schools in early childhood education follows, accounting for 5.6 percent of recurrent expenses, especially for nutrition supplies and learning materials (Table 6).

Table 6. Distribution of recurrent expenses other than staff compensation by main functions and programs (%), 2018/19 and 2019/20

	2018/19	*2019/20*
01 - Education Administration	7.6	10.9
02 - Early Childhood Education	6.7	6.7
Community and Private School Assistance	*5.5*	*5.6*
03 - Primary Education	13.4	14.2
04 - Secondary Education	33.7	33.7
Tuition Assistance	*20.7*	*19.7*

[25] GoJ; Government of the People's Republic of China

[26] Programme of Advancement Through Health and Education (PATH).

Exam Fees Assistance	*1.9*	*2.7*
Career Advancement Program	*4.4*	*5.0*
Other programs in Secondary education	*6.7*	*6.3*
05 - Tertiary Education	5.3	4.5
06 - Education Not Definable by Level	0.3	0.3
07 - Subsidiary Services to Education	32.1	29.1
School Feeding Program	*22.6*	*19.5*
School Snack Program	*2.3*	*2.3*
Development of Books and Other Educational Materials	*3.9*	*5.2*
Library Services	*0.8*	*0.7*
Other subsidiary services	*2.5*	*1.4*
Grant total	***100***	***100***

***Note**: Excluding grants to university education, which makes up about 12 percent of the total education budget (2019/20).*
***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

The expenditure on recurrent expenses other than staff compensations is comparable to the regional peers in primary and secondary education. In early childhood education, the government per-student expenditure on recurrent expenses (excluding salaries) is similar to the OECD average, but slightly lower than in other Caribbean states. In primary education and secondary education, the expenditure on recurrent expenses other than compensation is similar to peer countries, while in special education, recurrent expenses other than staff compensation are relatively low, indicating little room to support core educational services, such as appropriate learning materials or healthy nutrition. The distribution of recurrent expenses other than staff compensation by level of education is further detailed in Annex II.

III. Analyzing the Performance of Jamaica's Education Expenditures

This chapter assesses the adequacy, efficiency and equity of expenditures on education, in relation to Jamaica's education goals and challenges. The analysis is grounded in an international benchmark analysis of Jamaica's education outcomes and expenditures, as well as in an in-depth analysis of the level and composition of Jamaica's education expenditure. Additionally, the assessment leverages statistical techniques to identify factors that could produce higher value for money.

A. Adequacy of spending

Public expenditure on education in Jamaica is high when compared to the average of the Caribbean states, and in line with international practices. Jamaica spends 5.2 percent of its GDP on education, which is in line with international best practice,[27] and slightly higher than the average of 4.9 percent for the Caribbean Small States (see Figure 11). The gap is wider when considering the share of total government expenditure: public expenditure on education in Jamaica represents 19 percent of total government expenditure, while in the Caribbean Small States the share is 15 percent (see Figure 12). The per-student expenditure in education as a share of GDP per capita is also high when compared to Jamaica's regional peers, although there are broad differences between education levels. While per-student expenditure as a share of the GDP per capita in pre-primary education in Jamaica represents 54 percent of the average for the Caribbean (7 percent vs 13 percent), the level in tertiary education is 59 percent higher than the regional average (35 percent vs 22 percent) (see Figure 15). These levels point to an overall adequate level of public education spending, which has been sustained over time, with some discrepancy between education levels. COVID-19 has, however, put new pressures on the education sector.

In the short term, responding to the COVID-19 pandemic will entail additional resources. Funds will be needed to cover the operational costs to prepare schools for a safe reopening, including the implementation of appropriate health and sanitation protocols. In the United States, implementing reopening strategies in pre-Kindergarten and K-12 during 2020/2021 could cost USD 442 (materials and consumables, additional custodial staff members, and potential additional transportation). Jamaica would require an estimated additional amount of JMD 4,000 per-student for school reopening (a total of JMD 1.8 billion)[28]. Additional support would come in addition to this, with targeted support for the most at-risk students costing an estimated JMD 1.6 billion, and reenrollment campaigns and outreach activities to persuade students to return to schools estimated at JMD 574 million. An estimated total would reach JMD 2.5 billion annually for 1 – 2 years. However, the cost of inaction would likely be much greater: according to World Bank simulations, Jamaica stands to lose 1.3 years in learning-adjusted years of schooling (LAYS) (from 7.1 to 5.8 LAYS) due to school closures, which translates to lifetime earning losses totaling JMD 828 billion (US$5.5 billion in 2017 PPP dollars). Moreover, these losses will not be evenly distributed, disproportionally

[27] Defined as 4 percent to 6 percent of GDP at The Third International Conference on Financing for Development in Addis Ababa, July 2015.

[28] Includes costs for materials and consumables, additional custodial staff members, and potential additional transportation. Estimates are based on US reopening protocols. The per-student cost is adjusted for Jamaica's level of development.

affecting the most marginalized and vulnerable students, as those students will likely be affected by reduced household wealth.

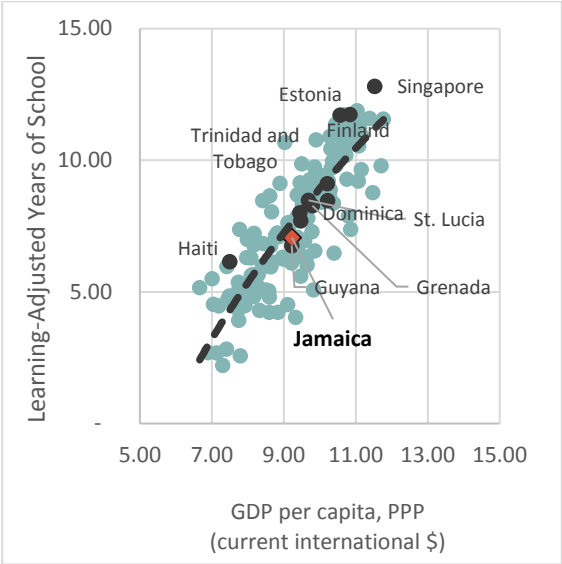
The macroeconomic burden of the pandemic imposes increased fiscal constraints that could jeopardize the allocation of additional resources to the education system to cover the costs of school reopening and learning remediation. Notably, and commendably, the education budget has increased for FY2021/22. Fiscal policy has been adapted to allow the GoJ to respond to the pandemic, consistent with the existing fiscal rules. With the worsening impact of the pandemic, the Government tabled supplementary budgets and adjusted its medium-term fiscal profile. An overall fiscal deficit of 3.1 percent was recorded in FY2020/21 – 4 percentage points higher than the original budget. This sharp deterioration in FY2020/21 reflected the combination of lower revenues and the impact of the GoJ's economic policy response (including its COVID-19 Allocation of Resources for Employees (CARE) as well as scheduled wage increases under the 2017-2021 wage pact and the reclassification of some salary groups). In this context, the primary surplus target for FY2020/21 has been revised downward from 6.5 percent to 3.4 percent of GDP. This revision meant that the original public debt target of 60 percent of GDP by FY2025/26 is unlikely to be attained, prompting a temporary suspension of the fiscal rules. Parliament has since approved a two-year extension to the public debt target timeline. Despite fiscal constraints, the GoJ seems to be committed to continue financing emerging demands in the education sector, as evidenced by the increase in the budget for fiscal year 2021/2022. These constraints will also make it imperative to spend resources more efficiently and equitably.

B. Efficiency of spending

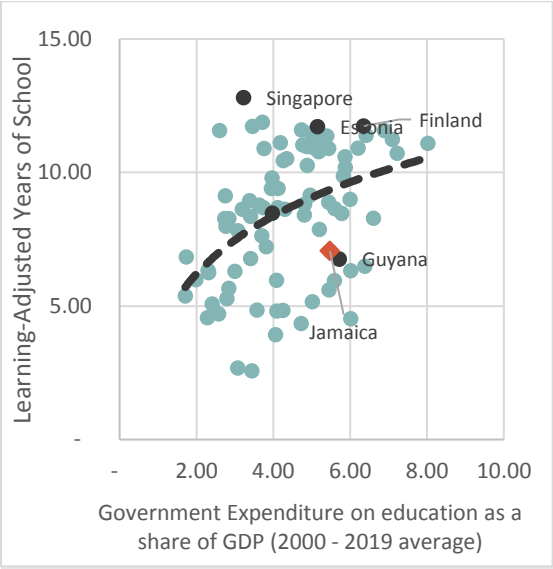
Although education expenditure in Jamaica is relatively high, learning outcomes are low, indicating that there is room to improve efficiency. The level of a country's development, measured by GDP per capita, is positively correlated with educational outcomes. Overall, Jamaica and other Caribbean small states have Learning-Adjusted Years of Schooling (LAYS) scores very close to countries with similar levels of development. In contrast, top performing education systems such as Finland and Estonia have high learning-adjusted years of schooling relative to their income level (line in Figure 24a). Relative to current education expenditure, the learning adjusted years of schooling in Jamaica is below the average of countries with similar expenditure levels (line in Figure 24b). When level of development, education expenditure and population size are jointly considered, learning-adjusted years of schooling in Jamaica is 10 percent below expectation.

Figure 24. Learning adjusted years of school (educational outcomes) compared to the level of development and expenditure on education

a) Level of development



b) Government Expenditure on Education as a share of the GDP



Note: in panel B, only countries with at least 12 data points in education expenditure between 2000 and 2019.
Source: World Bank based on Human Capital project (HCP) and UNESCO UIS (2020).

Learning challenges must be addressed in order to achieve the objectives outlined in the Government's Vision 2030 Education sector plan, and Jamaica has scope to address them with better use and allocation of its education resources. These objectives include: readiness of schools, children and communities for early childhood education; that each primary student achieves his/her potential and is fully prepared to access secondary education; as well as attainment of equal and inclusive access and retention to ensure completion of secondary education and continuation to the tertiary level. In the remainder of this section, spending aspects are analyzed to identify efficiency gain opportunities in terms of maximizing outcomes for the same level of expenditure ("output efficiency"). The education sector has significant scope to improve its education outcomes by addressing inefficiencies in the use and allocation of human resources, non-salary recurrent and capital spending, as well as distribution across and within education levels. Some considerations of potential cost-saving areas ("input efficiency"), in the short and longer-run, are also discussed, especially when discussing tertiary education, student assistance programs and teacher trends.

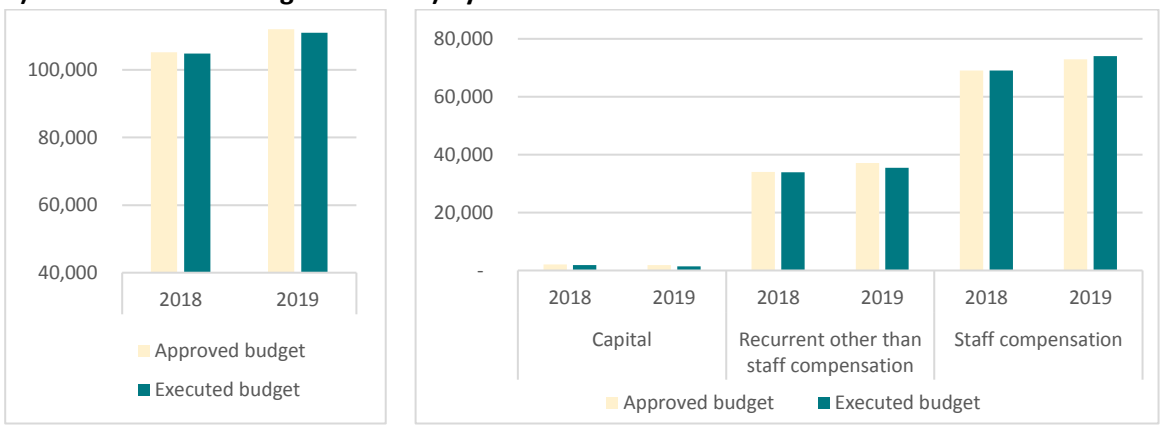
Budget execution

Actual spending on education in Jamaica is close to approved allocations, suggesting that overall, there is no idle funding for the sector and there is a strong execution capability. **Notably, the execution rate is lower for capital spending.** The budget execution rate in education has been over 99 percent, with a very slight decrease from 2018 to 2019 of less than 1 percentage point (see Figure 25). The breakdown by economic classification shows that the execution rate has been higher for salaries and for current expenditure other than salaries. During 2018, these two categories of spending reached over 99 percent of the allocated budget. In 2019, however, other current expenditure decreased to 95.5 percent of allocated budget while the execution rate of staff

compensations increased to 101.5 percent. With an overall small share in the education budget, capital spending has the lowest execution rate, representing only 77.1 percent of allocated budget to capital expenditure in 2019 and substantially lower than in 2018 (86.5 percent).

Figure 25. Approved vs executed budget in education (million JMD)

a) Total education budget **b) By economic classification**



***Source**: World Bank calculations based on MOEYI*

Efficiency in the use and allocation of resources across and by level of education

Efficiency gains could be attained through the reallocation of available resources across education levels, especially from tertiary to early childhood education. Public spending in tertiary education is high, while spending is low in early childhood education. Furthermore, unit cost is high at tertiary level and low at early childhood. Table 7 shows the average unit cost by education level as a share of the unit cost for primary education in Jamaica and comparators. The unit cost of secondary education is 50 percent higher than primary education, which is relatively high compared to OECD countries and regional peers. The unit cost of tertiary education is 100 percent higher than primary, which is significantly higher than most comparators. The share devoted to tertiary education is about 18 percent of the total expenditure and close to the OECD average. However, gross enrollment rates are significantly lower at 27 percent in Jamaica when compared to 74 percent in the OECD, indicating that the unit cost is significantly greater in Jamaica. In contrast, the unit cost of early childhood education is relatively low, representing 40 percent of the unit cost in primary, and is low compared to Caribbean states and OECD at 90 percent. The GoJ could therefore improve efficiency by reallocating resources from tertiary to early childhood education. This reallocation is further supported by global evidence that has identified investments in early childhood education as one of the most effective interventions in development (e.g. Heckman and Masterov 2007).

Table 7. Average unit cost by level of education relative to the unit cost for primary education, 2015 or latest

Country	Early childhood education	Primary education	Secondary education	Tertiary education
Jamaica	0.4	1.0	1.5	2.0
Caribbean Small States	0.9	1.0	1.4	1.4
Estonia	0.3	1.0	1.0	1.9
Finland	1.0	1.0	1.2	1.6
OECD	0.9	1.0	1.1	1.4

Source: World Bank Staff calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)

Reallocated resources from tertiary education could improve quality of early childhood education. Reducing the per-student cost in tertiary education (35 percent of the GDP per capita) to the OECD levels (28 percent of GDP per capita) would represent a saving of approximately JMD 3.7 billion annually that could be reallocated to other levels and programs, including early childhood education. These funds could be devoted to necessary improvements in the sector. As indicated by the fact that only a small fraction of basic schools is certified by the Early Childhood Commission, access to quality Early Childhood Education is not guaranteed for all children. The inputs needed to meet all the standards for certification are costly, and in order to support Early Childhood Education in areas such as provision of qualified teaching staff and adequate infrastructure, additional resources are required.

Education expenditure in tertiary education is highly concentrated in universities, with large differences in per-student expenditure, suggesting scope for input efficiency gains within the sector with a better distribution of resources across institutions. About 71 percent of the total expenditure in tertiary education is allocated to universities. University of the West Indies alone accounts for 50 percent of total expenditure in tertiary education and University of Technology accounts for 17 percent. Additionally, Multi-Disciplinary Colleges receive 15 percent of the total expenditure, followed by "Teachers Education and Training", with 10.3 percent of total. "Inservice Training for Teachers" accounts for 0.54 percent of the total expenditure in tertiary education (Table 8). The largest shares are allocated to direction and administration, while Scholarships, Tuition and Financial Assistance are relatively low. On a per-student basis, per-student expenditure is higher in both universities and teachers' colleges than in other tertiary education institutions (see Table 9). While per student expenditure on teachers' colleges was 40 - 50 percent lower than the per-student expenditure in universities between 2011 and 2014[29], as of 2019, teachers' colleges surpassed per student expenditure in universities by 10 percent. Tentatively, reallocating more resources to the non-university (except teacher colleges) sector and short-term degrees may be conducive to achieving similar or even better outcomes for fewer resources, especially in view of their importance for enrollment and relevance to labor market needs.

[29] "Education statistics 2012/13 – 2018/19", Ministry of Education.

Table 8. Distribution of the total expenditure in tertiary education, 2019/20

	2019 (JMD)	%
253 - Delivery of Tertiary Education	**17,617,361,407**	**89.7**
20 - Tertiary Education	**208,384,866**	**1.1**
10005 - Direction and Administration	70,496,670	0.4
10767 - Financial Assistance to Students	133,164,000	0.7
10772 - Supervision of Tertiary Institutions	4,724,196	0.0
21 - University Education	**13,849,586,868**	**70.5**
10005 - Direction and Administration	13,792,139,036	70.2
10303 - Scholarships and Tuition Assistance	47,000,000	0.2
10724 - Boarding Grants (UWI)	7,057,490	0.0
10799 - Other Scholarships	3,390,342	0.0
22 - Training of Health Professionals	**21,328,512**	**0.1**
10005 - Direction and Administration	3,348,129	0.0
10811 - Training of Nurses	17,980,382	0.1
23 - Multi Disciplinary Colleges	**2,884,613,617**	**14.7**
26 - Tertiary Agricultural Education	**488,507,762**	**2.5**
27 - Education Support Services	**130,232,024**	**0.7**
29 - Student Welfare	**34,707,758**	**0.2**
10767 - Financial Assistance to Students	34,707,758	0.2
256 - Teachers Education and Training	**2,024,057,325**	**10.3**
21 - Teachers Colleges- Secondary Education	**264,837,579**	**1.3**
22 - Teachers Colleges- Physical Education	**192,950,164**	**1.0**
23 - Teachers Colleges - General Education	**1,179,145,386**	**6.0**
24 - Scholarships for Teachers	**280,653,119**	**1.4**
25 - Inservice Training for Teachers	**106,471,078**	**0.5**
Total general	**19,641,418,732**	**100.0**

***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

Table 9. Per-student expenditure by type of tertiary education institution (JMD), 2019/20

Type of Educational Institution	**Per-student expenditure**
University of Technology	414,951
University of The West Indies	
Caribbean Maritime University	
Teachers' Colleges	454,325
College of Agriculture, Science and Education	345,724
Community Colleges	217,068
Edna Manley College of Visual & Performing Arts	
Moneague College	
Bethlehem Community College	

***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's Ministry of Education (2020)*

Additional analysis is required at the tertiary level to identify more specific and additional efficiency gain opportunities. Although an in-depth analysis of tertiary education is beyond the scope of this PER, undertaking a comprehensive assessment of the high unit cost in the sector, and reviewing the management, financing and performance of the sector overall would be important to inform future policy. It would be especially useful to look at the Teachers' Colleges, which have the

highest per unit cost within the sector. Analysis should account for legitimate cost differences within the institutions (such as specialized materials, infrastructure, and staff) whilst reviewing unaccounted-for differences. The recommendation section provides indicative areas of work that could promote more efficient and cost-effective public investment in tertiary education.

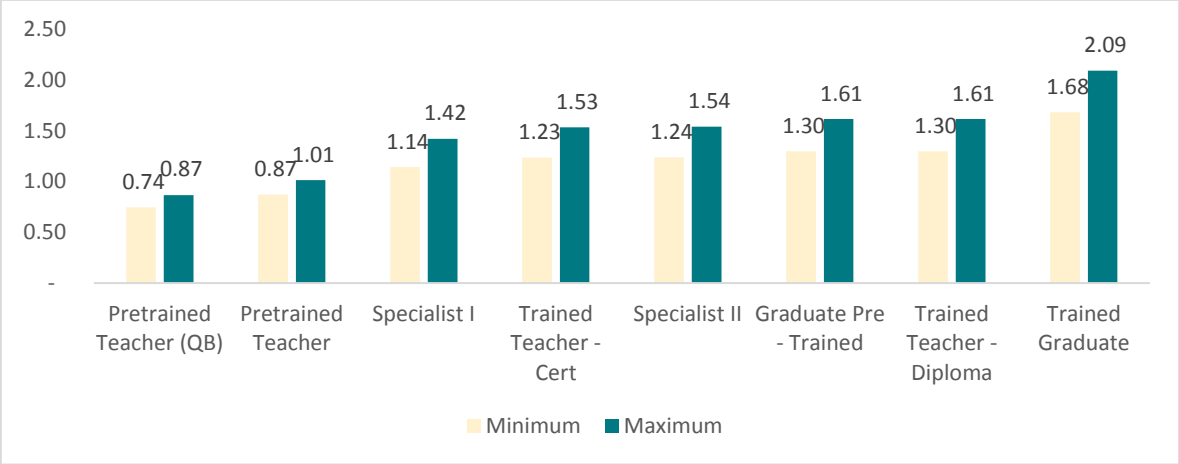
Use and allocation of teachers

Expenditure on staff compensation is relatively high compared to benchmark countries, especially with regards to teacher salaries. Around 76 percent of total government education expenditure is allocated to staff compensation, of which the bulk is teacher salaries. The share of staff compensation is relatively high compared to regional and international peers. By education level, most of the expenditure (86 percent) is allocated to primary and secondary education, while early childhood education receives the smallest allocation of staff compensation. Commensurately, the number of students per teacher is comparatively high in primary and secondary education. As such, there are few options for reallocation of teachers across these levels, but there could be room for reallocation within each education level.

Teachers' salaries are higher than the GDP per-capita in Jamaica, but low compared to similar professions and other countries, showing relatively limited room for reallocation. In Jamaica, professionals in the "Social work group" earn 14% higher than teachers if they reach the top scale (see Figure 27), and salaries in "Education, Science & Research" are 13 percent below that of "Public Administration, Self-governance". In Jamaica, furthermore, wages are low when compared directly with salaries in other countries (i.e. United States and England). However, this type of comparison does not consider country income level and local labor market conditions. The starting salary for most teachers is higher than the GDP per-capita in Jamaica, while, in the OECD, initial teacher salaries typically represent 90 percent of GDP per-capita (Figure 26). In Jamaica, the salary at the top of the pay scale is 140 percent greater than the starting salary. In the OECD the same figure is 84 percent, which suggests that there exist strong incentives for teachers to obtain additional qualifications in Jamaica. Nonetheless, salaries are low salaries in absolute terms, and the large wage differential contributes to fueling teacher migration.

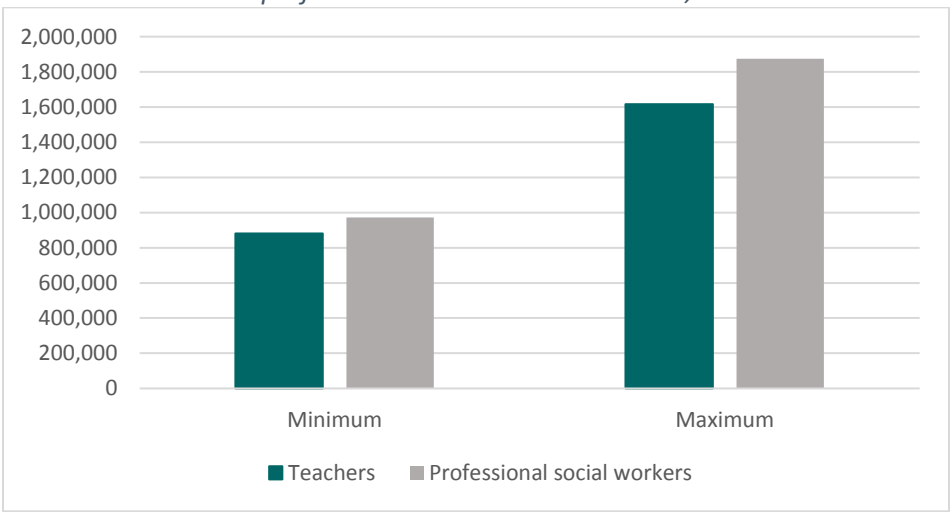
While it is not feasible to compete by matching salaries in other countries, salary scales could be adapted locally to increase performance. Currently, salary increases are based on qualifications and years of experience. Jamaica could consider a performance-based approach to retain the most qualified teachers, while avoiding higher costs merely through tenure. The mechanism for salary increase based on a performance-criteria would need to be carefully designed to avoid increases in overall expenditure on teacher compensation. The mechanism could consider teacher performance as well relative improvements in student/classroom performance, rather than performance in absolute terms, to avoid disincentivizing teaching disadvantaged students. To retain talent within the country, bonds related to scholarships for teacher education could be considered.

Figure 26. Ratio of teacher salaries to GDP per capita by qualification, 2020



Note: (i) QB qualification bar
Source: World Bank based on Ministry of Finance

Figure 27. Teachers' salaries vs professional social workers' salaries, 2020



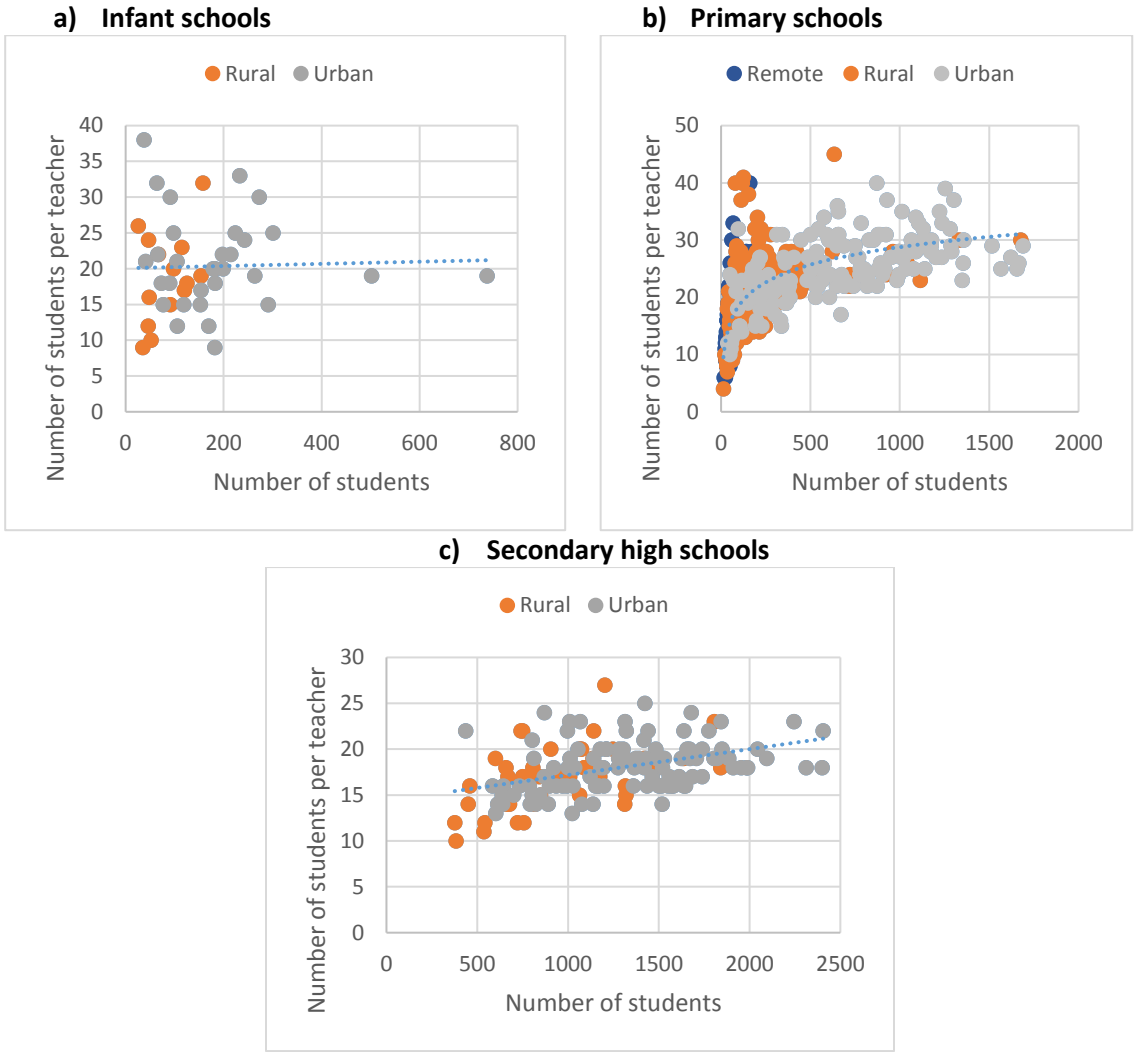
Source: World Bank based on Ministry of Finance

The number of students per teacher is relatively high in primary and secondary education, and low in early childhood education. Compared to other countries in the region, the number of students per teacher in early childhood education is relatively low in Jamaica, driven by the basic schools (11 students per teacher), compared to Infant schools (14 students per teacher). In contrast, the number of students per teacher is one of the highest compared to benchmark countries in primary education, 20 students per teacher, while in secondary education the number of students per teacher is slightly higher than that of regional peers, 16 students compared to 14 in other Caribbean states (see Annex I, Tables A1.1-A1.3).

With the current uneven distribution of teachers between schools, efficiency gains could be made by reallocating teachers within education levels, without increasing costs. Student-teacher ratios have been found to be correlated with learning outcomes. According to the analysis, the probability of attaining an advanced level in English and Mathematics decreases by 1 percent for every

additional student per teacher (after the mean) (Tables A1.1-1.2 in Annex I). In Jamaica, there are high variations in the number of students per teacher at all levels of education. In Infant schools, the number of students per teacher for large schools (200 students) varies between 9 to 33. In small primary schools (less than 50 students), the number of students per teacher varies between 5 and 40 students per teacher (Figure 28). In secondary high schools the number of students per teacher varies between 10 and 27 students per teacher (Figure 28). The standard for Jamaica is 25 students per teacher in primary and secondary schools and 20 in infant schools. A more equitable distribution of teachers across schools (within the same education level) could lead to improved learning outcomes without a substantial increase in public spending.

Figure 28. Number of students per teacher across schools and school size (public schools)

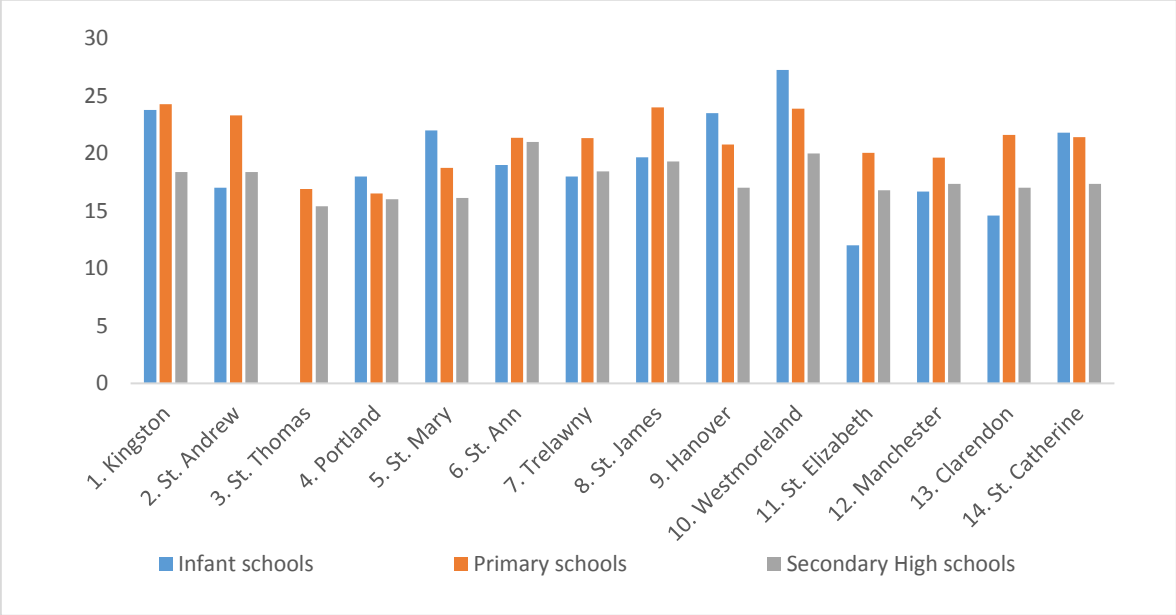


Source: School profile, MOEYI

Introducing more flexibility in student and teacher reallocation across schools could reduce discrepancies in student-to-teacher ratios (STRs). Although there are some differences across parishes (Figure 29), about 90 percent of the variation in STRs across all levels is explained by differences within parishes and regions. The variation in STRs is largely driven by the demand concentrated in some schools as well as rigidity in teacher mobility. Ensuring an efficient allocation

of teachers is challenging as the hiring contracts do not include flexible mobility schemes based on changes in enrolment. Furthermore, teachers are appointed by the Board of Management of each institution after consultation with the principal and subject to confirmation by the MOEYI. This process does not necessarily take a high-level view to avoid or mitigate overcrowding. Another possible area of inefficiency relates to allocation within grades in secondary schools. Around 14,476 (3.5%) students attend grades 12 and 13, which are optional, whilst at least 1,622 teachers (7.5%) teach at least in one of those grades (they may also teach in others). Jamaica could reallocate teachers from those grades to reduce pressures on existing resources. To further strengthen the reallocation process, the governance in the sector could be strengthened by giving more capacity and decision-making power to the Regional Education Authorities to monitor and adjust the teaching workforce.

Figure 29. Student Teacher ratios by Parish, 2018

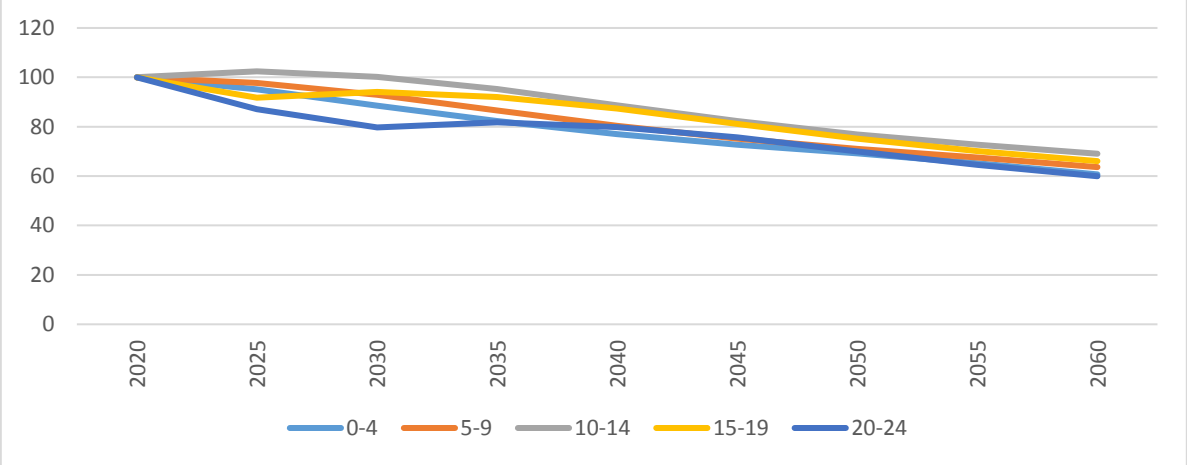


Source: World Bank based on Ministry of Education

In the long run, introducing more flexibility to respond to population shifts could also reduce the wage bill. Staff compensation has been steady over the past years, pointing to rigidity in the expenditure composition. Considering that staff compensation is the largest area of spending, it would nonetheless be useful to review the wage bill. In principle, this can be done by reducing salaries or reducing the workforce. As STRs are relatively high compared to regional peers, in the short term, it may not be desirable to reduce teaching workforce. As salaries are low relative to comparable professions, reducing salaries may decrease attraction of qualified applicants to the field and may exacerbate migration. However, in the long term, efficiency gains are possible by ensuring that the teaching force adapts flexibly to changing demographic trends as the school age population is expected to continue to decline during the coming decades (Figure 30). Policies to manage the student-teacher ratio in line with demographic trends would free up resources from staff compensation that could be reallocated towards performance-based incentives for teachers or other spending needs. Maintaining the current STR as student population declines could translate to an average of JMD 3,440 million in savings per year over the next 30 years, approximately 3% of

the current education expenditure.[30] These freed-up resources could be applied to off-set costs of other reforms in the sector.

Figure 30. Jamaica. Population trends by five-year age group (Medium fertility variant), 2020 -2060 (100=2020)



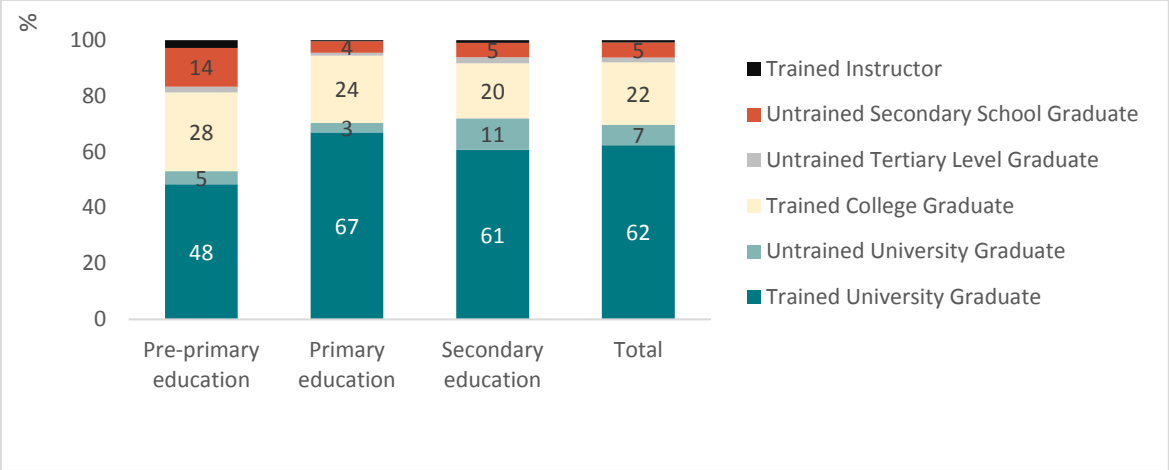
Note: Data is presented as index numbers. It means that each value represents the magnitude of change compared to the baseline (year=2020). Source: World Population Prospects: The 2019 Revision, United Nations.

Although most teachers have advanced education certificates, Jamaica does not fully benefit from its investments in teacher training. A growing body of research confirms that once children are in school, no single factor is as critical as the quality of teachers and teaching practices (e.g. WDR 2018). Econometric analysis shows that prevalence of teachers with a university degree is the most important determinant to explain results in CSEC examination for secondary high students (Table A1.1-A1.2 in Annex I). In early childhood education (public schools), about 53 percent of teachers are university graduates, compared to 70 percent in primary and secondary schools (Figure 31).[31] Unfortunately, qualified teachers often emigrate, causing teacher shortages in core subjects such as Math and Science in the local education system. Furthermore, this represents an inefficient use of public spending, as Jamaica does not fully benefit from its investments in this area. In tertiary education, for example, 10 percent of expenditure is allocated to "Teacher Education and Training". Other factors, including the quality of training and accountability for performance, also play an important role in the quality of teaching and as such should be considered in any teacher training strengthening effort. Introducing a performance-based salary scale, as described above, could help solve some of these issues.

[30] Authors' estimates using demographic projection data. Dropout rate is considered steady over the years.

[31] **Trained College Graduate (TT):** A teacher who has acquired training at an approved teacher training institution and holds a diploma and/or degree in Education. **Trained University Graduate (TG):** A teacher who has acquired professional training at a recognized university with a degree in education. **Trained Instructor (TI):** A teacher who has acquired professional training in teaching instruction from an approved institution such as (HEART, VTDI) **Untrained Tertiary Level Graduate (UT):** A teacher who has had no formal training in education who has acquired a certificate/diploma/associate degree, unrelated to the field of education, from a tertiary institution. **Untrained University Graduate (PG):** A teacher who has acquired a first degree or higher degree without professional teacher training. **Untrained Secondary School Graduate (PT):** A teacher who does not hold any certification.

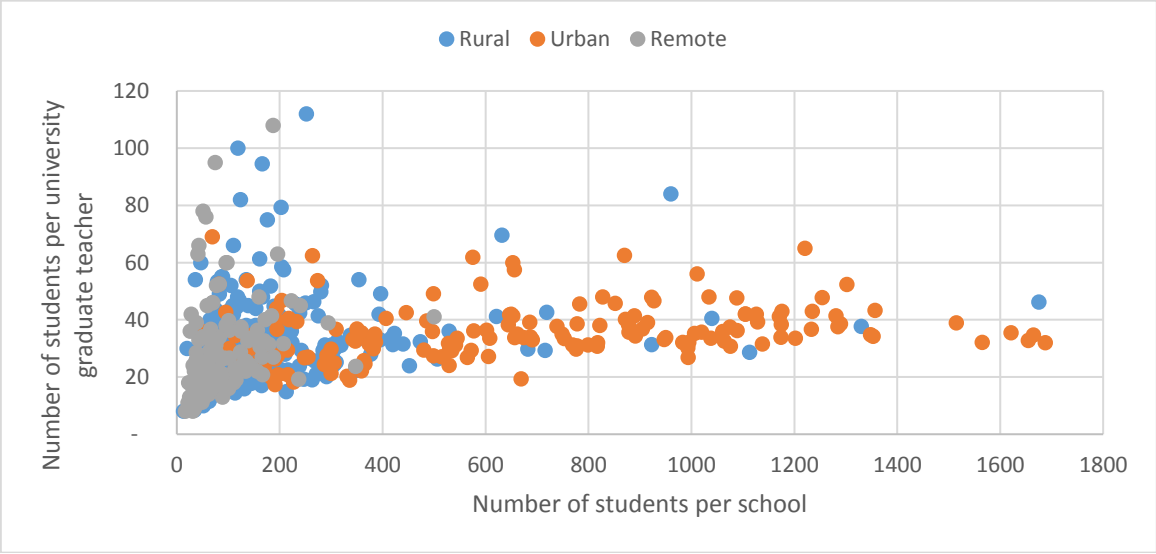
Figure 31. Teacher qualification in public schools by level of education



Source: World Bank calculations based on MOEYI

The distribution of university graduate teachers is also uneven across schools, suggesting additional scope for efficiency gains. As noted, the impact of having university graduate teachers is correlated with improved learning outcomes.[32] However, there is inequitable allocation of university graduate teachers across schools (primary schools shown in Figure 32)[33]. In some rural and remote areas, there are 100 students per university graduate teacher. Improved efficiency- and equity - could be achieved by distributing qualified teachers carefully, including allocating qualified teachers to high-needs schools. Jamaica already provides financial incentives for teachers to work in areas of need, in line with best practice. The Regional Education Authorities could also aid in the process of identifying schools and high-need students to make the distribution of teachers more equitable.

Figure 32. Number of students per university graduate teachers (primary schools), 2018



Source: World Bank based on MOEYI

[32] Notably, no other qualification was correlated to learning outcomes.
[33] Similar patterns were found for other school levels.

The per-student education expenditure in teacher colleges is high, but the quality of pre-service training remains low. University graduate teachers in any field are positively correlated with learning outcomes. However, teachers trained in teacher colleges do not have a similar impact, pointing to low levels of quality. Low quality pre-service training programs are a common challenge across LAC. A World Bank report highlights that pre-service training in Latin America generally fails to provide sufficient content mastery and student-centered pedagogy, as the programs are isolated from the school system and education policy making. Additionally, many of the pre-service programs only provide practical experience working in schools towards the end of the degree and sometimes not at all (World Bank, 2015). Therefore, the relevance and quality of degrees in education should be reviewed and improved, including consistent practical application throughout the program, especially considering that the per-student expenditure in teacher education has increased in recent years.

Finally, classroom time is not effectively and efficiently used by teachers, which might be negatively impacting student learning. In Jamaica, observational data indicates that teachers only use 62 percent of the total class time for instruction. According to best practices, instructional time should be at least 85 percent of classroom time (Great Teachers, 2015), meaning that students in Jamaica are losing more than 20 percent of potential instructional time relative to global targets. The foregone time is equivalent to a full day of instruction per week. Most of the time lost is used on classroom management activities, such as taking attendance, cleaning the blackboard, grading homework, or distributing papers, which could be performed by a teacher aide. However, Jamaican teachers spend 11 percent of total class time in "off-task" activities (neither teaching nor managing the classroom), one of the highest rates in the LAC region (Great Teachers 2015). This could also suggest a need for improved school leadership and systems for monitoring and mentoring to improve classroom performance. Professional development efforts could include school leaders as well as teachers, with recognition of their unique role as both administrators and pedagogy leaders. Refocusing professional development programs towards improving teacher classroom practices, and including school management in programs has the potential to improve learning outcomes.

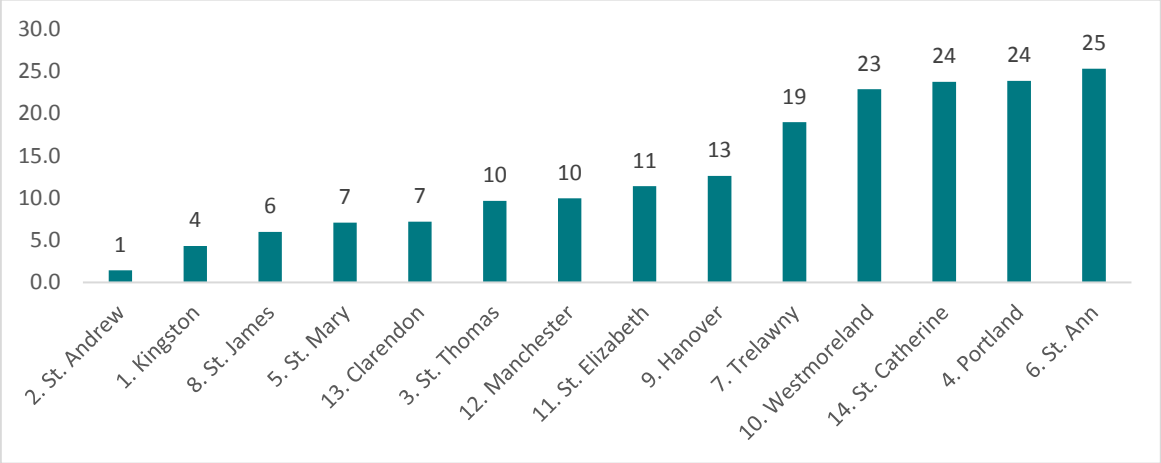
Use and allocation of capital expenses

Current physical infrastructure is not sufficient to cover the needs of the education system. Capital expenses have averaged 2 percent of education expenditure over the last six years. During 2018/19, about 18 percent of students in secondary high schools, 11 percent in Primary schools and 5 percent in All Age schools were impacted by double shifts[34] due to lack of space, which could negatively interfere with learning outcomes. At the secondary level, students in shift schools have 9 and 7 percent less probability of attaining basic levels in Mathematics and English respectively, compared to students in secondary schools that operate on only one shift (Table A1.1-A1.2 in Annex I). Double shift schools are more common in some parishes than others, for instance St Ann, Portland, St. Catherine and Westmoreland. In these parishes the percentage of students impacted by double-shifts ranges between 23 and 25 percent (Figure 33). In addition, in 17 percent of all school facilities, enrollment outnumbers the total school capacity by 20 percent (including double shift schools). This is particularly prevalent in Primary and Secondary Schools, of which 28 percent and 16 percent were overcrowded respectively (Figures 34-35). Additionally, capital spending has the lowest execution rate in the budget, and 23 percent of the budget on capital spending was not used in 2019. According

[34] Double shift schools operate in two shifts, with one group of students attending school early in the day and a second group of students later in the day.

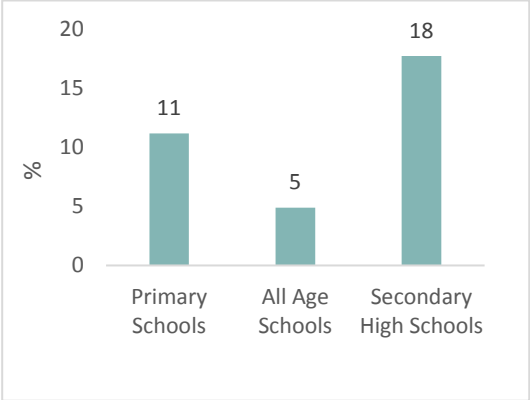
to the Education Act, the MOEYI has the competence for school infrastructure planning and classification of schools.[35]. An investigation into the criteria used to determine the allocation of capital spending, and the reasons for under-execution, could be beneficial.

Figure 33. Percentage of students impacted by shifts across regions, 2018



Source: World Bank based on MOEYI

Figure 34. Percentage of students impacted by shifts by school type, 2018



***Source**: World Bank calculations based on MOEYI*

Figure 35. Percentage of schools in which enrollment exceed capacity by 20 percent or more, 2018/19

***Source**: World Bank based on School Profile report 2018/19*

Rationalizing the school network could be an important step towards meeting infrastructure needs, without allocating additional resources. Double shift schools operate in all parishes. However, there are also schools operating below capacity, especially in rural areas. Notably, there is a large rural-urban divide; whilst schools in urban areas are overcrowded with 11,032 missing seats (4 percent of the current capacity in urban areas), schools in rural areas operate under capacity with a total of 36,197 available seats across all types of schools (25 percent of total capacity in rural areas) (Tables 10-11). The surplus of spaces in rural schools could partly be explained by

[35] However, there is no specific reference to merging schools.

urbanization and population migration to the cities (in addition to challenges related to poverty and transportation challenges in rural areas). In order to alleviate the shortage of spaces in urban areas, some All Age and Primary and Junior High could be converted into primary and secondary schools. In urban areas, by 2035, population decline will offset the deficit of current capacity in primary and secondary schools. In rural areas: by 2035, the enrollment would drop by about 25,000 students in primary and secondary education, underlining the need for consolidation going forward. Rationalizing the school network could lead to efficiency gains through economies of scale as the per-student expenditure of running large schools is lower. To optimize STR, this rationalization process should be taken into consideration when implementing teacher reallocation.

Table 10. Difference between capacity and enrollment by type of schools (rural schools), 2018

	Infant	Primary	All Age	Primary & Junior High	Secondary High	Technical High	Agricultural High	Total
10. Westmoreland	-54	344	66	599	-1,590	54		-581
7. Trelawny		723	167	696	-186			1,400
8. St. James	84	980	718	134	-180			1,736
2. St. Andrew	81	911	752	499	144			2,387
6. St. Ann	145	1,024	1,024	398	-142			2,449
12. Manchester	10	2,191	227	385	-160			2,653
3. St. Thomas		2,473	227	337	117	-247		2,907
9. Hanover	180	1,481	241	98	832	0	168	3,000
11. St. Elizabeth	79	2,455	946	1,104	-1,091		-482	3,011
4. Portland	53	1,595	413	1,021	309			3,391
5. St. Mary	93	2,701	59	1,226	-41	98		4,136
13. Clarendon	113	1,821	1,026	1,331	314			4,605
14. St. Catherine		3,883	519	321	181			4,904
Total general	**983**	**22,582**	**6,385**	**8,149**	**-1,493**	**-95**	**-314**	**36,197**

Source: World Bank based on MOEYI

Table 11. Difference between capacity and enrollment by type of schools (urban schools), 2018

	Infant	Primary	All Age	Primary & Junior High	Secondary High	Technical High	Total
14. St. Catherine	315	-6,527	321	2,204	-3,430	770	-6,347
6. St. Ann	-74	-1,192	262		-1,705	372	-2,337
4. Portland	167	-644			-1,242		-1,719
12. Manchester	243	-382		103	-1,359	-185	-1,580
9. Hanover	-118	11	5	-9	-1,291		-1,402
2. St. Andrew	61	-3,310	893	2,406	-1,226	-3	-1,179
10. Westmoreland	42	-1,024	-117	416	100		-583
8. St. James	138	-1,038	-25	610	-1,036	969	-382
11. St. Elizabeth		-307	327	285	-505	-173	-373
13. Clarendon	85	-1,365	288	1,298	277	-596	-13
5. St. Mary	-39	747		-127	-573		8
7. Trelawny	57	37	11		176		281
3. St. Thomas		-229		609	530		910
1. Kingston	825	1,145	581	589	293	251	3,684
Total	**1,702**	**-14,078**	**2,546**	**8,384**	**-10,991**	**1,405**	**-11,032**

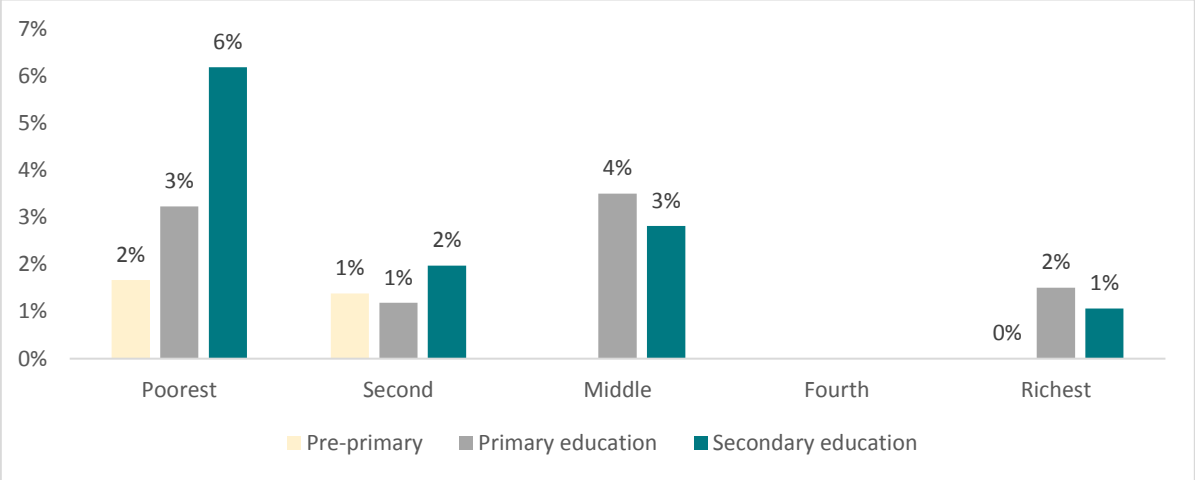
Source: World Bank based on MOEYI

Efficiency of Student Assistance Programs

Student assistance programs have potential to improve learning and attendance outcomes for those who need it the most in an efficient way. Analysis shows that daily attendance is closely correlated with school achievement. In particular, students who attend schools with low daily attendance rates underperform in the CSEC. According to the Survey of Living Conditions, "money problems", "illness" and "rainy weather" are the main factors impacting daily attendance. Unsurprisingly, "money problems" disproportionally affect students in the lowest socioeconomic quintile (Figure 36) (which may be reflected more significantly in lower attendance in rural areas). Improving the targeting of education expenditure on student welfare services, such as meals, school health services, and transportation to and from school, could potentially alleviate the high economic burden of education for the families that need it the most and, by doing so, improve attendance and ultimately learning outcomes.

The current level of spending on some student welfare services also suggests some opportunities for cost-savings. For example, Jamaica spends more in school feeding per student than other reference and aspirational countries, suggesting some room for efficiency gains. The median cost of school feeding per child in upper middle and high-income is USD81 and the mean cost is USD154 (2020), representing 1 percent of the GDP per capita.[36] In Jamaica, the unit cost is USD175, around 2.7 percent of the GDP per capita.[37] Reducing the current unit cost to international levels could translate to savings of about JMD 277 million (international mean cost) to JMD1.2 billion (international median cost). These resources could be used to either expand the program to more students in need or for other priorities within the sector. Given that school feeding programs are highly decentralized and often operated at the school level, one option to reduce cost may be to standardize the programs within parishes, possibly benefiting from economies of scale.

Figure 36. Percentage of students that do not attend school for five days or more in a month due to money problems by Level of education and quintile groups, 2017



Source: World Bank based on the Survey of Living conditions, 2017

[36] https://docs.wfp.org/api/documents/WFP-0000123923/download/

[37] Jamaica allocates around JMD26,151 to schools annually per child on average. It includes grants for Staffing (Cooks) Support.

C. Equity of spending

Despite significant fiscal effort, and Jamaica's achievement in universal attendance up to age 16, disparities in access persist by socioeconomics levels, gender and rurality in secondary and post-secondary tertiary levels. As highlighted in Chapter I.C, 15 percent of the poorest students do not complete secondary education (11th grade) compared to higher income students, of which only 2 percent do not complete secondary education. In tertiary education, disparity in access is even greater. "Money problems" is the most cited reason for drop-out and not attending school. This section explores the distribution of public spending, with specific reference to vulnerable families and students, to identify areas where more support might be required. The section also highlights some of the main elements discussed in previous sections to present a more comprehensive analysis of the main bottlenecks to equitable access to quality education for all.

The education system is equitable in terms of access to early childhood and primary education, but not in secondary and tertiary education. Access to primary education has been equitable over the last seven years, and the gap has narrowed in early childhood, secondary and tertiary education. Despite the improvements, the gap by socioeconomics level, gender and rurality persists in secondary and post-secondary tertiary levels. In particular, the male, rural, and socioeconomically disadvantaged populations are less likely to attend secondary and post-secondary tertiary education (Table 12). The gross enrollment rate in tertiary education is also low, at 27 percent only; compared to up to 90 percent for top performing education systems.

Table 12.Net attendance rates by level of education, 2010 and 2017

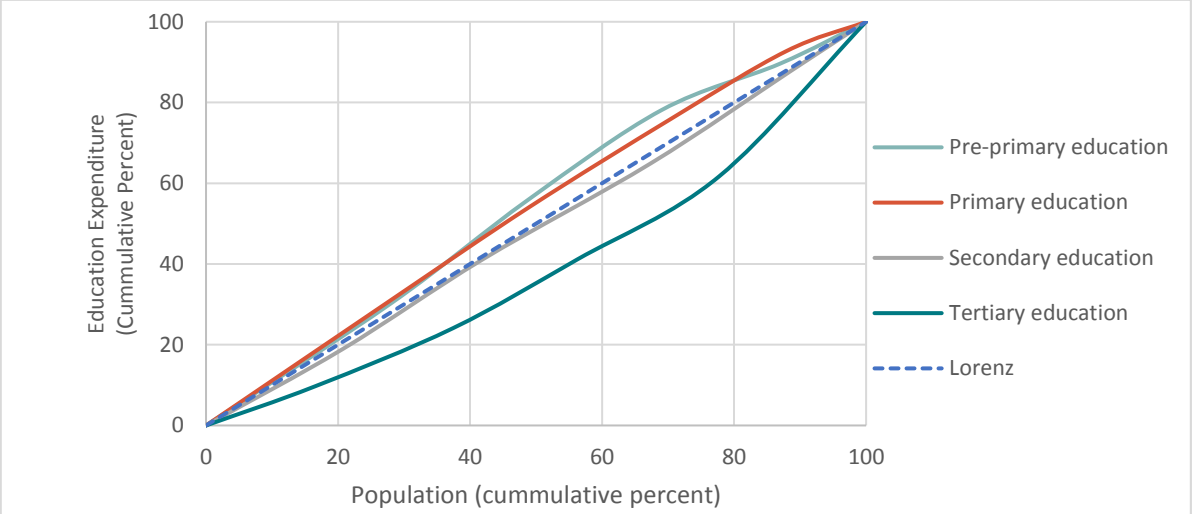
	Early childhood education		Primary education		Secondary education		Tertiary education	
	2010	2017	2010	2017	2010	2017	2010	2017
Gender								
Male	80	89	90	92	79	81	12	13
Female	84	83	94	91	85	84	15	21
Area								
Kingston MA	87	89	89	90	86	87	26	24
Other Towns	87	85	93	91	83	85	11	20
Rural Areas	76	85	93	92	80	79	6	10
Quintile								
Poorest	70	87	92	92	73	69	3	11
Second	81	89	91	94	80	82	7	13
Middle	83	83	95	88	82	86	11	15
Fourth	89	85	95	88	87	90	8	19
Richest	91	87	84	94	94	90	40	36

***Note**: The Net Attendance rates for a given level of education is the percentage of the theoretical-school-age population that is attending that level of education. Theoretical ages: Preschool (3-5 years old), Primary education (6-11 years old), Lower secondary education (12-14 years old), Upper secondary education (15-16 years old), Tertiary education (17-21 years old)*
***Source**: World Bank based on Jamaica Survey of Living Conditions, 2017*

Government expenditure in early childhood and primary education is pro-poor, neutral to poverty in secondary education, and regressive in tertiary education. The spending distribution by per-

capita household consumption level shows that the poorest population benefits more than the richest from public investment in education in early childhood and primary education. This is due to the relatively large proportion of the students from the lowest socioeconomic quintile enrolled in public institutions. Secondary education is neutral to poverty, reflected through an equal proportion of students from lower and higher socioeconomic quintiles in public schools.[38] As students from higher socioeconomic quintiles are overrepresented at tertiary institutions, expenditure in tertiary education is regressive (Figure 37). As such, reallocation from tertiary to early childhood education would also achieve a more equitable allocation of public resources in Jamaica.

Figure 37. Jamaica: Lorenz curve of the Education Expenditure, 2017



Source: World Bank staff calculations based on Survey of living conditions, 2017

Public expenditure on tertiary education is not only high and inefficient, but also disproportionally benefits better-off students. Jamaica currently invests large shares of its budget in tertiary education, with inequitable results. Improving equitable access to tertiary education is imperative, particularly for the socioeconomically disadvantaged, male, and the rural population. This could be done through the provision of scholarships and/or tuition support for students from low-income households, which represent a low share of education spending at this level. Shifting from general subsidies to targeted assistance could improve equity while improving spending efficiencies by reducing subsidies overall. These programs should be accompanied with information on financial aid options for students still in secondary school, which can also promote secondary school attendance (Dinkelman & Martinez, 2014). The Government could also consider the provision of supplemental academic support programs for students who may not be fully prepared to succeed in higher education. Reorienting spending towards non-university short-term degrees could also be equity-enhancing.

Although education is, in principle, free, the cost of attending school is still significant for households. Every school year, households pay for items such as uniforms, learning materials,

[38] About 15 percent of poorest drop-out from schools (in grades 9, 10), while 14 percent of richest attend private schools but only 1% of poorest do. It is also important to mention that private schools benefit from tuition assistance too. However, poorest receive proportionally more resources from programs such as school feeding. Altogether, spending in secondary education is quite neutral to poverty levels. However, the distinction between different types of secondary schools (high-quality and others) were not considered in calculations.

school meals, registration and examination fees. In 2017, according to the Survey of Living Conditions, the annual household cost during an academic year for one early childhood student was equivalent to 10 percent of GDP per capita, for a primary student 13 percent, and for a secondary student 20 percent. Overall, for every Jamaican dollar that the government spends on education, households add JMD 1.5 in early childhood and JMD 0.7 in primary and secondary education. In 2017, total pre-tertiary level household education expenditure was equivalent to 2.6 percent of GDP. For students attending private primary and secondary schools, the household cost is about twice as high (Figures 38-39).

Figure 38. Household and Government per-student expenditure on education as a share of the GDP per-capita by level of education, 2017

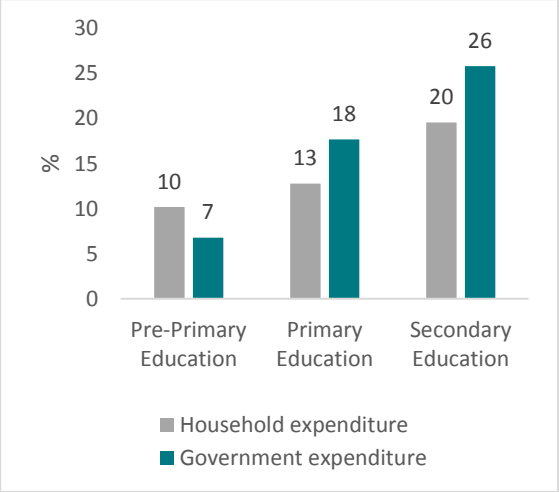
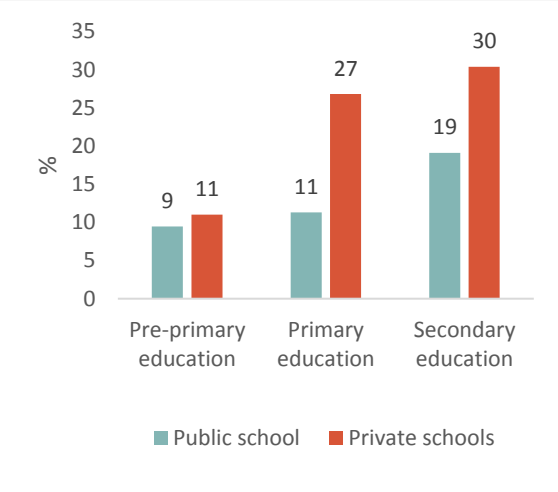


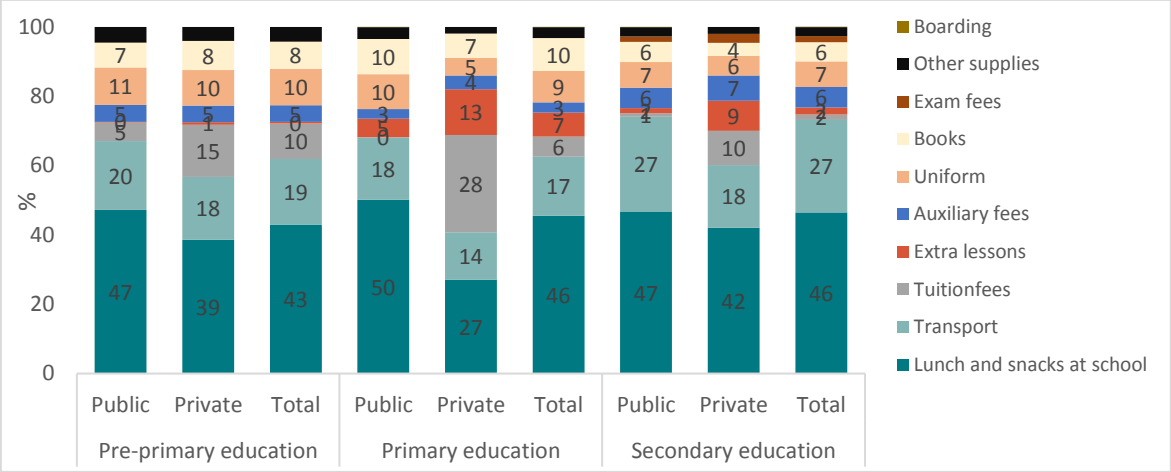
Figure 39. Household per- student expenditure on education as a share of the GDP per-capita by level of education and type of school, 2017



Note: *(i) Household expenditure: 2017; Government expenditure: 2018/19*
Source*: World Bank calculations based on Statement of Expenditure of the Jamaica's MOEYI (2020) and Survey of Living conditions (2017).*

School meals are the main cost item for households, followed by transportation. Expenditure on school meals (lunch and snacks at school) makes up the largest share of the per-student household expenditure, across all levels of education and type of school (private vs. public). In total, for every dollar that the government spends on the school feeding program, households add JMD 4.6 dollars for school meals and snacks. In addition to school meals and snacks, expenditures on transportation account for the second largest share of the household expenditure, followed by expenditures in tuition fees (private schools), uniforms and books. The government, through PATH, provides cash transfers to families to help purchase school supplies, especially books and uniforms, and also runs a school feeding program (Figure 40).

Figure 40. Distribution of the household expenditure on education (%), 2017

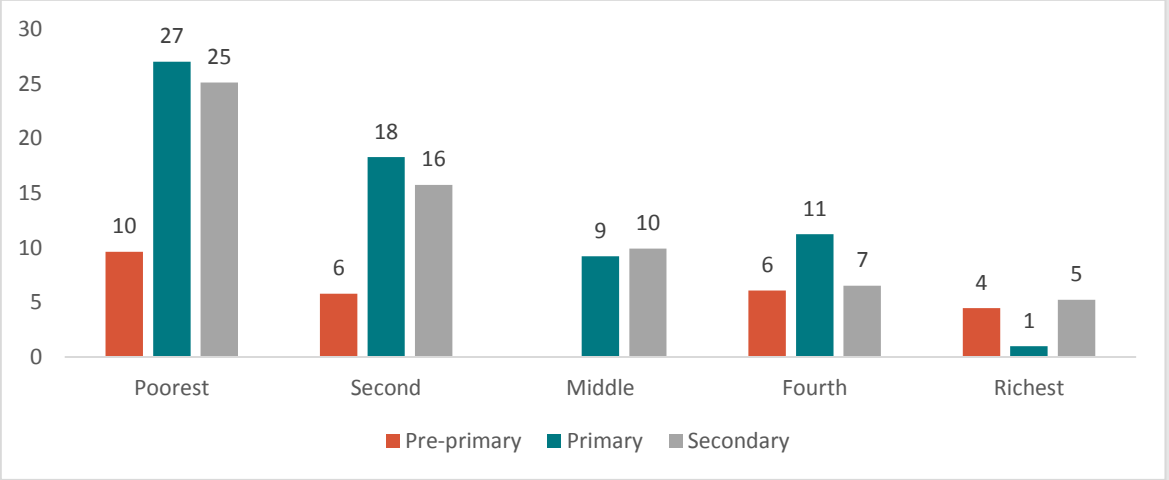


Source: *World Bank calculations based on the Survey of Living conditions, 2017*

Government spending on school feeding programs aims to improve nutrition intake and encourage daily attendance. The MOEYI administers two school feeding programs: a snack and drink program, and a cooked meal program. The objective is to improve nutrition and encourage daily attendance. According to the Survey of Living Conditions 2017, about 86 percent of early childhood students and 95 percent of primary students and secondary students cited that their school operate a school feeding program (either government or school-provided), and more than 80 percent take part in the program (mostly against payment). Of these, 32 percent of students are in government run programs for cooked meals and 11 percent in government run programs for both cooked meals and snacks.

The school feeding program is to some extent progressive but does not reach all vulnerable students. About 27 percent of primary students in the lowest socioeconomic quintile receive free meals at their school, versus one percent of the students in the highest socioeconomic quintile. At the secondary level, about 25 percent of the poorest students receive free meals at school, compared to 5 percent of the richest (Figure 41). However, the free school meals do not reach all vulnerable students. None of the students in the lowest socioeconomic quintile that do not attend school for five or more days in a month, get free school meals in early childhood and secondary education. Given that missing school days is correlated with economic challenges, the findings suggest that these students might be in the most immediate need of the program and the program should be reoriented to cover them. The cost of providing school meals to those students would amount to JMD 105 million a year (4,000 students). Improving the targeting of the school feeding program by reducing the percentage of better-off students in the program could help to serve students with high needs and offset the additional costs. Currently, 15 percent of students who get meals for free belong to quintiles four and five. At the current unit cost for government, removing these students would save JMD 200 million per year. That could more than offset the cost of extending the program to those that do not attend for more than 5 days due to economic reasons. Additionally, efficiency gains in program by reducing unit costs to international levels, could amount to around JDM 277 million (international mean cost) to JMD 1.2 billion (international median cost), which could be used to broaden coverage, or finance other priorities in the education sector (as described in the efficiency section).

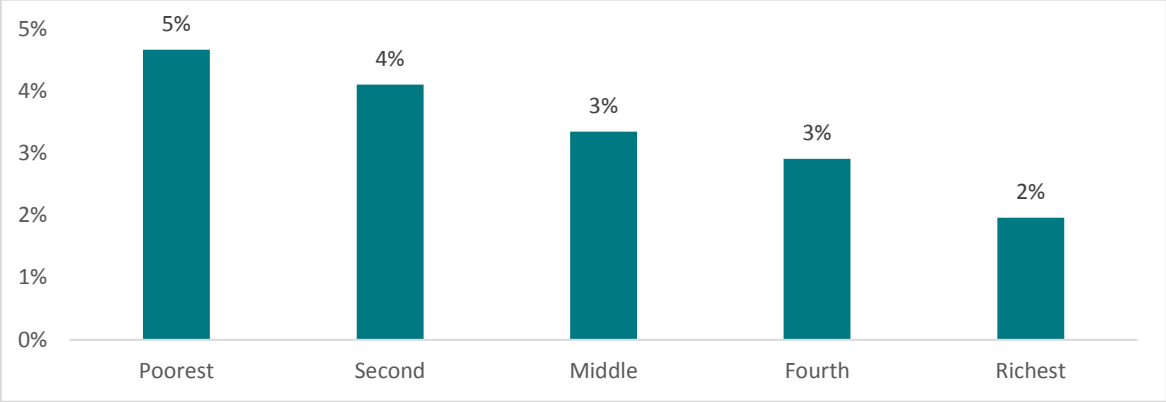
Figure 41. Percentage of students that get meals free at school by SES and level of education, 2017



Source: *World Bank calculations based on the Survey of Living conditions, 2017*

Government spending on secondary education fees is neutral to poverty and could be made more progressive. In 2016, the government introduced the no-fee policy for public secondary institutions, abolishing both tuition and auxiliary fees. To support the program, GoJ has allocated JDM 17,000 per secondary student to the schools in lieu of fees since 2017. However, parents still pay auxiliary fees to public and private schools, as the schools state that the public resources are inadequate to operate. Therefore, auxiliary fees continue to supplement the operational budget of schools. In 2017, parents contributed JDM 1.5 billion a year for secondary education in auxiliary fees (in public schools), while the GoJ transferred JMD 3.7 billion to compensate tuition fees in public and private schools. During 2019/20, Independent Secondary High Schools received around JMD 490 million, representing 12 percent of the expenditure in that program. The distribution of support for fees seems to be neutral to poverty, as the operational capacity of the school is not considered in allocation decisions. There is room to investigate the implementation of the no-fee policy, since the poorest students pay proportionally more relative to per capita consumption in "voluntary fees" (Figure 42). This may suggest that these fees are perhaps perceived as required, or presented as such by schools, or that there is another dynamic at play (such as peer pressure). The GoJ could consider instructing schools to explicitly state that the fees are voluntary and encourage the wealthier parents to contribute more.

Figure 42. Auxiliary fees in secondary education as a share of annual household per capita consumption, 2017



Source: *World Bank calculations based on the Survey of Living conditions, 2017*

D. School financing mechanism and data for decision-making

The regulations governing how resources are allocated in the education system affect the adequacy, efficiency and equity of education spending. This section presents a review of the different school grants used in Jamaica and their implications on these dimensions. The section concludes with some considerations on the role of the education management and information system to inform decision-making in the sector.

Allocation formulas

Schools are mainly funded by transfers from the central level through different grants and programs. Every three months, the MOEYI disburses grants directly to the schools' individual accounts, which support school operation and students' welfare, as described in Tables 13 and 14. About JMD 3.4 billion are disbursed for infant and primary schools (including All Age and Primary and Junior High schools) and JMD 7.0 billion for secondary high schools. In 2019, these disbursements represented 9 percent of the total education expenditure and 30 percent of the recurrent expenses other than staff compensation. Additionally, about JMD 2 billion are disbursed for the school feeding program for primary schools and JMD 1.7 billion for secondary high schools. Apart from the school feeding program, the most significant revenue source for schools are regular grants: JMD 2,500 per primary student and JMD 17,000 per secondary student.

The adequacy, efficiency and equity of school financing formulas could be improved. Jamaica allocates financial resources on a per-student basis for some programs, which may promote increased enrollment rates. However, the financing mechanism does not encourage spending efficiency as it is mainly input-based. For instance, this does not promote a better allocation of teachers across schools and does not encourage school consolidation when there is a low enrollment. Additionally, the grants are not adjusted for the actual operation cost of schools: the per-student cost of operating rural schools may be proportionally higher than the cost of operating urban schools, which could have major implications in terms of equity. A cross country analysis of school funding in Latin America found that progressive funding formulas that also consider regional

differences could improve the equity in school funding (Bertoni , et al., 2020). In Brazil, for example, aside from the per-pupil transfer, poorer states receive an additional amount. In Chile the school funding formula targets disadvantaged students and schools. Another important aspect in Jamaica is that schools' boards complain that schools are not receiving enough funds for operation. This suggests that it is important to assess what is the adequate level of grants a school should receive for operation and maintenance based on its characteristics (i.e. level of rurality). Formulas could be also more transparent to ensure clarity, objectivity and predictability, and there could be scope to consolidate some of the many grants.

Jamaica could also adopt a fully-fledged performance-based approach in the allocation of its school grants. In addition to allocating resources on a per-student basis, providing earmark grants for some programs, and using transparent funding formulas, Jamaica could also consider a more fully-fledged performance-based approach to increase efficiency (as exemplified in the policy recommendation section).

Table 13. Grants to support infant and primary schools (outside staff compensation), 2019/20

Support	Total Support 2019/20	%
Regular (2,500 per student)	574,112,500	16.9
Social Premium	3,484,000	0.1
Regular Grants (Tuition)[39]	54,162,000	1.6
Janitorial	193,500,000	5.7
Water	32,330,000	1.0
Internet	49,140,000	1.4
Security	10,875,864	0.3
Special Feeding Grant	900,000	0.0
PATH Feeding Grant	1,984,540,140	58.3
Maintenance Grants	124,700,000	3.7
Canteen Grant	100,000,000	2.9
Staffing (Cooks) Support	324,900,000	9.5
Infrastructure/Maintenance	295,537,408	8.7
STEM Support	3,500,000	0.1
ICT Support	5,000,000	0.1
Environmental Wardens	22,000,000	0.6
Maintenance Officer	42,680,000	1.3
School Support Officer	100,800,000	3.0
Transportation (Rural Bus Pilot)	54,460,000	1.6
Total	**3,402,509,412**	**100.00**

Note: Including All Age schools and Primary and Junior high schools

Table 14. Grants to support secondary high schools (outside staff compensations), 2019/20

Support	Total Support 2019/20	%
Regular Grants (Tuition) (17,000 per student)	4,061,292,650	57.58
Social Premium	146,298,000	2.07
Infrastructure	345,265,234	4.89
Maintenance	87,000,000	1.23
TVET Equipment	64,828,000	0.92
STEM	87,500,000	1.24
Science	4,500,000	0.06
ICT	87,500,000	1.24
Apprenticeship:		

[39] For secondary students in All Age and Primary and Junior high schools.

Computer Lab Tech	38,280,000	0.54
Industrial Technology	45,320,000	0.64
Home Economics	42,720,000	0.61
School Support Officer	28,400,000	0.40
Science Lab Tech	12,320,000	0.17
Agriculture Lab	16,280,000	0.23
Transportation (Rural Bus Pilot)	255,420,000	3.62
PATH Feeding Grant	1,727,426,250	24.49
Miscellaneous Support	3,300,000	0.05
Total	**7,053,650,134**	**100.00**

Source: MOEYI

Box 1. Description of main grants to support schools

Grant	Description
Subvention	Grants for salaries and transport provided to high schools and junior high schools
Regular (Operational) Grants	Grants provided to primary schools to offset costs exclusive of salary
Social Premium	Provided to high schools for grades 7-11 PATH students and junior high schools to help offset costs such as crest, ID and physical education gear
Janitorial	Provided to primary schools with 750 students or less and to public schools with grades 3 and below
Water	Provided to schools which do not have regular pipe water supply – this is assessed at a regional level
Internet	Provided for primary level schools
Security	Provided to some schools based on assessment
Special Feeding Grant	Provided to schools which are situated in communities that may additional poor students who are not on PATH – based on schools' request
PATH	Provided for lunch for PATH students
Maintenance Grants	Provided for all schools, however, the rates between primary and secondary schools differ
Canteen Grant	Provided to schools for needy student
Staffing (Cooks) Support	JMD 300,000.00 provided per cook in some primary schools
Infrastructure/Maintenance	Provided to schools for critical repairs
STEM Support	Provided to STEM schools
ICT Support	Provided to all schools
Environmental Wardens	Apprentice support [40]
Maintenance Officer	Apprentice support
School Support Officer	Apprentice support
Transportation (Rural Bus Pilot)	Provided to some schools to aid in the transportation of students to and from school
TVET Equipment	Some schools are provided with equipment through the TVET program
Science	Provided to schools to aid in science program
Miscellaneous Support	Periodically schools write and ask for financial support, this support is provided in response to same

Source: MOEYI

Education Management Information Systems

[40] The Apprenticeship Programme includes students under the Work to Learn, Earn, Give and Save (LEGS) and Housing, Opportunity, Production and Employment (HOPE) Prorgramme, two of the apprentice progammes offered by the GoJ

Strengthening Education Management Information Systems could enhance both efficiency and equity of education spending. In Jamaica, data is not currently accessible in a timely manner. Schools collect data individually without a central database. A strong and integrated education management information system (EMIS) allows more accurate and informed decision making for all education stakeholders, including MOEYI, regional authorities, schools, and parents. Improving EMIS would make it possible for the MOEYI to monitor progress in reforms; for schools to compare their performance with peers; and for parents to become better informed and more actively involved in the schools. Enhancing EMIS also has the potential of improving education spending efficiency and equity by providing information on budgets and comparative performance, making it possible to improve allocation of resources and the targeting of education programs. It can also support schools' accountability. Relatedly, participation in international assessments, such as PISA or TIMSS, would allow Jamaica to use international benchmarks to identify areas to improve student learning, teaching practices and processes for schools to operate more effectively.

IV. Policy Recommendations

Education expenditure levels in Jamaica are on par with regional and international peers. However, the high spending levels have not translated into expected levels of educational achievement. In addition to spending inefficiencies, education expenditure is inequitable in terms of socioeconomic status, gender, and geography. Moreover, existing challenges are exacerbated in the context of the COVID-19 pandemic. This chapter presents policy recommendations to improve the efficiency and equity of education expenditures in Jamaica, in the context of Jamaica's educational challenges and goals as well as the current context. Table 15 at the end of the section summarizes these recommendations.

1. Recovering from COVID-19

1.1. Mitigate student dropout and reverse the learning losses resulting from school closures during the COVID-19 pandemic (fiscal implication: JMD 2.4-3.9 billion (USD 16.1-26.2 million) annually for 1 – 2 years; long term cost of inaction: JMD 828 billion). Jamaica stands to lose 1.3 learning-adjusted years of schooling (LAYS) per student as a result of the COVID-19 pandemic, which, if unaddressed, could result in lifetime earning losses equivalent to JMD$828 billion. These losses are certain to be unevenly distributed, disproportionally affecting vulnerable students. Students with already weak attachment to school and those in rural areas or low-income households with limited internet connectivity and access to distance-learning technologies will have faced additional challenges by the disruption of physical learning. As such, investments in the school reopening process and return to learning, in a safe and effective manner, are critical. To ensure an inclusive return, investments must also consider prevention and mitigation of student dropout as well as reversing learning losses. These interventions should include reenrollment campaigns with targeted support and communication to students at highest risk of not returning, and focused, practical training for teachers and school leaders on assessing post-COVID-19 learning levels and tailoring instruction to promote learning recovery (World Bank, 2020). In the **short term,** the GoJ could:

- **Support health and safety requirements for reopening**. Ensuring a safe and inclusive return to learning will require the implementation of physical distancing, health, and hygiene protocols in schools, as well as the establishment of appropriate and inclusive WASH facilities. In the United States, the estimated costs for implementation of Centers for Disease Control and Prevention's recommended COVID-19 Mitigation Strategies in Pre-Kindergarten through Grade 12 Public Schools would cost USD 442 during 2020/2021 to cover materials and consumables (e.g hand sanitizer/masks), additional custodial staff members, and potential additional transportation (USD 55 to cover materials and consumables only). This represents about 3 percent of the per-student expenditure on education at the pre-university level. In Jamaica, this would entail additional financing of about JMD 4,000 per-student and a total of JMD 1.8 billion. At a minimum, GoJ could consider allocating JMD 500 per-student for materials and consumables with a total fiscal implication of JMD 238 million (early childhood to secondary education).
- **Undertake reenrollment campaigns and outreach activities needed to encourage and equip students to return to schools**. Comprehensive communication campaigns that address frequently asked questions, share clear information about the guidelines for school reopening and explain the phasing criteria have shown good results in the region in ensuring that students, parents and communities are comfortable with the school reopening process. As a result of the

pandemic, many students will require various socio-emotional support. In Nicaragua, the World Bank is supporting a socioemotional support program targeting school staff, students and their families, which includes course guidelines and manuals for school principals and teachers on how to promote self-care, provide socioemotional support to families, and develop socioemotional skills in students through school activities

- **Provide targeted support for the most at-risk students**. According to World Bank calculations, poverty levels in Jamaica may have increased by 4 percentage points in 2020 due to the pandemic. At least 25,000 school-age children that were not among the poor population in Jamaica pre-pandemic, are now at risk of poverty. The school feeding program could be expanded by at least JMD 574 million to support these students in the short term while the program is adjusted to make it more efficient in the medium term (2-3 years). Efficient school meals programs yield returns of up to US$ 9 for every US$ 1 invested. Providing additional support to disadvantaged children will be critical to ensure that they return to school and have opportunities to make up any learning lost during the school closure. School stipends, cash transfer programs, and fee waivers can all help to encourage children to enroll and increase their attainment and learning (World Bank, 2020). During the 2020/21 school year, GoJ provided back-to-school grants amounting to JMD 1.6 billion to about 203,500 vulnerable students to assist with the procurement of school supplies. These cash grants represented JMD 8,500 per student at the primary and secondary education level, and JMD 5,000 to every child at the early-childhood level. Financial support to families should cover at least the 2021/22 school year.
- **Mitigation and prevention of student drop-out**. Emerging evidence on implementing and using Early Warning Systems to identify children at risk of dropping out is showing great promise in the region. For example, Peru recently launched Alerta Escuela (School Alert), a tool targeting school principals and teachers that uses machine learning and student-level data to identify students at risk of dropping out. Principals and teachers are provided with pedagogic and management strategies to support those students at risk.
- **Facilitate remedial teaching to minimize learning losses**. Focused training for teachers and school leaders on assessing students' post-COVID learning levels and tailoring instruction accordingly, including use of educational technology as appropriate, is critical to recover learning. Areas of focus could include the implementation of education technologies (EdTech) to ensure both continuity of learning and support remediation through teaching at the right level using adaptive learning programs (Box 3). Critically, EdTech programs must come with appropriate support, in particular, both pedagogical and technological training for the teachers to ensure correct use and optimal outcomes. In addition to EdTech initiatives, additional areas can be explored, such as tutoring programs from other students/new graduates, which could potentially generate employment experience and income at less cost than utilization of teachers. Jamaica's government could also consider the development of learning loss assessments that can guide subsequent interventions.

Box 2. Financing the COVID-19 Response

The additional financing that is required in the education sector to offset the learning losses and risk of dropouts could be provided through one of the following options:

Reallocate their overall budget to provide funding to priority sectors, including education. The GoJ should consider reallocating funds to education from other parts of the budget in the short run and to maximize the sector's contribution to longer-term economic growth.

Where it is not possible to make intersectoral budget adjustments, reallocations within the education budget will be needed to ensure that frontline services are protected. This might involve postponing expansion plans, reducing other planned capital investments, reducing training and supervision budgets, or temporarily shifting resources from non-essential services to the frontlines. Cost-savings realized in certain sectors and programs (higher education and school feeding, for instance) could also help support the response, although this applies more to the medium-term.

Development partners can also play an important role in supporting governments' pandemic responses and targeting resources to the most vulnerable. In the short term, development partners can provide emergency funding to support countries in their response to the pandemic. Donors' existing projects and support could also be adjusted and frontloaded to support the pandemic response. GoJ could also consider mobilizing additional resources from non-traditional sources (such as philanthropic organizations or corporate social responsibility contributions).

Better data can also help countries adjust and develop more sustainable medium-term financing strategies for the sector. As countries move out of the first phase of crisis response, it will be important for governments to adjust their plans to ensure that national education goals can be sustainably financed. Good data and credible financing strategies will be needed that identify funding needs, that include a medium-term outlook for sector financing, and that highlight actions to strengthen financial management.

Source: World Bank (2020): The Impact of the COVID-19 pandemic on education financing.

Box 3. The use of Ed-Tech to improve education outcomes

Amid the COVID-19 pandemic, digital learning presents an opportunity to reach marginalized learners, lower costs, enhance teaching, and offer flexible ways to acquire skills. Although still understudied, a systematic review of literature suggests that computer-assisted learning holds promise to improve learning outcomes:[41] Some examples of proven results are:

- In **Ecuador**, the use of an adaptive learning platform for approximately 90 minutes per week for three months led to an increase in the proportion of curricular content mastered in mathematics from 20 to 61 percent among students in technical and technological institutes.[42]
- A randomized controlled trial on the impacts of the program in **Brazilian** public primary schools found positive effects of the program on measures of attitudes towards math, which were not however translated into a positive average effect on students' math proficiency due to infrastructure challenges.
- In **Chile**, researchers found that the program changed the ways in which students engaged with and were engaged by Math content, and also changed the interaction between teachers and students.[43]
- In the **United States**, an online program that provides students with immediate feedback on math homework for less than 30-40 minutes per week had a size effect of 0.18 standard deviations, and a software-based math curriculum intervention significantly increased seventh and eighth grade math scores by 0.63 and 0.56 standard deviations, respectively.[44]

[41] Escueta et al. 2017.
[42] World Bank. 2021.
[43] *https://www.learntechlib.org/p/147457/*
[44] Roschelle et al. 2016; Roschelle et al. 2010.

- In another study from an intervention in the **southwestern United States**, results show that children exposed to the web-based program intended to increase the vocabulary of preschool and primary school children scored higher than children assigned to a control group (+0.23 standard deviations).[45]
- In **India**, adaptive learning software also led to a positive impact on mathematics and Hindi.[46]
- Another impact evaluation in **Sri Lanka** found that Khan Academy tutorials improved test scores in Mathematics among ninth grade students in Sinhala-medium public schools.[47]
- In **Botswana**, SMS text messages and direct phone calls to support parents to educate their children improved learning by 0.12 standard deviations.[48]

2. Optimizing investments across and within education levels

2.1. Improve value for money of tertiary education spending and improve quality of early childhood education (fiscal implication: neutral). The high unit cost and inequitable spending distribution of the education budget in tertiary education warrant a closer investigation. At the same time, early childhood education is under-financed. Several policy options could be considered by the GoJ.

In the **short term:**

- **Improve equity in accessing tertiary education.** Given the significant levels of investments at the tertiary level, the government could improve equity of access to tertiary education, with specific emphasis on the most marginalized population. These groups should be encouraged and supported to attend higher education institutions, for example through quotas and means-tested scholarships. This can form part of the strategy to improve equity while reducing overall subsidy levels, to free up resources for reallocation from tertiary to lower levels of education.

- **Conduct a comprehensive review of tertiary education spending.** The government could consider undertaking an in-depth analysis of the tertiary education sector to make resources available for other education levels. The high unit cost deserves a comprehensive review of the management, financing and overall performance. The higher education review could include aspects highlighted in Box 4. Reorienting higher education towards shorter-term tertiary degrees could also be explored. Reducing the per-student cost in tertiary (35 percent of the GDP per capita) to the OECD levels (28 percent of GDP per capita) would free up about JMD 3.7 billion annually that could be devoted to other levels, such as early childhood education.

In the **long term**:

- **Reallocate resources to early childhood education**. Early childhood education is currently underfinanced and experiences significant pressure through high demand and an inadequate number of qualified teachers. Early childhood education has been shown to be both a progressive and cost-efficient investment to improve education and human development

[45] Kalil, A., Mayer, S., & Oreopoulos, P. (2020). Closing the Word Gap with Big Word Club: Evaluating the Impact of a Tech-Based Early Childhood Vocabulary Program.
[46] Muralidharan et al. 2019.
[47] *https://eric.ed.gov/?id=EJ1201489*
[48] https://www.nber.org/system/files/working_papers/w28205/w28205.pdf

outcomes. Funds could be dedicated to improve the learning environment, teacher quality, and affordability of early childhood education, through direct support to both basic and infant schools to provide a higher quality of education for all children in Jamaica.

Box 4. Policies for efficient and cost-effective public investment in tertiary education

Make institutional funding for instruction formula-driven, using both input and output indicators, and include strategically targeted components:

- Base institutional block grants on transparent formulas with a balanced array of input and output indicators.
- Consider allocating institutional funding by performance agreements or contracts negotiated between the government and individual institutions. In Costa Rica, for example, the government signed performance agreements with 2 universities, establishing commitments for fund disbursements of a loan financed by the World Bank to implement specific projects. Among other things, universities are committed to goals set for a series of indicators, using funds only for the projects jointly defined and keeping independently audited financial statements up to date.
- Include targeted development programs to help align the mission of institutions with the overall strategy for tertiary education. Multitude of targeted funds risks reducing transparency and increasing transaction costs.
- The fund allocation to institutions should follow a tailored approach recognizing the diversity of roles and missions of institutions.
- Give institutions autonomy in the use of their block grants.
- Provide stability in institutional funding to promote long-term development.
- Allow institutions to diversify sources of funding.
- Fund capital infrastructure with a number of different streams.

Improve cost-effectiveness with steps to reduce inefficiencies throughout tertiary education systems through:

- Linking funding more closely to graduation rates.
- Creating incentives to reduce non-completion rates and the length of study time.
- Reducing public subsidies of students who remain too long in the system
- Eliminating duplicated programs.
- Rationalizing low-enrolment programs with possible redeployment of academics across programs.
- Downsizing faculty to respond to falling student enrolments.
- Increasing use of shared facilities.
- Expanding student mobility between institutions.

Develop a comprehensive student support system

- Back the overall funding approach with a comprehensive student support system to reduce liquidity constraints faced by students.
- A mixed system of loans and grants assists students in covering tuition fees and living costs.

Source: OECD (2011): Tertiary education for the knowledge society

2.2. Implement low-cost interventions and improve efficiency of social programs to tackle school absenteeism and drop-outs in secondary education (fiscal implication: low/neutral). In secondary education, almost 10 percent of the secondary school-aged population do not complete their education (drop out in grade 9 and 10) and this especially affects the most vulnerable students. Students most often cite money issues, no interest, pregnancy and reaching terminal grade as

reasons for absenteeism and drop-outs. As such, the GoJ could consider exploring the following policy options to tackle these issues.

In the **short term**:

- **Revitalize programs targeting school-age mothers**. Evaluate the "Reintegration of School-Age Mothers into the Formal School System," a program first implemented in 2013, and explore lessons learnt to increase the retention of pregnant adolescent girls and young mothers.
- **Provide information to boys and girls on the economic benefits of remaining in school**. Develop information and communication campaigns on the economic benefits for education completion, including messages on expected wages and opportunities for individuals with different levels of education in Jamaica. The messages can be adapted for both girls and boys. Similar communication campaigns have been proven a low-cost yet effective intervention in other Caribbean countries (Adelman & Francisco Haimovich, 2018).
- **Support for students at All Age or Junior Highs to transition to Secondary Schools.** Proactively reach out to students in All Age or Junior High schools with a transition plan to Secondary schools, including information on which school to attend and other assistance such as adequate transport and supporting other needs to ensure attendance.

In the **medium term:**

- **Improve efficiency of the school feeding program to mitigate and prevent student absenteeism and drop-out.** The main reason given for dropping out of school and school absenteeism is economic challenges or "money problems", and school meals are the largest cost for families. Providing students at high risk of dropping out or not attending school with free school meals could encourage attendance. The programs could be strengthened through the usage of national procurement systems, which would increase transparency and accountability of the decentralized delivery of the social programs. Improving the targeting of the social programs would allow for an increased coverage of vulnerable students in greater need of the support. Annually, the cost of providing free school meals to the students missing school is equivalent to JMD 105 million. At the current unit cost for government, removing the students in upper quintiles from the program would save JMD 200 million per year. That could more than offset cost of extending the program to the highest risk group. Additionally, reducing the current unit cost to international levels would free up about JMD 277 million (international mean cost) to JMD 1.2 billion (international median cost), which could be used to either expand the program to more students in need, especially to tackle the current pandemic impact, and/or as a cost saving opportunity to be used for other programs. These efforts should be coordinated with social protection schemes, such as cash transfer programs, to improve both efficiency of delivery and targeting of the most marginalized students and households. Box 5 presents some examples of improving efficiency in school feeding programs.
- **Improve implementation of non-mandatory fee policy at the secondary level to ensure progressivity.** Although there are no mandatory fees, currently the poor spend a larger share of their wealth on voluntary fees than the rich, and thus efforts to investigate the implementation of this policy could be important to ensure progressivity. Schools could be directed to ensure that the fees are presented as voluntary, and, if appropriate, encourage wealthier families to pay more.

Box 5. Improving efficiency of school feeding programs

Countries have adopted different approaches to increase efficiency in school feeding programs. Some examples are:

- **Transparent costing methodologies in Colombia**. In Colombia, the implementation of the national school feeding program is completely decentralized. The World Bank is supporting the country in developing transparent costing methodologies for local governments for the procurement process. The World Bank is also promoting the participation of local agriculture (even within the school) to minimize intermediation and transport costs, which is particularly high in rural areas.

- **Digital menu planner in Bhutan.**[49] With support from the World Food Program, Bhutan developed and implemented a digital menu planner to improve school feeding rations. The menu created using the digital planner reduced the costs by 20 percent while maintaining the nutrient content.

- **Accountability and transparency in Brazil.**[50] The National School Feeding Program in Brazil has two main monitoring tools to ensure that the program resources are used efficiently. The first tool is an app called PNAE Monitora which automates the collection and consolidation of data in random field visits carried out on a regular basis. The second tool is E-PNAE, an app created to allow members of the education community to monitor any school of their choosing.

- **Joint provision of education and health services in South Africa.**[51] The national school nutrition program in South Africa has reached over 9.6 million students in the country. Considering the scope and the distribution platform of the school feeding program, the government has been implementing a national deworming program in primary schools once a year.

2.3. Optimize the school network to improve overall efficiency (fiscal implication: neutral). In Jamaica, many schools are operating above capacity, and as a result are overcrowded or running double shifts, whilst at the same time other schools have a surplus of spaces. These inefficiencies are commonly characterized by an urban-rural divide, but in some instances manifest themselves in the same parish. Optimizing the school network not only has the potential to improve spending efficiency but also increase education completion rates as many students drop-out when attending schools where grade 9 is the terminal grade. GoJ could consider the following policy options.

In the **short term**:

- **Conduct a feasibility study on school consolidation**. The MOEYI could consider undertaking a feasibility study on school consolidation. The study should take into consideration demographic, economic, social and cultural aspects when considering school capacity utilization across different types of schools. The GoJ can consider opportunities for reducing small schools in rural areas, while expanding capacity in secondary high schools, as well as reducing pressures in primary and secondary high schools in urban areas by converting some "All Age" and "Primary & Junior High" schools into primary schools. The current initiative by MOEYI to phase out some All age and Primary and Junior High schools could benefit from a clear timeline and comprehensive plan.

[49] WFP. 2020.
[50] Ibid.
[51] Ibid.

In the **medium term**:

- **Convert All Age schools and Primary and Junior High schools into Primary schools and Secondary High schools**. The implementation of double shifts and challenges with overcrowding are more prevalent in Secondary High Schools and schools in urban areas, whilst schools operating with a surplus are predominately located in rural areas. Building on the feasibility study, Jamaica could consider converting All Age, Primary and Junior High Schools into Primary and Secondary High Schools.

In the **long term**:

- **Consolidate schools in rural areas and leverage the demographic dividend to offset the current deficit of spaces in urban areas.** To accommodate the current space deficit for about 11,000 students it would cost an estimated cost of JMD 2.1 billion (assuming a cost of USD250 per square meter). However, by 2035, the decline in the number of students in primary and secondary education will offset the current needs of spaces in urban areas (11,000). In rural areas, school consolidation would be needed as the enrollment would drop by 25,000 students in primary and secondary education by 2035. Any refurbishment costs associated with this could be financed through cost-savings, possibly by taking advantage of a possibly declining share of the wage bill associated with the demographic transition. Any additional costs associated with transportation of children to and from school should be considered. In the interim the government could rely on the rationalization model above. The feasibility study on school consolidation should help to guide this process.

3. Improve teacher training

3.1. Improve pre-service and in-service teacher training (fiscal implication: neutral). In Jamaica teachers' training requires strengthening. Raising quality of teacher training institutions could improve teaching methods and student learning outcomes. Jamaica could consider the following actions to achieve this goal:

In the **short term**:

- **Focus in-service teacher training on equipping teachers with the skills to assess learning losses and remediate learning**. In the short term, in-service training should be focused on providing practical training for teachers and school leaders on assessing students' post-COVID-19 learning levels and tailoring instruction to promote learning recovery. Due to the importance of hybrid education delivery and incorporating virtual teaching methods, the training should also include the development of teacher digital skills and how to effectively integrate ICT in teaching practices.

In the **medium term**:

- **Improve the quality of pre-service teacher training with a focus on practical experience**. In Jamaica, the share of teachers with training is currently not associated with improved learning outcomes. Improving quality has many components (see Box 6), including incorporating practical modules in the training programs. In Cuba, pre-service teacher training includes

practical experience, where teacher students are assigned to schools from the second year, complementing theoretical studies with daily practice in a diverse setting. The teacher students are further supported by experienced mentors who provide systematic feedback. The Cuba model could be explored in Jamaica, while incorporating modules that ensure sufficient content mastery and student-centered pedagogy. High and increasing unit costs also point to inefficiencies in teacher colleges to be further explored (see above review of tertiary education).

- **Improve in-service teacher training to enhance teaching effectiveness.** In Jamaica, 20 percent of potential instructional time is lost due to inefficient use of classroom time. This is equivalent to one less day of instruction every week, which severely negatively impacts student learning outcomes. In many OECD countries, in-service teacher training includes techniques for efficient management of classroom transitions and administrative processes, rarely identified in Latin America and the Caribbean (World Bank, 2015). In 2019, expenditure on in-service teacher training in Jamaica was equivalent to JMD 106 million. In the medium run, in-service teacher training could be revamped to focus on improving teacher classroom practices. The revised training should emphasize efficient lesson planning, use of class time, strategies to improve student engagement, and more effective teaching techniques. Additionally, Jamaica could explore the adoption of teaching practices from high-performing East Asian education systems, which place emphasis on peer-to-peer learning through lesson observations and the provision of feedback by utilizing experienced teachers as trainers (World Bank, 2018).
- **Include specialized training for school leaders on school management** to ultimately improve classroom performance. Professional development efforts should include school leaders as well as teachers, with recognition of their unique role as both administrators and pedagogy leaders.

In the **long term**:

- **Update pre-service curriculum**. Improving the quality of teacher training colleges would require revision of the curriculum and relevant reforms (World Bank, 2015: Great Teachers) (Box 6).

Box 6: Transforming the Teaching Profession

Reforms should focus holistically on the teaching profession, including recruitment, compensation, accountability, and advancement opportunities. The World Bank's approach note on the teaching profession, *Successful Teachers, Successful Students*, provides an evidence-based road map for improving the profession based on five key principles (Béteille & Evans, 2019):

- *Principle 1: Make teaching an attractive profession by improving its status, compensation policies and career progression structures*. Most education systems do not attract the best academic performers into teaching. In Finland, by contrast, teaching is a coveted occupation because teachers enjoy social prestige – driven in part by selectivity and high standards for those entering the profession – as well as high degree of autonomy (World Bank 2018b). An effort to attract more academically prepared candidates into teaching would be rewarded with better outcomes for students.
- *Principle 2: Ensure pre-service education includes a strong practicum component to ensure teachers are well-equipped to transition and perform effectively in the classroom*. Effective teacher training is hands-on and practice-based, with grounding in specific academic subject matter rather

than general pedagogical principles (Popova, Evans, Breeding, & Arancibia, 2018). According to the Teaching and Learning International Survey (TALIS) 2018, during their initial education and training, 87 percent of teachers in Finland and 89 percent of teachers in Singapore were instructed on subject content, pedagogy and classroom practice – a share that is higher than the average of OECD countries and economies participating in TALIS (79 percent) (OECD, 2019a; OECD, 2019b).

- *Principle 3: Promote meritocratic selection of teachers, followed by a probationary period, to improve the quality of the teaching force*. In Mexico, shifting to a meritocratic, exam-based selection method for teachers improved learning outcomes relative to a discretionary process (Estrada, 2017). In several countries, hiring teachers on short-term contracts has also been shown to improve learning outcomes (Glewwe and Muralidharan 2015). Making the teacher selection process more rule-based and implementing longer probationary periods could achieve some of the same benefit, by ensuring that higher performers are recruited and retained.
- *Principle 4: Provide continuous support and motivation, in the form of high-quality in-service training and strong school leadership, to allow teachers to continually improve*. A supportive professional environment for teachers has been a key ingredient in the success for high-performing education systems in East Asia. These systems include a collaborative working relationship between teachers, who exchange best practices, provide feedback on each another's lessons, and offer mutual support (World Bank, 2018)
- *Principle 5: Use technology wisely to enhance the ability of teachers to reach every student, factoring their areas of strength and development.* The onset of COVID-19 and remote learning has forced all countries to rapidly retrain their teachers in technology. The use of technology to complement effective teaching presents an opportunity to learn from the COVID-19 experience and "build back better."

4. Enhancing the management and financing of the education system

4.1. Enhance system's management capacity through a strengthened institutional framework (fiscal implication: neutral). There is significant scope to improve the allocation of resources in Jamaica. To support a more efficient teacher and capital spending allocation and implementation of non-salary recurrent spending, Jamaica could consider, in the **medium term:**

- **Strengthening education governance by decentralizing specific functions to regional authorities.** In 2006, the Education Task Force included the establishment of the six Regional Education Authorities as one of its main recommendations. As this report noted, 90 percent of the variation of the number of students per teacher is explained within regions. The inequitable teacher distribution could be more efficiently addressed if the Regional Education Authorities were authorized to undertake this process. In addition, Regional Education Authorities could play an important role in ensuring a more efficient school network, identified as a source of inefficiency in the sector, while supporting alignment with teacher allocation decisions. In Moldova, for instance, the responsibility for general education was reallocated from municipalities to rayons (regions) in 2012, as the regions had a larger scope to consolidate schools more efficiently. Governance in the education system can be strengthened by making the Regional Education Authorities perform some roles independently.
- **Introducing greater flexibility in teacher contracts, allowing mobility to areas of staff shortage.** Incorporating greater flexibility in teacher contracts, permitting transfers to schools with identified staff shortages, could have the potential to increase efficiency across the education sector. This could be executed more effectively by allowing Regional Education Authorities decision making power. To test these new responsibilities, GoJ could consider the development

and pilot the implementation of a teacher deployment policy, in which regions have a predominant role in ensuring an efficient and equitable distribution of teachers within their jurisdiction.

- **Strengthening PFM systems.** In addition, the GoJ should further strengthen and support the PFM reforms and build on the recommendations from the external audit reports available in the education sector. For example, as indicated in the recent review of the procurement processes, the purchase of goods and services needs to adhere to a fairer and transparent practice and ensure closer monitoring of textbooks and furniture delivery.[52] Further, regular analysis of the need for resources could help with reducing wastage at the local level. Revision of allocation formulas of school grants, for instance, will also require closer monitoring of planning and implementation as well as building capacity of district and school leadership. A growing body of research in the past decade was focused on understanding how PFM systems could improve service delivery (ODI, 2020). However, strengthening PFM systems would have to go hand in hand with the enhancement of the overall governance and management practices in education in Jamaica to capitalize on the on-going reforms and initiatives.

4.2. Strengthen financing mechanisms to improve adequacy, efficiency and equity in education resource allocation (fiscal implication: neutral). The education funding allocation formulas used in Jamaica currently do not fully ensure adequacy, efficiency and equity. The school grants allocated by the MOEYI are the largest source of resources for individual schools. The formulas that determine the grant size are based on a per-student allocation and do not consider additional cost determinants, such geographic location. The MOEYI could consider:

In the **medium term**:

- **Revising and implementing transparent allocation formulas**. Funding allocation formulas should follow guiding principles such as: formulas should encourage schools to improve educational outcomes, reduce operational costs and ensure resource optimization. According to best practices, funding allocation formulas should promote vertical and horizontal equity, incorporating aspects of the varying education delivery cost depending on the student population. Funding allocation formulas should be clear, replicable, objectively distributed among schools and predictable. In addition, there could be scope to consolidate the many types of grants to reduce transaction costs and complexity. Finally, as schools' boards complain that schools do not receive sufficient resources for operation, an assessment of operational costs could be conducted. This assessment could consider different approaches (Box 8).

In the **long term**:

- **Introduce performance incentives in school transfers and teacher salary scales**. A performance-based approach could be adopted for fiscal transfers to schools, while financial incentives to teachers based on performance could be gradually implemented. Adequate resourcing of schools could also help retain high qualified and talented teachers in Jamaica. Box 7 summarizes a few examples of result-based mechanisms in Latin America. Performance-based incentives for teachers could be financed using part of the savings resulting from the declining number of teachers following the demographic transition.

[52] https://auditorgeneral.gov.jm/performance-audit-report-procurement-management-ministry-of-education-youth-and-information-moeyi/

Box 7. Performance-based incentives in Latin America

Performance-based incentives to schools and teachers have been used in Latin America to boost different government priorities, such as attracting effective teachers to vulnerable students or promoting an efficient use of resources. Some examples include:

- The state of **Ceará** – a relatively poor state in Brazil – implemented a results-based mechanism to allocate intergovernmental transfers (Loureiro et al., 2020). Using resources efficiently, Ceará was able to substantially improve education outcomes. As part of a comprehensive education reform program, municipalities in Ceará receive grants based on schools' achievement in a set of education outcomes. The state achieved the largest increase in the national education quality index.

- In **Peru**, using data from the national standardized test, the government provides a monetary incentive to teachers and principals in the top performing schools (based on an index using both absolute and relative indicators, as well as type of school), both in primary and secondary education (Bertoni et al., 2018).

- In **Chile**, the Pedagogical Excellence Assignment program rewards teachers in disadvantaged schools based on their performance in multi-dimensional measures (subject and pedagogical knowledge combined with classroom practices) (Elacqua, 2019).

- **Decentralize teachers' payroll**. Additionally, moving the responsibility for paying teachers from the central to regional governments could be an additional step to promote an equitable distribution of teachers, along with fiscal transfers for salaries from central level to regions dependent on the number of students and not the number of teachers, as it is today.
- **Consider bonds for teachers receiving government assistance**. To retain talent within the country, bonds related to scholarships for teacher education could be considered.

Box 8. Different methods to assess the adequacy of operational grants

In order to assess adequacy of school funding formula, four methods can be employed.

- The **successful schools** approach aims at determining the minimum sufficient, i.e. adequate, level of funding for reaching an absolute output standard by identifying the schools which are successful in reaching that standard and calculating the adequate level of funding based on their program-level costs.
- The **professional judgment** approach rests on a panel of respected educators who are asked to assess the costs of reaching a given educational standard in order to arrive at an adequate funding figure for different pupil compositions.
- The **evidence-based** approach comes close to the former, but instead of consulting practitioners is focused on a selected set of successful education interventions as captured by the education evaluation literature.
- **Regression-based** approaches apply multiple regressions on historic spending and school characteristics data to determine the relationship between spending and student outcomes which, in principle, can lead to the measurement of adequate resources.

Source: OECD Education Working Papers No. 74. School Funding Formulas: Review of Main Characteristics and Impacts.

4.3. Support evidence-based decision-making across the education system (fiscal implication: JMD 976 million, USD 6.5 million). The MOEYI in Jamaica should consider improving data quality and strengthening collection processes for both input and outcome related indicators to improve evidenced-based decision making. Below are two areas to explore to improve informed decision making.

In the **short term**:

- **Invest in an enhanced Education Management Information System**. Automatizing and digitizing data collection processes and analyses would enable stakeholders across the education sector to make informed and timely decisions. The data should be disaggregated and available at the school and student level. The availability of student-level data has the potential to support, for example, the identification of students at risk of dropping out (Adelman et al. 2018), information that in turn would enable schools to intervene with additional support such as provision of targeted counseling, tutoring or various programs. An upgraded and integrated system would also help improve resource allocation triggering savings in the medium term. Training on data collection and data use must accompany systems improvement. The average cost of upgrading an EMIS, according to World Bank, is less than USD 5 million, about JMD 753 million.[53] In the medium term, this could potentially be offset by savings related to efficiency gains (see Box 9).

Box 9. Increasing efficiency through EMIS

Sound EMIS are a source of timely data for decision making that can potentially translate into efficiency improvements throughout the education system. Some examples of efficiency gains are:

- **Identifying ghost students in the United States**.[54] In the state of Arizona (United States), the allocation of education funding is based on the number of students. It is estimated that eliminating ghost students translated into US$125 million savings per year.
- **Predicting dropout in Guatemala and Honduras**.[55] Research from Guatemala and Honduras shows that administrative data can be used to identify students at risk of dropping out of schools (Adelman et al., 2018). Prediction models accurately identified 80% of dropouts.
- **Speeding up data analysis in Burkina Faso**.[56] With the automation of the EMIS, Burkina Faso was able to reduce the time for producing statistical yearbooks from two years to eight/nine months.
- **Reducing idle capacity in Espíritu Santo (Brazil).**[57] With individual-level data on students and schools' infrastructure, the state of Espíritu Santo was able to improve the allocation of students and teachers to classrooms and sections, reducing idle capacity.

[53] World Bank (2017): Lessons Learned from World Bank Education Management Information System Operations: Portfolio Review, 1998-2014
[54] Abdul-Hamid. 2014.
[55] Adelman and Haimovich. 2018.
[56] UNESCO. 2018.
[57] Arias Ortiz et al. 2019.

- **Improving monitoring in Pernambuco (Brazil)**.[58] The availability of good quality financial data at the school level (cost system) allowed the state of Pernambuco to improve monitoring and identify idle resources.

In the **medium term**:

- **Participate in international learning assessments**. Participation in international learning assessments, such as PISA or TIMMS, would allow Jamaica to benchmark its learning outcomes with international standards. This information has the potential to support a more comprehensive understanding of education quality. This could inform a more efficient provision of targeted support to students, the design and implementation of teacher trainings and ultimately improve the overall provision of quality education for all in Jamaica. The cost of participating in PISA 2024 would be up to USD 1.5 million, about JMD 226 million.

[58] Ibid.

Summary of Policy Recommendations

The table below provides a summary of the recommendations described above, with timeline and fiscal implications highlighted. The table provides an organization of recommendations aiming to help the GoJ in the prioritization and planning of actions to improve the adequacy, efficiency and equity of education spending.

Table 15. Summary of recommendations

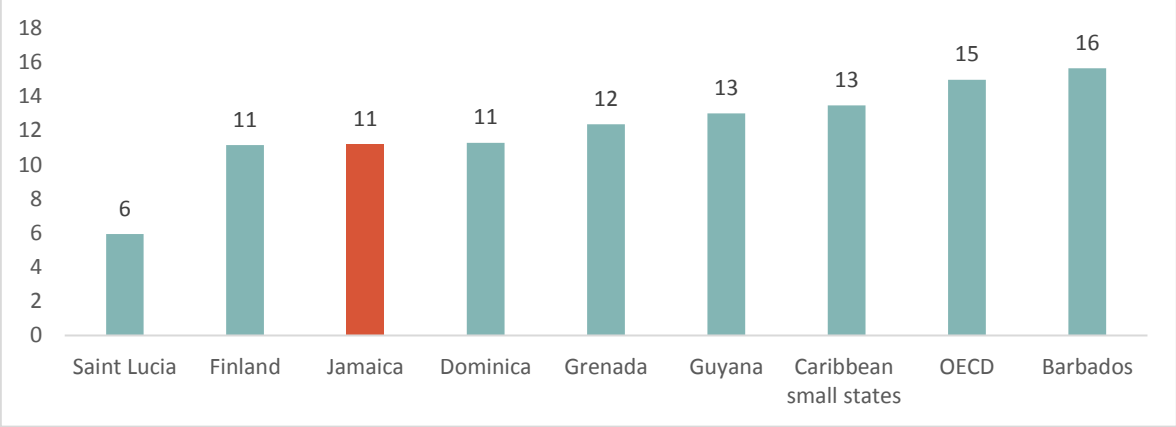
Recommendations	Short term	Medium term	Long term
1. Recovery from COVID-19			
1.1 Mitigate learning losses due to the COVID-19 pandemic	(i) Support for health and safety requirements for reopening; (ii) Undertake reenrollment campaigns and outreach activities; (iii) Provide targeted support for the most at-risk students; (iv) Mitigate and prevent dropout; (v) Facilitate remedial education to minimize learning losses **(Fiscal impact: JMD 2.4-3.9 billion annually for 1 – 2 years; Long term cost of inaction: JMD 828 billion)**		
2. Optimizing investments across and within education levels			
2.1 Resource reallocation from tertiary education to early childhood education	(i) Improve equity in access to tertiary education; (ii) Conduct a comprehensive review of tertiary education and earmark non-progressive expenditure for reallocation. **(Fiscal impact: neutral)**		(i) Reallocate resources from tertiary to early childhood education to adequately resource infant and basic schools. **(Fiscal impact: neutral; JMD 3.7 billion from tertiary to early childhood education)**
2.2 Implement low-cost interventions and improve efficiency of social programs to tackle school absenteeism and drop-outs.	(i) Revitalize programs targeting school-age mothers, (ii) Provide information on the economic benefits of remaining in school; (iii) Support for students at All Age or Junior Highs to transition to Secondary Schools. **(Fiscal impact: low – support from social partners is advisable)**	(i) Improve efficiency of the school feeding program to mitigate and prevent student absenteeism and drop-out; (ii) Improve implementation of non-mandatory fee policy at the secondary level to ensure progressivity. **(Fiscal impact: low/neutral - Efficiency gains to support the expansion)**	
2.3 School network optimization	(i) Conduct feasibility study on school consolidation to establish an efficient school network **(Fiscal impact: neutral)**	(i) Convert All Age schools and Primary and Junior High schools into Primary schools and Secondary High schools reducing	(i) Rural areas: consolidation of small schools, Urban areas: leverage demographic

		double-shift schools building on the feasibility study **(Fiscal impact: neutral)**	dividend. **(Fiscal impact: neutral)**
3. Improving teacher training			
3.1 Improve pre-service and in-service teacher training	(i) Focused in-service teacher training and school leaders on assessing students' post-COVID learning levels and tailoring instruction to promote learning recovery, including use of educational technology as appropriate. **(Fiscal impact: neutral using current expenditure on in-service training (JMD 106 million))**	(i) Improve the quality of pre-service teacher training with a focus on practical experience; (ii) Improve in-service teacher training to enhance teaching effectiveness; (iii) Include specialized training for school leaders. **(Fiscal impact: neutral using current expenditure on pre/in-service training (JMD 1.6 billion))**	(i) Update pre-service curriculum. **(Fiscal impact: neutral using current expenditure on pre-service training (JMD 1.6 billion))**
4. Enhancing the management and financing of the education system			
4.1 Enhance system's management capacity through strengthened institutional framework		(i) Strengthen education governance by decentralizing specific functions to regional authorities; (ii) Introduce greater flexibility in teacher contracts, allowing mobility to areas of staff shortage; (iii) Strengthening PFM systems **(Fiscal impact: neutral)**	
4.2 Revamp financing scheme to improve aspects of adequacy, efficiency and equity		(i) Revise and implement transparent allocation formulas; (ii) Consolidate grants to simplify administration **(Fiscal impact: neutral)**	(i) Introduce performance incentives in school transfers and teacher salary scales; (ii) Decentralize teachers' payroll; (iii) Consider bonds for teachers receiving government assistance. **(Fiscal impact: neutral; performance incentives to be covered by decreasing number of teachers due to demographic dividend)**
4.3 Support evidence-based decision-making across the education system	(i) Invest in integrated digital Education Management Information Systems; **(Fiscal impact: JMD 750 million)**	(ii) Participate in international learning assessments **(Fiscal impact: JMD 226 million - PISA 2024)**.	

Annexes

Annex I: Complementary data analysis on education spending in Jamaica

Figure A1.1. Jamaica and benchmark countries. Student-Teacher ratios in early childhood education, 2016 or latest



***Source**: UNESCO UIS (2020) and World Bank calculations based on Jamaica's MOEYI - Education Statistics 2018/19*

Figure A1.2. Jamaica and benchmark countries. Student-Teacher ratios in primary education, 2016 or latest

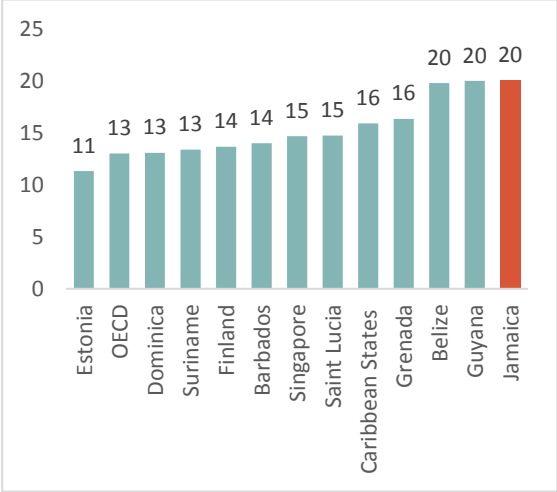
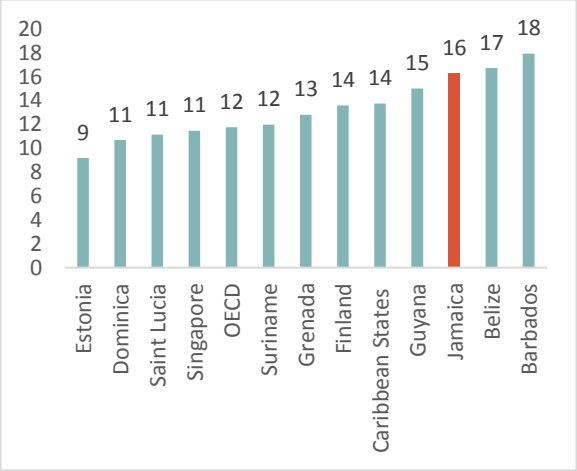


Figure A1.3. Jamaica and benchmark countries. Student-Teacher ratios in secondary education, 2016 or latest



Source: UNESCOUNESCO UIS 2020 and World Bank calculations based on Jamaica's MOEYI - Education Statistics 2018/19

Table A1.1. Logit model on determinants of CSEC results for secondary high students (public schools), 2018 (Coefficients)

Variables	(1) Grade I - Math	(2) Grade I - English	(3) Grade I-III - Math	(4) Grade I-III - English
Female student	-0.226**	0.721***	-0.0366	0.758***
	(0.114)	(0.105)	(0.0577)	(0.0534)
Urban school	0.125	0.605**	0.201	0.361***
	(0.352)	(0.251)	(0.180)	(0.139)
Teacher: mean age in school	-0.138	-0.235	-0.197*	-0.266***
	(0.192)	(0.150)	(0.102)	(0.0854)
Teacher: % of female teachers in school	-0.00266	0.00738	0.0178	0.000783
	(0.0189)	(0.0142)	(0.0113)	(0.0100)
Teacher: mean years of service as teacher	-0.230	-0.188	0.0754	0.151
	(0.181)	(0.172)	(0.116)	(0.114)
Teacher: mean years of qualification in school	0.495***	0.539***	0.178*	0.115
	(0.146)	(0.122)	(0.106)	(0.0936)
% full-time teachers in school	-0.0307	-0.0251	-0.0183	-0.0149
	(0.0286)	(0.0209)	(0.0197)	(0.0233)
% Teachers permanent tenure in school	-0.00579	-0.0248*	-0.0115	-0.0109
	(0.0172)	(0.0142)	(0.00886)	(0.00785)
% Senior teachers in school	0.0283	0.0437*	0.0170	0.00760
	(0.0255)	(0.0240)	(0.0154)	(0.0125)
% University graduates in school	0.0951***	0.0833***	0.0369***	0.0280***
	(0.0248)	(0.0180)	(0.00907)	(0.00869)
Number of students per teacher in school	-0.187***	-0.112**	-0.0115	0.0318
	(0.0676)	(0.0548)	(0.0378)	(0.0362)
School size	0.000582	0.000228	0.000463*	0.000370
	(0.000403)	(0.000308)	(0.000241)	(0.000232)
Shifts in school	-0.378	-0.248	-0.384*	-0.416**
	(0.424)	(0.316)	(0.214)	(0.185)
% Attendance in school	0.105***	0.0850***	0.0434***	0.0447***
	(0.0188)	(0.0209)	(0.0150)	(0.0115)
% students sat CSEC at school++	-0.0335	-0.0501**	-0.0216	-0.00607
	(0.0228)	(0.0208)	(0.0229)	(0.0190)
Constant	-9.918	-6.124	-0.289	3.154
	(6.560)	(4.711)	(3.566)	(3.430)
Observations	22,037	22,569	22,037	22,569

*** p<0.01, ** p<0.05, * p<0.1

Note: Clustered error at school level and accounting by Parish characteristics. ++ This variable accounts for the percentage of students in the school that sit CSEC.

Table A1.2. Marginal effects (probabilities) of significant variables of the model on determinants of CSEC results for secondary high students (public schools), 2018

	Grade I - Math	Grade I - English	Grade I-III - Math	Grade I-III - English
Teacher: mean years of qualification in school	2.5%	5.7%	4.3%	1.7%
% University graduates in school	0.5%	0.9%	0.9%	0.4%
Number of students per teacher in school	-0.9%	-1.2%		
Shifts in school			-9.5%	-6.9%
% Attendance in school	0.5%	0.9%	1.1%	0.7%

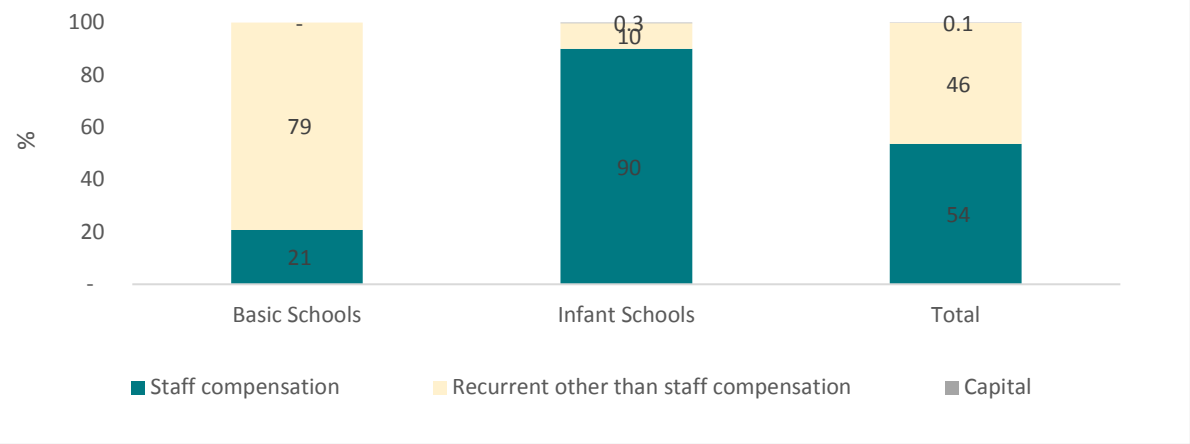
Source: World Bank calculations

Annex II. Analysis of recurrent expenses other than staff compensation by level of education

Early Childhood Education

Half of the government expenditure on early childhood education is allocated to basic schools and the remainder to Infant schools. At the same time, the government per-student expenditure on recurrent expenses (excluding salaries) is about JMD 21,000 in Infant schools and JMD 16,000 in basic schools, and the per student household expenditure of attending either a basic school or an Infant school is similar, including tuition and auxiliary fees. This suggests that the main difference in the expenditure composition between Infant and Basic schools is a relatively low expenditure on staff compensation in basic schools (Figure A2.1).

Figure A2.1. Distribution of Government Expenditure in early childhood education by type of school, 2018/19



***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

"Community and Private School Assistance" is the second largest recurrent expenditure category, following staff compensation. During the last few fiscal years, the expenditure on Community and Private School Assistance has accounted for 83 percent of total recurrent cost (excluding salaries). This assistance supports the provision of learning materials and nutrition in basic schools. Direction and administration accounts for 11 percent and Rehabilitation and Maintenance Works for 3.3 percent (Table A2.1). It is important to highlight that expenditures on items such school meals and books are included as subsidiary services and thus are not shown in Table A2.1.

Table A2.1. Distribution of recurrent expenditure other than staff compensation in early childhood education (%), 2018/19 – 2019/20

	2018/19	2019/20
0005 - Direction and Administration	**11.16%**	**11.21%**
Rental of property & Machinery	0.52%	0.55%
Travel Expenses & Subsistence	3.83%	5.46%
Use of Goods and Services	4.95%	3.14%
Utilities and Communication Services	1.85%	2.07%
0205 - Rehabilitation and Maintenance Works	**2.28%**	**3.33%**
0714 - Community and Private School Assistance	**83.29%**	**83.75%**
Grants, Contributions & Subsidies	83.29%	83.45%
0715 - Delivery of Instruction	**3.27%**	**1.71%**
Travel Expenses & Subsistence	3.14%	1.68%
Utilities and Communication Services	0.14%	0.02%
Grant total	**100.00%**	**100.00%**

***Source**: World Bank calculations based on Jamaica's MOEYI - Education Statistics 2018/19*

Primary education

Most of the education budget of recurrent expenditures other than staff compensations goes to travel expenses and subsistence. Travel expenses make up the largest share of recurrent expenses other than staff compensation (38 percent in 2019). Use of goods and services and by Utilities and communication services accounts for about 25 percent and 21 percent, respectively. Rehabilitation and maintenance work represent about 13 percent of the total expenditure on recurrent expenses other than staff compensation (Table A2.2).

Table A2.2. Distribution of recurrent expenditure other than staff compensation in primary education (%), 2018/19 – 2019/20

	2018/19	2019/20
0005 - Direction and Administration/ Delivery of instruction	**80.22%**	**87.04%**
Travel Expenses & Subsistence	25.83%	37.72%
Use of Goods and Services	27.32%	25.12%
Utilities and Communication Services	27.06%	21.24%
Awards & Social Assistance -		2.96%
0205 - Rehabilitation and Maintenance Works	**19.52%**	**12.58%**
Use of Goods and Services	19.52%	12.58%
0790 - Tuition Assistance	**0.26%**	**0.38%**
Awards & Social Assistance	0.26%	0.38%
2800 - Delivery of Specialized Instruction	**0.00%**	**0.00%**
Grants, Contributions & Subsidies	0.00%	0.00%
Grant total	**100.00%**	**100.00%**

***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

Secondary education

Tuition assistance is the main cost driver for recurrent expenditures other than staff compensation. About 95 percent of the recurrent expenditure other than staff compensation was allocated to general secondary schools and another 5 percent to technical/vocational schools. In addition, the main program for both general and vocational education is tuition assistance. About 55 percent of the total recurrent expenses in secondary education is allocated to tuition assistance to secondary schools and another 4 percent to vocational secondary schools. This program supports the no-tuition fee policy implemented by the government.[59] During 2019[60], the GoJ transferred JMD 17,000 per secondary school student to all public schools as tuition assistance. Private schools also benefit from the program. During 2019/20, independent secondary high schools received around JMD 490 million, representing 12 percent of the expenditure in that program. Finally, grants for the Career Advancement Program (CAP) represented around 14 percent of total and exam fees assistance about 8 percent. Exam fees support beneficiaries of the social assistance scheme, the Programme of Advancement Through Health and Education (PATH), to sit Secondary Education Certificate (CSEC) examination and Caribbean Advanced Proficiency Examination (CAPE), as well as City and Guilds, National Vocational Qualification of Jamaica (NVQ-J) and the Caribbean Vocational Qualification (CVQ) examinations (Table A2.3).

Table A2.3. Distribution of recurrent expenditure other than staff compensation in secondary education (%), 2018/19 – 2019/20

	2018/19	2019/20
252 - Delivery of Secondary Education	**92.98%**	**95.12%**
0005 - Direction and Administration	**4.08%**	**5.84%**
Travel Expenses & Subsistence	2.85%	3.63%
Use of Goods and Services	1.13%	0.32%
Utilities and Communication Services	0.09%	0.00%
Awards & Social Assistance	-	1.89%
0205 - Rehabilitation and Maintenance Works	**4.64%**	**4.06%**
0715 - Delivery of Instruction	**9.51%**	**7.23%**
Travel Expenses & Subsistence	7.89%	6.50%
Use of Goods and Services	1.62%	0.73%
0732 - Boarding Assistance	**0.29%**	**0.33%**
0767 - Financial Assistance to Students	**0.04%**	**0.03%**
0790 - Tuition Assistance	**55.84%**	**54.79%**
0940 - Exam Fees Assistance	**5.65%**	**8.12%**
2801 - Career Advancement Program	**12.94%**	**14.72%**
254 - Delivery of Technical/Vocational Education	**7.02%**	**4.88%**
0005 - Direction and Administration	**0.95%**	**0.89%**
Grants, Contributions & Subsidies	0.30%	0.23%
Travel Expenses & Subsistence	0.49%	0.46%

[59] The government provides grants to schools to offset resources they used to get from parents through tuition fees.

[60] "The Career Advancement Program (CAP) is an initiative of the GoJ through the Ministry of Education, Youth & Information to respond to the swelling number of learners who complete secondary level education without any formal certification and has not matriculated to post-secondary level education or work. This is focused on providing opportunities for all learners (ages 16-18) to identify, understand, choose, and prepare for careers and occupations of their choices." In 2018/19, 3,624 students participated in the program.

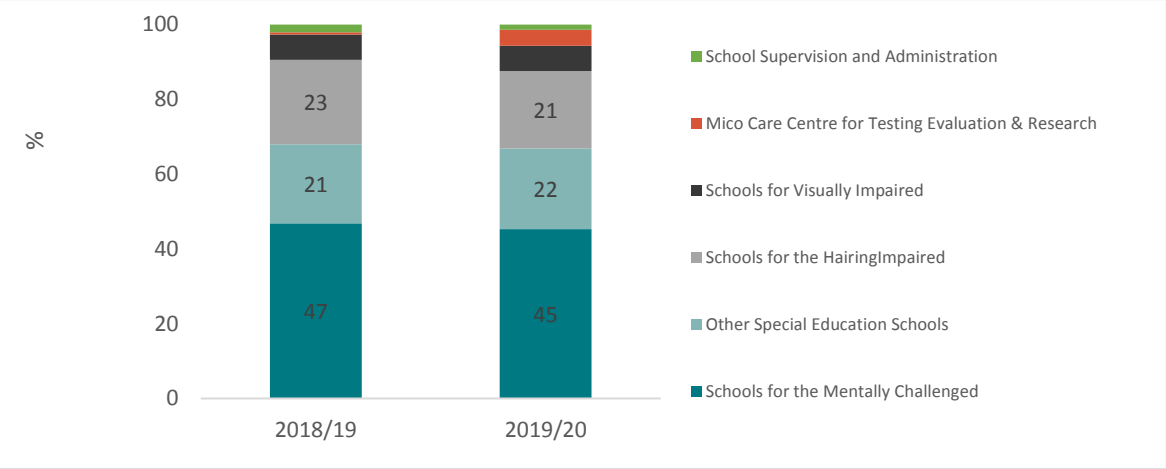
	2018/19	2019/20
Use of Goods and Services	0.09%	0.12%
Utilities and Communication Services	0.07%	0.08%
0715 - Delivery of Instruction	**0.51%**	**0.31%**
Travel Expenses & Subsistence	0.51%	0.31%
Use of Goods and Services	0.00%	-
0790 - Tuition Assistance	**5.56%**	**3.68%**
Grant total	**100.00%**	**100.00%**

***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

Special education

Direction and administration are the main drivers of recurrent expenses (excluding salaries), which represents 38 percent. Approximately 45 percent of the expenditure on the subsector is devoted to schools for students with learning disabilities and 21 percent to schools for hearing impaired children (Figure A2.2 and Table A2.4).

Figure A2.2. Expenditure distribution by type of special school, 2018/19 and 2019/2020



***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's Ministry of Education (2020)*

Table A2.4. Distribution of recurrent expenditure other than staff compensation in special education, 2018/19 – 2019/2020

	2018/19	2019/20
0005 - Direction and Administration	**39.18%**	**37.95%**
Rental of Property and Machinery	1.29%	1.62%
Travel Expenses & Subsistence	8.51%	9.66%
Use of Goods and Services	12.67%	17.04%
Utilities and Communication Services	16.72%	9.63%
0205 - Rehabilitation and Maintenance Works	**14.14%**	**10.76%**
0715 - Delivery of Instruction	**18.13%**	**17.47%**
Travel Expenses & Subsistence	18.13%	16.81%
0732 - Boarding Assistance	**5.37%**	**12.85%**
0735 - Assessment and Instructions	**15.21%**	**16.55%**
Travel Expenses & Subsistence	13.34%	13.68%
0789 - School Supervision and Administration	**7.96%**	**4.42%**
Travel Expenses & Subsistence	7.68%	4.20%
Grant total	**100.00%**	**100.00%**

***Source**: World Bank calculations based on Statements of Expenditure of the Jamaica's MOEYI (2020)*

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