

School Financing in Jamaica:

An Exploration of the Allocation of School Resources

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Education Division
Social Sector

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TECHNICAL NOTE
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Abstract

Education spending has increased significantly in Latin America and the Caribbean over the last few decades and Jamaica is no exception. The country has prioritized education within its policy agenda, with spending consistently above the region's average for more than 10 years. Despite these efforts, closing existing learning gaps between advantaged and disadvantaged students has remained a challenge. This study examines how resources are allocated to Jamaican schools and explores ways to promote equity through adjustments in education spending. Findings suggest that lower socio-economic schools rely mainly on public funds, while most high socio-economic schools' income comes from donations from different sources, which can be used more flexibly. Such contributions are not always quantifiable or consistently described in the MOEYI's registries, which distorts the equitable allocation of public resources. Moreover, the funding formula used by the MOEYI is relatively new and no impact evaluation studies have been carried out to measure if it effectively responds to equitable education opportunities across schools. More information on schools' access to and sources of resources would allow the MOEYI to determine more accurately whether the funds allocated to each school are sufficient to meet their real needs.

JEL Codes: I22, I24, I28, H52

Key words: school funding, school management, teacher allocation, per-pupil spending, equity, Jamaica

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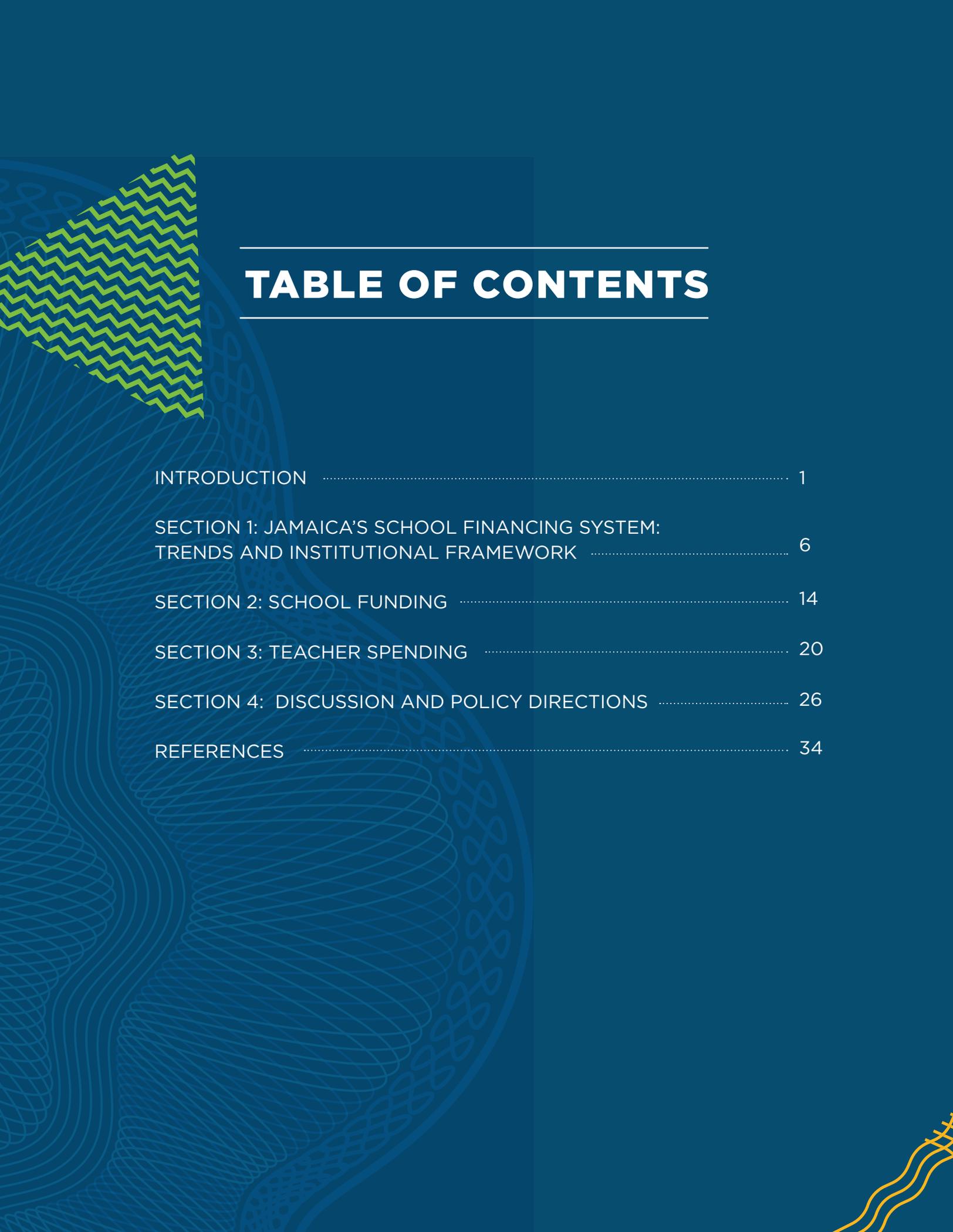


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INTRODUCTION

Education spending has increased significantly in Latin America and the Caribbean (LAC) over the last few decades as a result of the region's commitment to increase coverage and quality within their education systems (Elacqua, et al., 2018; USAID, 2014). Jamaica is no exception. The country has prioritized education within its policy agenda, with spending consistently above the region's average for more than the last 10 years (UNESCO, 2020). However, Jamaica's current fiscal situation and the further impact of the COVID-19 pandemic has meant that less public funding is available. How can the Ministry of Education, Youth & Information (MOEYI) meet demands for equitable quality education with limited funds? This study examines how resources are allocated to schools and explores ways to promote equity through adjustments in education spending.

In addition to increased spending, the MOEYI has also developed policy and legislation to promote equity within the system and close existing learning gaps between advantaged and disadvantaged students at both the primary and secondary school levels. In 2016, the MOEYI enacted a non-mandatory fee policy, which states that "schools should not be forced to charge fees for services that the Ministry should be providing, as education is just too important to have any barriers to access" (MOEYI, 2018). The policy sought to reduce access barriers and financial burdens on parents by eliminating mandatory fees and by funding public education solely through the national budget. In 2018, the MOEYI communicated another shift in the school "funding formula," from a per capita arrangement to one that "addresses the particular needs of schools (Hastings, 2018). The aim was to account for the characteristics of the school and student body served, and thus achieve a more equitable assignment of the funds. This was also seen as a means of offsetting the sometimes considerable private contributions that are made to some schools on the part of parents, alumni, local businesses, and others.

Despite these efforts, closing existing gaps has remained a challenge, suggesting a need for new and innovative approaches on the part of the Jamaican government. Maintaining high spending on education could furthermore prove difficult in a context of budget cuts and scarcity, accentuated by the generalized financial burden of the global COVID-19 pandemic. Over the last several decades, Jamaica has experienced weak growth and was among the world's most indebted countries. Since the early 2000s, its public debt-to-GDP ratio has been above 125 percent (IDB, 2014). The economic shock associated with the current pandemic will likely create additional fiscal policy challenges for Jamaica and other countries. Urgent COVID-19 related responses are expected to negatively affect education systems given that the dire need to respond to the public health emergency—and to strengthen safety nets—is expected to result in diminished education funding and other public investments (World Bank, 2020). Within this context, efforts must necessarily go beyond increases in spending and consider flexible and cost-effective solutions to

mitigate the effects of the current crisis, improve management of funds, and promote equitable school financing and access to quality education.

A growing body of research shows that increasing per-pupil spending has a causal impact on student outcomes both in the short and long terms. Greater education spending has been found to improve student achievement and attainment outcomes, especially for disadvantaged students (Candelaria & Shores, 2019; Card & Payne, 2002; Lafortune et al., 2018). Meanwhile, several studies observe that increased funding also has a positive impact on intergenerational mobility (Biasi, 2019) and adult outcomes, such as wages and the incidence of poverty (Jackson et al., 2015). The current economic slowdown, and the costs associated with the COVID-19 response (school hygiene, social distancing, technology and training for remote learning, targeted interventions for students falling behind)¹ will require the Jamaican government to make more efficient and equitable financial decisions to minimize the negative effects of revenue losses. A focus on equitable allocation of resources and support to schools may help to minimize the negative effects of learning losses, as well as to close learning gaps in a context of generalized fiscal constraints. To this end, Jamaica might review its resource allocation policies with an eye to developing a more equitable system. Such a commitment to equity would entail better information, accountability, and a focus on strategic, informed and priority-based spending.

The objective of this technical note is to provide an overview of Jamaica's school financing system, particularly its resource allocation. In doing so, we highlight specific areas for improvement in terms of optimizing public investment and advancing equity in spending. Given the current Jamaican institutional arrangement for resource assignments, identifying improvement opportunities necessarily means assessing unequal sources of income and the determinants of teacher allocation across the school system. Our focus here is thus on two main components of school finance that are fundamentally associated with achieving equity in educational outcomes: school income (defined here as public and private funds managed directly by each school) and teacher allocation.

The first component, income, has been significantly studied, with recent work revealing a positive association with student achievement, years of completed schooling, and future higher earnings (Jackson et al., 2016; LaFortune et al. 2018). In addition, school-level information on budgeting and expenditure has proven to be a valuable tool for managing education finance more efficiently and for allowing stakeholders to make informed decisions at all administrative levels (Miller & Lee, 2014; Roza, 2017; Roza & Silberstein, 2020). The combining of information on school resources, spending, and outcomes can be a “powerful tool to uncover—and support—school productivity” (Roza, 2017).

Meanwhile, an increasing number of studies indicate that exposure to high quality teachers is a fundamental factor in improving student achievement (Araujo et al., 2016; Levin & Quinn, 2003; Plecki et al., 2006; Rice, 2003). Consequently, teacher allocation is essential to student learning and closing achievement gaps. Teachers are also of particular importance in that they remain the most expensive educational resource across countries, accounting for 60-90 percent of many national education budgets (World Bank, 2020). Yet, promoting equity has proven to be difficult as quality teachers are not always evenly distributed across schools. Schools serving poor children often have lower

1. See Pérez Alfaro & Zoido (2020), Arias Ortiz et al. (2020), and Bos et al. (2020).

teacher retention, less experienced staff, and higher percentages of teachers who lack the preparation and expertise necessary for their teaching assignment (Ajzeman et al., 2020; Boyd et al., 2000; Ingersoll, 2002; Plecki et al., 2006).

In order to promote equitable access to learning opportunities, the purposeful and productive allocation of resources must therefore be prioritized in education policy. This study focuses on identifying resource inequities in Jamaica's school system and on highlighting areas where, from a public policy standpoint, improvements could be made, in a context of restrained budgets but an unwavering national commitment to closing existing gaps.

The results of our assessment can be summarized in **six main points**:

1

In Jamaica, private resources (financial and in-kind from parents, alumni, local businesses, and others) are a source of inequity in school funding. They contribute to an unbalanced allocation of resources in that access to them depends on institutional capacity and school composition. Schools that serve more privileged students have an advantage over those whose students hail from poorer families or communities. While MOEYI policies allocate public funds to improve equity and benefit the most disadvantaged students, the Ministry's information systems are unable to adequately monitor each school's total income and spending, meaning that private resources are not always fully reported or captured. This makes it difficult to guarantee an equitable distribution across schools.

2

Lower socio-economic status (SES) schools mainly rely on public funds while a significant portion of the income of high SES schools comes from parents and other voluntary contributions. There is a seemingly progressive allocation of public funding in that lower SES schools show a higher public income per student than high SES schools, and income appears to be compensating for the lower private income per student in these schools. However, there is less flexibility in the use of public funds, and according to the data gathered in interviews, costs in these schools are generally higher, given the greater number of low-income students².

3

While the Ministry decides the number of teaching vacancies to be opened at each school, it has little control over teacher distribution across schools or the makeup and quality of each school's teaching staff. Rather, the latter is determined by the school's capacity to attract and recruit teachers. Those able to hire more qualified teachers, or those possessing resources to take on additional personnel, may consequently have an advantage in terms of the resulting distribution.

2. School principals reported that they routinely have to supplement public funds to provide learning resources, subsidize meals for children who cannot afford the daily cost, and cover transportation fees and entry costs for school trips, among others.

4

Salaries are higher for principals at larger schools, creating an incentive for qualified principals to forgo working in rural and small schools for positions in big urban schools. In contrast, teacher salary scales are not dependent on school characteristics but rather on qualifications. While there is a system in place to attract teachers to small and rural schools, the allowances offered are too small³ to have a significant impact. Thus, there does not seem to be an effective incentive scheme in place to promote a more equitable allocation of teaching staff or school personnel.

5

Jamaica does not have a comprehensive Education Management Information System (EMIS) to guide education-related policy making and financial planning. The lack of a robust, centralized, and real-time information system hinders the Ministry's efforts to guarantee an allocation of resources that responds to the needs of the schools in the system.

6

Given today's global context, Jamaica should consider implementing specific policies to promote an equitable distribution of resources within its education system. This could include expanding incentives to attract qualified teachers to hard-to-staff schools. Additionally, improving information systems and increasing transparency could help to avoid inefficiencies and guarantee an allocation of resources that favors the students most in need.

3. Volatile/remote allowances for teachers correspond to 13 percent of their average base salary, while for principals and vice-principals it is approximately 18 percent of their average base salary.

THE REPORT IS ORGANIZED AS FOLLOWS:

- >>> **SECTION 1** provides an overview of school funding in Jamaica, including a description of the sector's decision-making authority, sources of funding, and resource assignment rules (both teachers and public funds). This overview is based on a review of academic publications, governmental bulletins and communications, information from interviews with public officials, and basic administrative data on schools provided by the MOEYI. It also serves as a framework for the following two sections, as we discuss key focal points that potentially hinder/promote equity.
- >>> **SECTION 2** presents an analysis of reported data on school-level current income, examining income distribution across schools. The information was collected by the Inter-American Development Bank (IDB) in cooperation with the MOEYI in 2018-2019 through a school finance questionnaire. The sample comprises 163 public primary schools in Jamaica. School principals reported information on yearly income by source, types of expenditure, and number of students enrolled in Jamaica's conditional cash transfer program (PATH).⁴ We conducted an equity analysis by breaking down the sample of primary schools⁵ into SES quartiles⁶ to assess the extent to which government funding responded to the needs of the students in each particular school. This data also allowed us to identify additional sources of income that might generate inequities. We discuss the nature of these **sources of income and the challenges that can arise in the allocation of public funds.**
- >>> **SECTION 3** utilizes a teacher census, provided by the MOEYI and containing demographic and qualification information on all hired teachers in Jamaica in 2019. We focus on structure and incentives for teacher allocation and remuneration, key features of any education system. A merging of the teacher census with the data from our school financing questionnaire allows us to assess inequities in teacher allocation. We also discuss Jamaica's teacher salary scale and the extent to which the allocation system promotes an equitable distribution of teachers across schools.
- >>> **SECTION 4** offers concluding remarks on potential strategies for improvement. These aim to provide policymakers and relevant stakeholders with a helpful basis from which to initiate discussions and plan according to national educational objectives.

4. The Programme of Advancement Through Health and Education (PATH) is a nation-wide program providing two types of grants: (i) an education grant, which is contingent on children aged 6-17 attending school for at least 85 percent of the total number of school days each month. The size of the grant is J\$600 per month –approximately US\$4– per eligible beneficiary in the household (ODI, 2005); (ii) a social assistance grant, which provides support for poor, pregnant or lactating mothers, elderly poor (over age 65), and poor, disabled, and destitute adults under age 65 (Levy & Ohls, 2010). Besides the transfers to families, school principals also reported receiving a subsidy for each PATH beneficiary in their student body of approximately US\$1 daily, meant to cover the costs of a daily meal for these students.

5. As noted, our primary school sample consisted of 163 primary schools. While 30 secondary schools were also surveyed, given their small number we limit our analysis to the primary level.

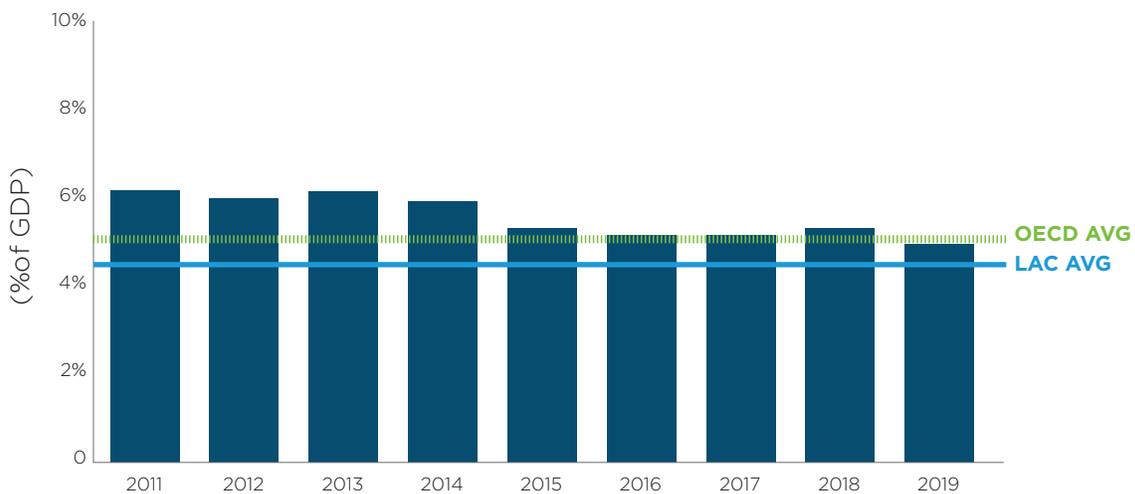
6. We used the percentage of students in PATH as a proxy for a school's socioeconomic status.

SECTION 1:

JAMAICA'S SCHOOL FINANCING SYSTEM: TRENDS AND INSTITUTIONAL FRAMEWORK

Since Jamaica became independent in 1962, significant steps have been taken towards strengthening and improving the country's education system. A constant commitment to education is reflected in budgetary allocations for advancing education reforms and financing the education sector (Hastings, 2018; The World Bank, 2012). For the last decade, Jamaica has maintained high levels of public expenditure in education as a percentage of GDP and, up until 2019, public expenditure per student was above the LAC average and around that of the OECD countries (see Figure 1).

FIGURE 1 Public expenditure on education in Jamaica, all levels (percentage of GDP)⁷



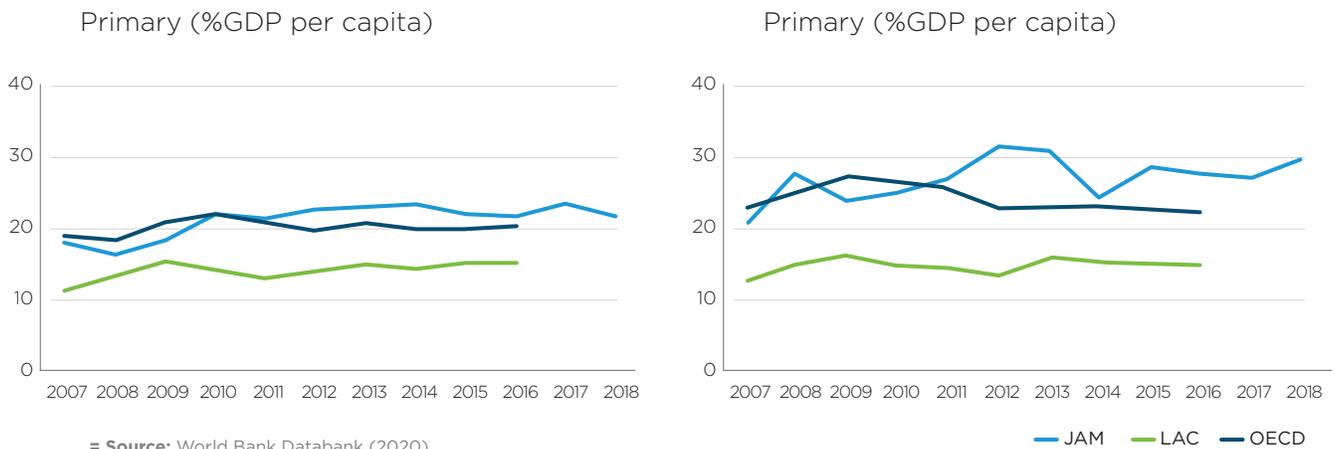
= Source: World Bank Databank (2020) & (UIS) UNESCO (2017).

Strong bi-partisan support over time has helped to prioritize spending on education, despite a lack of any prescribed rules or stipulations dictating the national budgetary allocation. The MOEYI's budget—as a percentage of the national budget—has steadily increased. By 2019, its allotment was equivalent to 14 percent of the overall national budget, which represented the largest share of funds assigned among all public entities, with the exception of the Ministry of Finance (Hastings, 2018). This financial commitment has translated into a high and persistent level of public expenditure (Figure 2), reflecting a sustained interest in achieving

7. The OECD AVG and LAC AVG lines show OECD and LAC countries' average public expenditure between 2011 and 2017, reported by the IDB's CIMA Education Portal, using data from UNESCO.

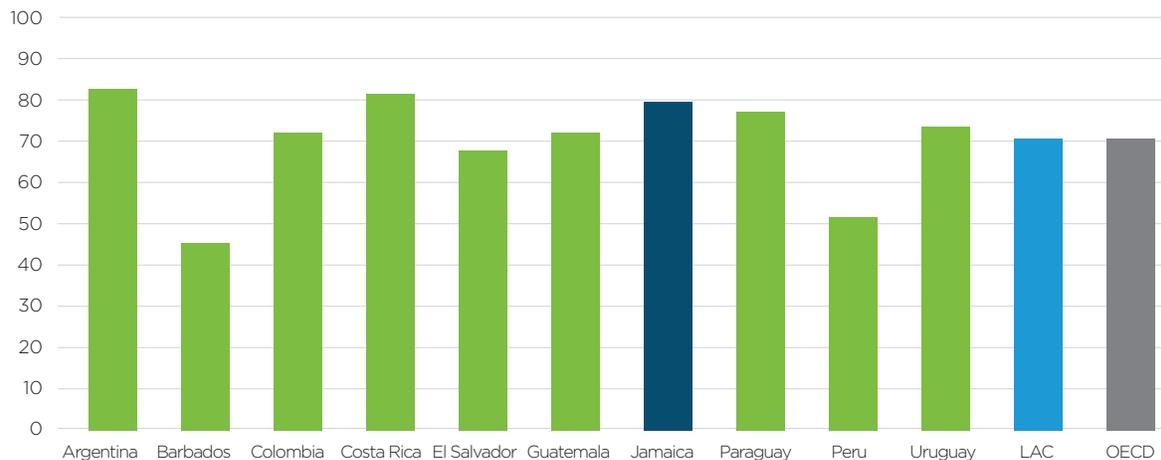
the goals laid out in the National Shared Vision for Education.⁸ The government's education budget is mainly financed from general revenues and taxes, with a small share coming from international partners through loans and grants (Hastings, 2018).

FIGURE 2 Trend in government expenditure per student by level of education (Jamaica, LAC and OECD average)



Teacher salary payments represent the single largest expense of the national education budget, comprising nearly 80 percent of the total budget. Such spending is also significant by international standards; Jamaica maintains one of the highest shares of education spending on teacher salaries in the LAC region (see Figure 3).

FIGURE 3 Public Expenditure on teacher salaries (Percentage of Expenditure on Education)



= Source: (UIS) UNESCO (2016).

8. Jamaica's National Shared Vision for Education is that each learner will maximize his/her potential in an enriching learning environment with maximum use of learning technologies supported by committed, qualified, competent, effective and professional educators and staff.

Yet, high expenditure has not translated into less unequal learning outcomes, raising questions relative to the effectiveness of the country's investments, as well as calls to create accountability mechanisms that would allow policy makers to make necessary adjustments (The World Bank, 2012). Indeed, there remain significant achievement gaps across schools. Students in top performing primary schools achieve scores that are two standard deviations above low performing schools (GSAT, 2017). Primary school students in Region 1, the urban Kingston metropolitan area, score well above the national average, while those in other regions fall, on average, significantly below the national average in all subjects covered in the former Grade Six Achievement Test⁹ (GSAT). This same trend in student achievement can be seen at most education levels, including outcomes for the Grade Four Literacy and Numeracy Tests, the GSAT, and the Grade Nine Achievement Test (MOEYI, 2017). Beyond the scope of this assessment, further studies on spending efficiency should explore these performance gaps between students.

HOW ARE RESOURCES (FUNDS AND TEACHERS) ALLOCATED TO SCHOOLS?

The school financing system in Jamaica is very centralized (see Figure 4), and authorities at the subnational level (parishes, municipalities, regional or local education authorities) have very limited decision-making power in the generation or allocation of funds. The MOEYI is responsible for assigning and transferring funds to schools for maintenance and operations, as well as for approving teacher hiring and transferring salaries directly to teacher accounts. Per-student quota is the primary basis for the assignment of monetary transfers. Similarly, the Ministry mainly assigns teacher posts based on the number of pupils a school serves. When a school is understaffed, the school board advertises and selects a candidate. The MOEYI then approves the candidate and directly pays the selected teacher. In other words, the school board has a certain degree of autonomy in the selection process, particularly in choosing a candidate based on the school's staffing needs or special programs, but it cannot decide either the number of teachers on staff or their compensation. Furthermore, schools must request permission from the MOEYI to hire any additional personnel to support learning needs (e.g., a math or science teacher to bolster STEM areas) or special programs. Thus, hiring is ultimately regulated at the central level (see Section 3 for further details on teacher hiring).

Jamaica's Education Act of 1980 outlines the statutory and operational aspects of the education system (MOEYI, 2020). Part III, Section 90 of the Act regarding the financing of public educational institutions, states that the "Minister shall, after consultation with the Board of Management of a public educational institution, determine the amounts to be paid by way of grants to that institution." However, this piece of legislation lacks specificity regarding the criteria that should be used when assigning funds to schools, and allows for negotiation between schools and the central government.¹⁰

9. The GSAT, a national primary school exit exam used for secondary school placement, was replaced by the Primary Exit Profile (PEP) in the 2018-19 academic year. Here we use GSAT results in order to compare test scores over time.

10. Recent evidence suggests that individual negotiations can create gender wage gaps among teachers favoring men. This type of policy might also be a detriment to schools with female principals (Biasi & Sarsons, 2020).

In 2018, the MOEYI announced a new approach to the funding of schools at all levels, the aim being to ensure a more equitable distribution of funds by shifting from a per capita arrangement to one that addresses the particular needs of schools (Hastings, 2018). According to the 90/2018 (Funding Arrangements for Infant, Primary, All-age and Junior High Schools) and 91/2018 (Funding Arrangements for Secondary Level Institutions) MOEYI Bulletins, this new formula incorporates the number, age, prior attainment,¹¹ and socio-economic status of the students at each school.¹² We were not, however, able to verify the extent to which the formula is applied across schools.

Previously, the allocation of funds and resources, including teaching positions, did not follow any strict criteria but were rather apportioned largely at the Ministry's discretion (Barro, 2002). This left room for negotiation, potentially resulting in some schools benefiting more than others. Efforts to amend these loose guidelines and implement a more equitable allocation strategy reflects the government's resolve to advance the country's education agenda. Yet, certain elements in the new funding formula depend on schools' needs (such as the provision of additional teachers for establishments requiring special support, or the provision of additional classrooms and infrastructure upgrades for selected schools), and there do not seem to be explicit directives on how this process works. Moreover, interviews with school officials highlighted the fact that while a school may apply for this additional funding, the Ministry has the final say on the matter. Finally, given the relative newness of the funding formula, impact studies measuring whether it actually responds to schools' needs or the extent to which this provides more equitable education have yet to be conducted.

Although primary schools do not require students to pay tuition fees, these fees were mandatory in secondary schools until 2016. With the aim of ensuring equal access to education for all, in 2016 the MOEYI enacted a non-mandatory fee policy. According to a Ministry Bulletin, "The Ministry's philosophy is that public education should be properly funded by government while encouraging stakeholders to make voluntary contributions. Therefore, schools should not be forced to charge fees for services that the Ministry should be providing. (...) Parents are already funding aspects of students' education such as, lunch, books, bus fare and other school items. It is prudent therefore, that public education be funded by taxes and not to be applied as fees at the point of access" (Bulletin 90-2018, MOEYI). Since then, the Ministry has covered secondary school tuition fees for all students.¹³ However, the Bulletin also stipulates that schools can "...work through their Parent Teachers'

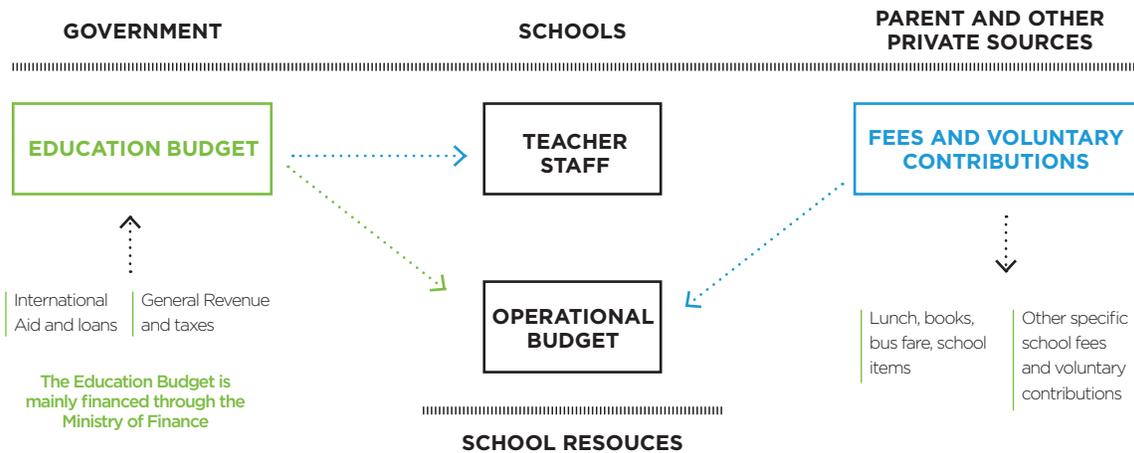
11. Students are assigned into three groups, or "pathways," according to their PEP scores (or GSAT scores prior to 2019): 1, 2 and 3. Students in pathways 2 and 3 are categorized as "developing" and "beginners," meaning there is respectively partial or little evidence that they have attained the required competence for their grade level. The new funding formula incorporates this information when assigning resources to schools (MOEYI, 2019).

12. According to the 91/2018 MOEYI Bulletin (Funding Arrangements for Secondary Level Institutions), the new formula comprises: (i) an "age weighted student unit" of basic funding for each student across all state schools; (ii) a "social premium unit" of funding for students from disadvantaged socio-economic backgrounds, using proxy indicators such as PATH (currently an extra J\$2,000 (US\$13) for beneficiaries in secondary schools); (iii) a "student premium unit" based on the assessed attainment levels of students as they enter the school, providing additional funding for those with low levels of attainment in literacy and numeracy and for those with other special education needs (GSAT/PEP scores are used as the standardized method to assess students on entry); (iv) a "curriculum premium" weighting, to reflect the increased staffing and resourcing demands in designated schools offering a strong technical and vocational and STEM curriculum; and (v) support for school feeding and maintenance. Both the 90/2018 and 91/2018 Bulletins provide an "example of allocation" to illustrate what a particular assignment of funds under the new policy would look like, as well as a list of conditions and general school needs to be considered during the funding allocation process.

13. All infant and primary schools with an enrollment of over 120 students receive an allocation of J\$2,500 (US\$ 17) per student per year, while those with less than 120 students receive a flat rate of J\$300,000 (almost US\$ 2,000). For secondary schools (including All-age and Junior High Schools), the allocation per student is J\$17,000 (US\$114) per year, and J\$19,000 (US\$127) for students in PATH. The additional J\$2,000 (US\$13 equivalent) "social premium" is meant to cover extra costs or fees to allow PATH students to participate in field trips and other school-sponsored activities. In all cases, these amounts are distributed in four scheduled disbursements per year (Hastings, 2018; Bulletin 134-2020, MOEYI).

Association to determine the level of contribution that they can afford to assist in the long-term development of the school or for special projects.” These are known as “School Support Contributions” (previously auxiliary fees), to be used for all expenditures other than those related to instruction. Despite being optional, most schools charge them, and parents are encouraged to pay them.¹⁴ They are usually greater in higher SES schools. As we will discuss further in Section 2, these contributions and other sources of private funds remain an important source of inequity as they directly depend on the nature, characteristics and opportunities of each school and the students they serve.

FIGURE 4 **Public expenditure per student as a share of GDP per capita by level of education, 2003-2017**



= Source: IDB (2020).

Besides its central office, the MOEYI governs the country’s education system through six regional education offices, each responsible for the supervision of the schools within their region. As mentioned, the MOEYI oversees and supports the schools as well as dictates how many teachers each school may have on staff based on a teacher-pupil ratio (further discussed below). Schools do, however, recruit and select their own teachers. A particularity of the Jamaican system is that “teaching personnel, even though paid by MOEYC,¹⁵ are not considered employees of the Ministry but rather employees of the individual schools” (Miller, 2017). This uncommon institutional arrangement means that while the Ministry directly

14. According to the 91/2018 Bulletin, “contribution cannot be mandatory and must not be a requirement for registration, school access/attendance or criteria for graduation, examination slips, application to sixth form or access to any public service at a public educational institution.” Though all schools are required to offer education to students independently of whether or not they can pay the fees, implementation has proven to be difficult. Local media sources have reported denouncements by parents and other governmental members (Jamaica Observer, 2015; Jamaica Observer, 2020; Jamaica Information Service, 2020).

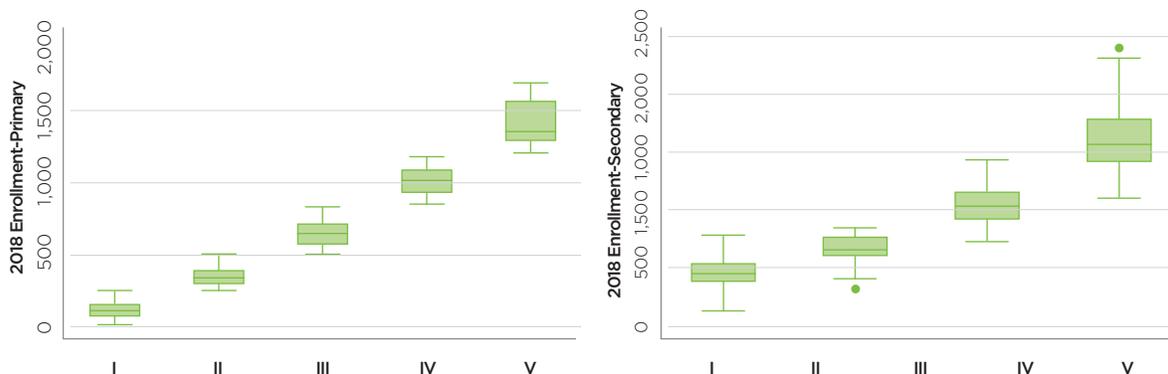
15. Referring to the formerly denominated Ministry of Education, Youth and Culture (MOEYC).

hires and pays teachers, it has less control over teacher distribution in and across schools and the makeup of each school's teaching staff. Rather, the teaching staff at each school is determined by the school's capacity to attract and recruit teachers. Once hired, the Ministry pays teachers using a preestablished salary scale based on teacher qualifications and experience. All teachers are paid according to the same scale, with special allowances granted to teachers hired in particularly hard-to-staff schools and schools in rural areas. The higher the teacher's qualifications and the longer the time spent in a teaching position, the greater their compensation. In this sense, schools that attract "better teachers"—more experienced and more qualified—indirectly receive more money. If more qualified teachers are disproportionately hired at high SES schools, then these institutions end up with a relatively more expensive teaching force than those in less "attractive" or less advantaged schools, which tend to employ from a pool of less qualified teachers. As we will discuss further in Section 3, we hypothesize that this arrangement may result in an unequal and inequitable allocation of teachers. In fact, we find that primary schools that serve higher numbers of students in PATH, here considered as low SES schools, have a lower percentage of highly trained teachers.

SCHOOL CLASSIFICATION

Schools in Jamaica are classified based on their type and size. There are five categories at the primary level, ranging from small Class I schools with an enrollment of less than 250 students up to the largest Class V schools with an average enrollment of more than 1,200 students. Secondary schools follow a similar 4-level scale based on school size and the duration of the education program (see Figure 5).

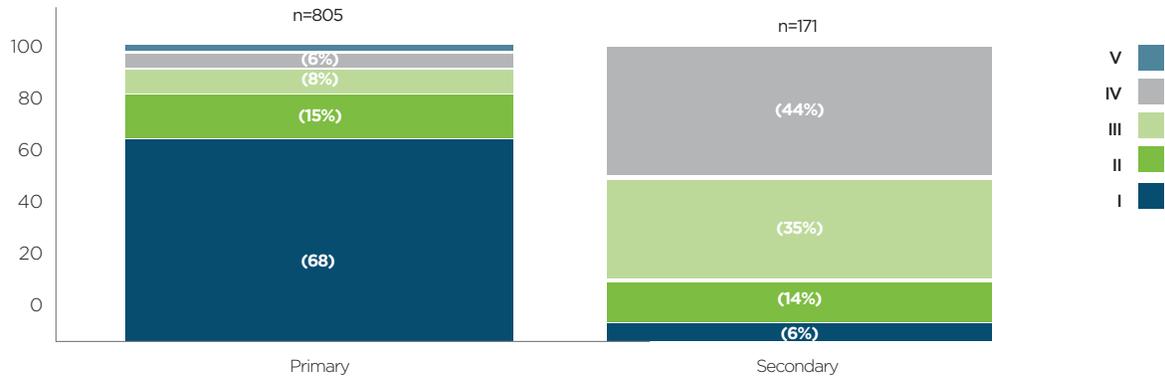
FIGURE 5 | Jamaica school classification and school size



Source: IDB (2020) with information from MOEYI (2020).

Nearly 70 percent of the primary schools in Jamaica are Class I, meaning they have less than 250 students, while most secondary schools have more than 1,000 students (see Figure 6).

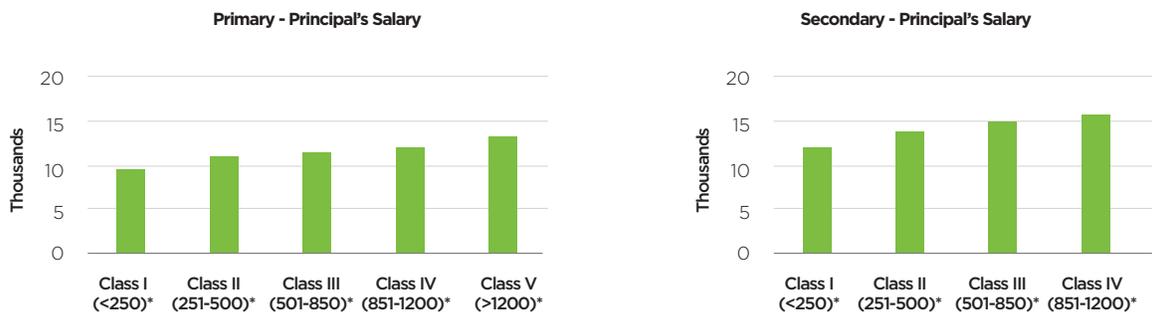
FIGURE 6 Principals' salary scale - Primary and secondary schools



= Source: IDB (2020) with information from MOEYI (2020).

Although teacher salaries are independent of school classification, the remuneration of principals increases with school size, meaning that a principal might prefer to seek a position in a large urban school as opposed to a small institution in a rural area (see Figure 7).

FIGURE 7 Jamaica school classification and school size



= Source: MOEYI (2020).

As we will discuss in Sections 2 and 3, costs and needs in smaller schools can fundamentally differ from those in large schools. Smaller schools typically require more resources per student; the student-teacher ratio is usually smaller¹⁶ and the fixed costs per student are higher. If the Ministry aims to close the achievement gap across schools, then their resource allocation strategy might require a classification of schools that adopts additional criteria to that of enrollment.

16. In small rural schools, the minimum number of teachers required to meet the education guidelines commonly exceeds the number of teachers determined by the student-teacher ratio established according to school's number of students.

SCHOOL FINANCING AND TEACHER DATA

The information on school funding described in the following sections was gathered through a school finance study carried out by the IDB in 2018-2019 in cooperation with the MOEYI. The Ministry collected the data with support from the Schools Operations Division. Our dataset primarily comprises reported information on school income and expenditures from a representative sample of 163 primary schools.¹⁷ Additionally, the Ministry provided information on Jamaica's teaching force, which we merged with the sample. The teaching force data (Teacher Force Dataset) is from a 2018-2019 teacher census and includes demographic and education information on all teachers hired by the MOEYI during this period. Our final School Finance Dataset thus contains information on income, expenditure, student performance and an imputation¹⁸ of "total expenditure on teacher salaries" for the sample of 163 primary schools, as well as for 30 secondary schools across the country.¹⁹ Our imputations of teacher salaries were estimated using teacher experience and qualifications reported in the Teaching Force Dataset and following Jamaica's teacher salary scale. By creating a measure of teacher salaries per student (further described in Section 3), we explored equity from a "teacher-cost" standpoint.²⁰ While Section 2 primarily focuses on the reported data on school funding, Section 3 looks at allocation of indirect funds (through teacher staffing), thus exploiting both the complete Teaching Force data and the aggregated data in the School Finance Dataset.

In addition to financial data, school principals also reported the number of PATH students enrolled in their schools. PATH, or the Programme of Advancement Through Health and Education, is a conditional cash transfer program for low-income families, as described in footnote 4 (ODI, 2005). Multiple education studies similarly use pupil eligibility for a free or reduced-price lunch (FRL) as a measure of student SES (Borman & Hewes, 2002; Harwell & LeBeau, 2010; Hauser, 1994; Kurki, Boyle, & Alajdem, 2005; Lubienski & Lubienski, 2006; Molnar, et al., 1999; Stein, et al., 2008). Since students who receive PATH grants are from low-income families, it is reasonable to assume that schools with a higher proportion of PATH students also have less access to parent contributions. As our data lacks any other socio-economic indicator, we used percentage of PATH students to construct a measure of school socio-economic status (SES). We then assigned each school to an SES quintile, where '1' represents schools in the highest SES quartile (lowest percentage of students in PATH) and '5' denotes those in the lowest SES quartile (highest percentage of students in PATH). In the following sections, we discuss equity in the education system by observing resource distribution across our constructed SES scale.

17. We used stratified random sampling to achieve an equal representation at each level and parish. The data was ordered by school type and parish, and then every other school was selected to achieve 50 percent of the school population.

18. As we were unable to obtain actual teacher salaries for the sample of schools, we developed a proxy for teacher salaries as described above.

19. Given that we only had information for 30 secondary schools, we limited our analysis to primary schools.

20. In the absence of a SES measure for the universe of schools, we analyzed only those primary schools in our 163 sample for which we collected primary data. We found no statistically significant difference between the average imputed teacher salaries in the schools in the sample and that of those not sampled.

SECTION 2:

SCHOOL FUNDING

The school funding questionnaire asked school principals to report disaggregated information on their school’s yearly sources of income and expenses. Schools primarily receive two kinds of funds: (i) government transfers and PATH grants (i.e., funds from the government to provide meals for PATH students)²¹; and (ii) contributions from private agents, mainly consisting of the School Support Contribution from parents, other voluntary contributions, donations or returns from fundraising activities and other school efforts (see Table 1).

TABLE 1 | **School funding sources**

SOURCES OF INCOME		
Government transfers	<ul style="list-style-type: none"> • Tuition fees • PATH grant • Others: Maintenance, materials, administrative salaries, operational expenditure, utilities 	
Parent contribution	<ul style="list-style-type: none"> • School Support Contribution 	
Other sources of income	<ul style="list-style-type: none"> • Investments (returns) • Interest bearing Accounts • Alumni • Private sector donations/grants 	<ul style="list-style-type: none"> • International assistance/grant • Fund raising • School supplies • Farm/agricultural produce • Canteen/tuck shop (rent/ sales)

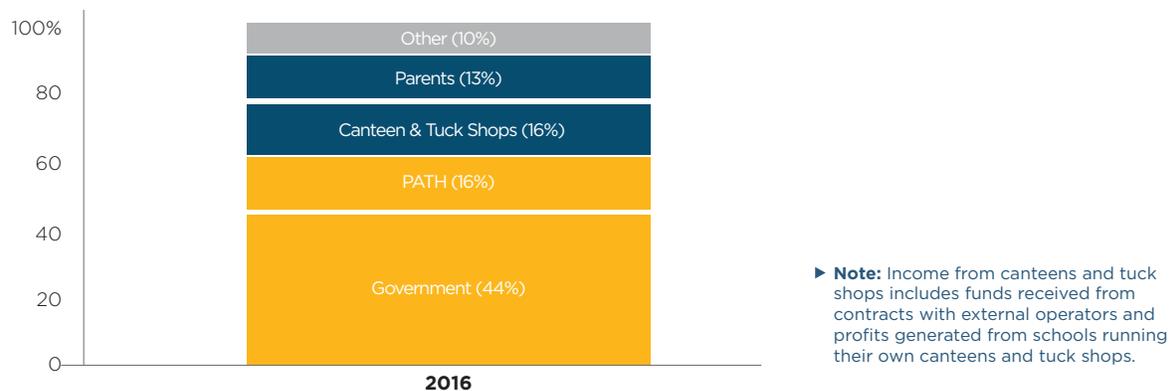
= Source: IDB (2020). School Financing Questionnaire.

21. Schools receive Regular Grant Funds from the MOEYI, calculated on a per student basis, for teaching and learning supplies, science kits, transportation for school-related activities, and up to 10 percent on sports and extracurricular activities. In addition, as described in footnote 14, all primary and secondary schools receive yearly allowances or “tuition fees” according to their number of students. Schools also receive funds to provide meals for PATH students (J\$120 per student per day for students in Grades 1-3 and J\$150 for students in all other grades, equivalent to US\$0.80 and US\$1 respectively), as well as a Maintenance Grant of J\$150,000 (US\$985 equivalent) for infrastructure upkeep, an Internet grant of J\$15,000 (US\$98 equivalent), and other grants based on student and school characteristics.

In 2016, on average, 60 percent of the total resources received by our sample of primary schools came from the government, while the other 40 percent were provided directly by parents and other sources (see Figure 8). However, and as we will see further on, when dividing the sample into SES quartiles, some schools were more dependent on public/private funds than others. Note that these transfers exclude the cost of teachers, whose salaries are paid directly by the Ministry of Education. Parents' regular contributions consist of voluntary donations and canteen gains.

Canteens and tuck shops²² have been the subject of heated debate in the Jamaican press for a number of years. This has been due both to how they operate and to parent complaints of the cost and nutritional content of the products offered, particularly in the tuck shops (Chunnu, 2009; Jamaica Observer, 2018; JIS, 2011; The Gleaner, 2015). Canteens and tuck shops are sometimes run directly by the schools, and in other cases by contracted external operators. When concessioners operate the canteens and tuck shops, schools usually charge rent and receive a commission from the revenues. The concessionaires assume the responsibility for providing meals, and selecting the products, and this assigns most market risks to contracted third parties. Other schools run their own canteens and tuck shops so as to take full advantage of the income made from selling snacks and meals. In both cases, revenues depend on how profitable the business is, which is directly associated with students' willingness to pay and the potential demand. Since pupils do not have alternatives, most end up buying products from the canteens and tuck shops, even if they are considered to be expensive.

FIGURE 8 Total income distribution by sources of funding

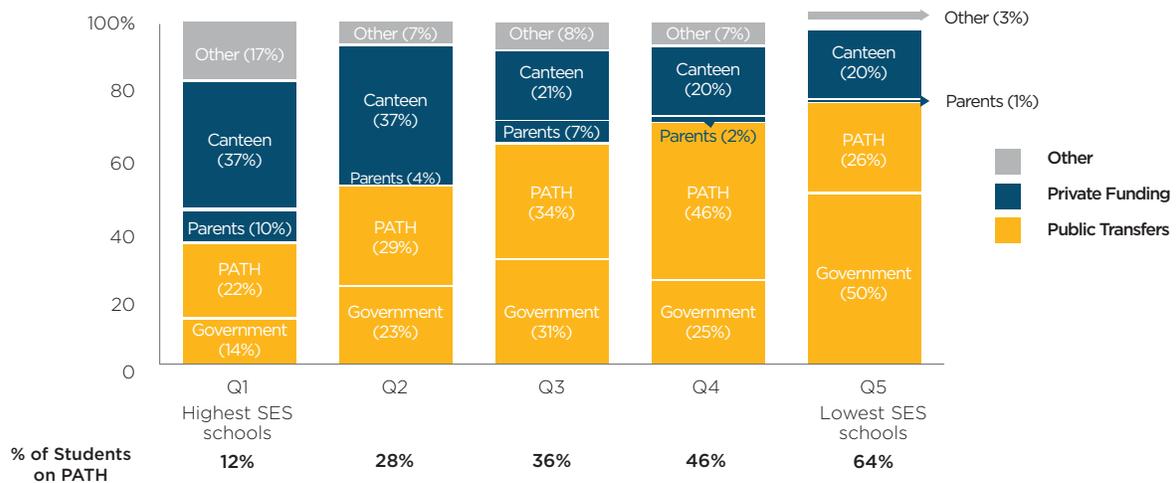


Source: IDB (2020). School Financing Questionnaire.

22. Canteens typically offer hot meals and are more often run and staffed by the school. Tuck shops sell snack items and may be run by the school or a third party as described above.

When canteens and tuck shops are independently run and decide on their products and prices, they may charge higher prices and be more profitable in those schools that serve a more advantaged population of students. As shown in Figure 9, schools in Q1 (i.e., those with the smallest percentage of students in PATH) rely more heavily on income from private sources than from government grants. Nearly 40 percent of the budget of higher SES schools (Q1 & Q2) comes from their canteen and tuck shop profits. Lower SES schools (Q4 & Q 5) mostly rely on public funds, indicating that these schools are mainly financed by government transfers. This difference highlights the disparity that private sources can create, given that not every school has access to such funds (see Figure 9).

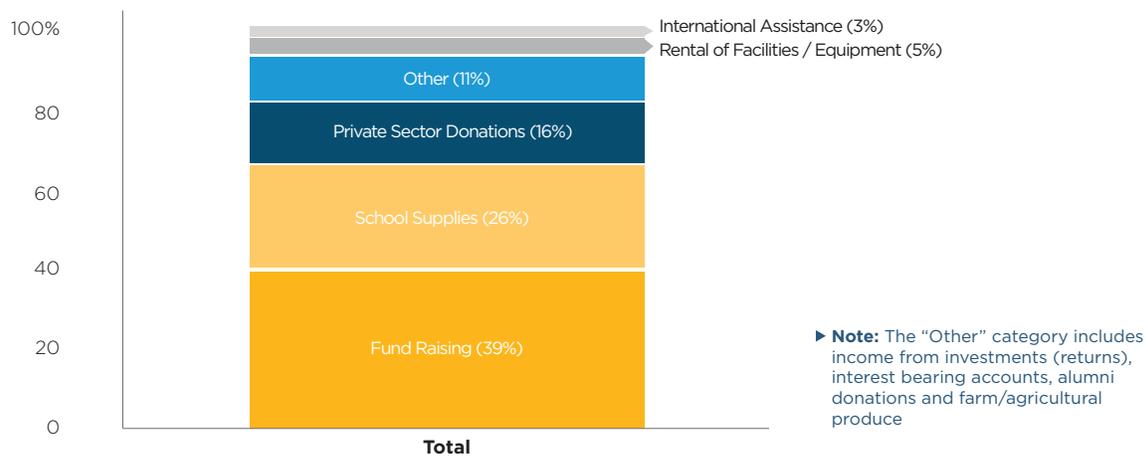
FIGURE 9 | **Distribution of income by school SES**



► **Note:** Q1 and Q5 refer respectively to schools with the lowest and highest number of PATH students (highest and lowest SES schools). The percentages at the bottom refer to the % of PATH students in these schools.

= **Source:** IDB (2020). School Financing Questionnaire.

Funds from “Other” sources, like those from parents and canteens, are also positively associated with SES. These include income from school efforts such as fund-raising activities, and financial support from PTAs, alumni associations, special interest groups and churches (see Figure 10). Such support is usually offered directly to the selected or preferred school, can be in-kind or monetary, and may vary in significance. Examples include auditoriums, computers, additional classrooms, books, equipment, furniture, materials and supplies, transportation, and support for sports and visual and performing arts programs. Such contributions largely depend on institutional capacity and school composition, making them inaccessible to poorer schools. Importantly, they can significantly affect the quality of the education offered, whether this be in terms of school facilities, programs, or staffing.

FIGURE 10 | Additional resources raised by schools


Source: IDB (2020). School Financing Questionnaire.

It should be noted that although the Ministry encourages parental involvement in schools, it is also aware of the potential threat to equity that these additional resources can create across establishments. Throughout the years, it has released guidelines and mandates addressing contributions from households to ensure equity and access to all, including the aforementioned elimination of registration and tuition fees (MOEYI, 2018; MOEYI, 2020; The Gleaner, 2020), though parents do continue to make contributions. More importantly, government transfers to schools are not dependent on parent/family contributions, community fund-raising efforts, ventures like tuck shops/concessionaires, book shops, barbecues, concerts, or any other unofficial source of income available to particular schools. While schools must report all their resources, such contributions tend to be impromptu and even when reported or captured in the schools' inventory or assets, are not usually quantifiable or consistently described in Ministry registries (Hastings, 2018). This potentially produces inequalities at the school level. Indeed, these resources are value added inputs that can strongly mediate student experiences and performance in a given school, and thus contribute to the inequity observed at most education levels.

In this regard, schools that rely almost entirely on government funds have less capacity to generate additional income. They also have less autonomy to make investments in school assets and supplementary teachers, given that government funds are assigned for specific purposes (e.g., Maintenance, Internet, PATH, etc.) and are not discretionary. Though teacher hires are agreed upon and paid by the Ministry, schools with additional private funds may directly hire extra tutors or specialized teaching staff (e.g., for art, music, dance, sports) that are not subject to the Ministry's approval. Such schools can also invest in technology, equipment, and school maintenance, which may ultimately provide students with a higher quality education, and these advantages often translate into better academic achievement (Lai, Sadoulet, & de Janvry, 2009; Scales & Roehlkepartain, 2003). In addition, where the National Education Inspectorate (NEI) identifies areas for improvement in school inspections, principals who rely solely on government funds are often at a disadvantage in terms of their ability to respond to the recommendations made.

A look at total amount of income per student provides a different perspective on the variation between high and low SES schools. On the one hand, the highest SES schools in our sample received, on average, a private income per student that was 50 percent higher than that received by the lowest SES schools. On the other hand, government transfers per student were greater in lower SES schools, which received funds between 40 and 80 percent higher than those received by schools serving a small percentage of PATH students²³ (see Table 2). These results suggest that while high SES schools have access to private income that is unattainable for low SES schools, public allocation takes into account school SES, such that establishments in disadvantaged neighborhoods and rural areas mainly cover their costs with government transfers.

In fact, according to the data gathered, low SES schools seem to have a greater income per student than high SES schools. As seen in Table 2, total income per student increases as SES decreases, except for the highest SES schools. As has been similarly observed in other Latin American countries, the spending distribution is “U” shaped across SES quartiles due to higher public spending in low SES schools and higher private spending in high SES schools (See Figure 11). However, interviews with school principals also revealed that schools with PATH students often have higher costs per student (meals, education supplies, supplement food for school outings), and these expenses are, for the most part, difficult to entirely cover with government transfers.²⁴ Moreover, low SES schools tend to be smaller, which by design implies that the fixed costs per student are higher, as explained above. As also mentioned, schools with high levels of parental, alumni, and community support (mostly high SES schools) benefit from significant contributions, both financial and in-kind. While these may contribute to quality improvements, they are not always captured by the MOEYI. This means that some schools’ income may be higher than that reported in the answers to the questionnaire.

TABLE 2 | **Private and public income per student**25**

	Q1	Q2	Q3	Q4	Q5
Private Income per Student	\$12	\$8	\$7	\$8	\$9
Government Transfers per Student	\$14	\$13	\$17	\$19	\$25

* Average values in 2017 US\$

► **Note:** Q1 and Q5 refer respectively to schools with the lowest and highest number of PATH students (highest and lowest SES schools)

= **Source:** IDB (2020). School Financing Questionnaire.

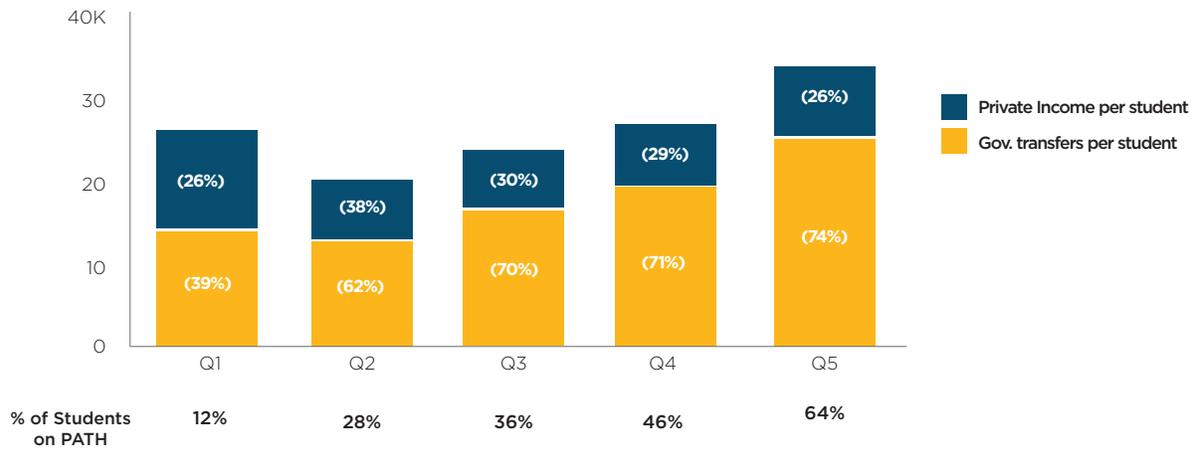
23. These figures exclude teacher salaries, which are discussed in the next section.

24. Unfortunately, as the questionnaire focuses on the spending of government funds, the data gathered does not allow for deeper analysis of costs versus income.

25. All estimations of income per student exclude two outlier schools from our main sample because they reported implausible values that we considered as reporting errors or coding mistakes.

Ensuring equity in school income would require more even access to other funding sources, or more transparency in the existing resources in high SES schools. If the Ministry had greater ability to account for resources available to specific groups, this would allow the government to respond more effectively to each school's real needs.

FIGURE 11 | **Income per student by school's SES**



► **Note:** Q1 and Q5 refer respectively to schools with the lowest and highest number of PATH students (highest and lowest SES schools).

= **Source:** IDB (2020). School Financing Questionnaire.

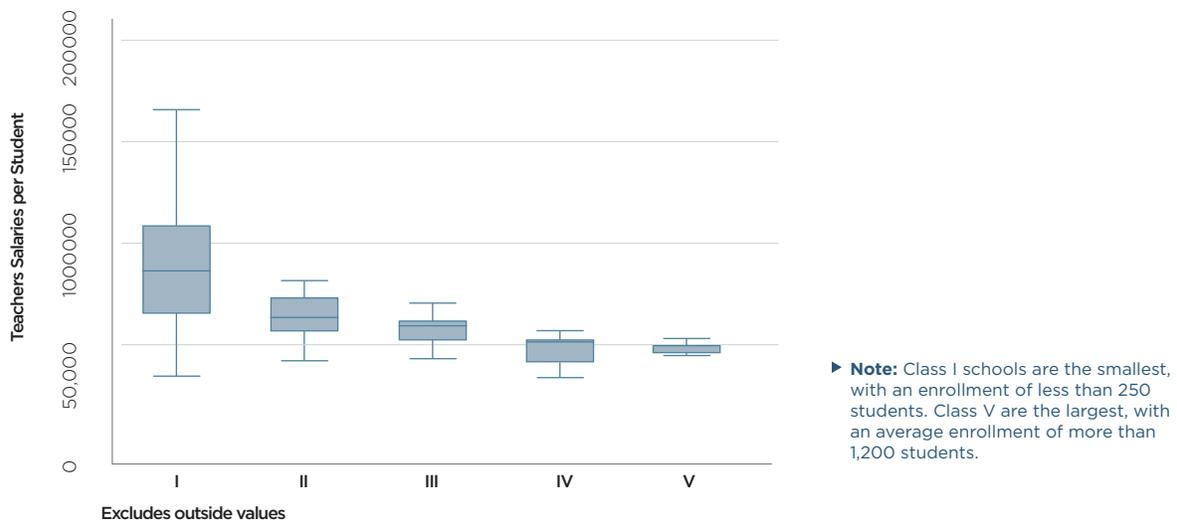
As noted, closing learning gaps is one of the priorities established by the Jamaican government. A more equitable distribution of resources represents an important means of establishing less unequal learning environments across schools. Accounting for existent sources of income, their multiple forms, and access barriers, can aid Jamaican officials in determining and implementing equity criteria in the allocation of public funds.

SECTION 3:

TEACHER SPENDING

In Jamaica, schools are responsible for recruiting and selecting teachers, though they are then approved, hired and paid directly by the MOEYI. As mentioned, teacher salaries represent the single largest item of the public education budget, a commitment that has remained proportionally high by international standards (Hastings, 2018). In our sample, small schools with an overall low number of students per teacher have higher costs per teacher (see Figure 12), meaning that these schools are relatively costlier. Still, providing the necessary resources to keep small rural schools well equipped to respond to the needs of the communities they serve is an important and positive feature of the direct management of teacher funding done centrally by the Ministry.

FIGURE 12 | **Teacher salaries per student by school size**



Source: IDB (2020). Teacher Census.

Teacher allocation equity and suitability are potentially affected by the existing institutional arrangements. The MOEYI, in conjunction with the Ministry of Finance and Public Service (MOFPS), sets general parameters for staffing based on a school's classification, enrollment, type, curricula and programs. Each school recruits accordingly. Specifically, the MOEYI has established a teacher-pupil ratio (1:25) that guides their approval or denial of requests for additional teachers (MOEYI, 2017). When looking to hire a teacher, the school

advertises the vacancy in the public media and on its website. Candidates apply, and the selection process is carried out at the school level, usually consisting of a CV review and interviews by an evaluation committee²⁶ (Hastings, 2018). Though ultimately it is the MOEYI that must approve the recommended candidate and proceed with their hiring, the selection process is decentralized. The school principal and school board are therefore more strategically positioned to decide on the distribution of the available teaching force. Nonetheless, changes to a school's staff are still dictated at the central level and are mainly the product of school size and type, thus limiting the freedom of schools to assess their needs and determine when to hire teachers accordingly. Vacancies respond to fixed quotas, determined by the pupil-teacher ratio, and not to a dynamic response to specific school or learning needs. It is, in addition, difficult for the MOEYI to redeploy teachers among schools. Current mechanisms do not allow for individual teachers to easily transfer to a different institution or to seek a promotion in a place other than where they are employed. Contracts are exclusively with each particular school. Thus, if a teacher moves to a new school, they are obliged to complete a probationary year before they are reinstated as a permanent teacher and their seniority rights start up again. In other words, for a year they become temporary teachers. That said, their pension rights and salary level do transfer with them, as long as there is no break between contracts.

It is also difficult for schools to fire or replace teachers, or even to reduce the number of teaching positions when enrollment falls (Barro, 2002). If a school wants to hire any additional teachers besides those determined by the pupil-teacher ratio—following, for instance, a recommendation for improvement in a particular subject area from the NEI—this usually takes the form of temporary teachers, once approved by the MOEYI. Schools also might take on a temporary teacher while a permanent teacher is on leave. For a temporary teacher to become permanent, the MOEYI needs authorization from the MOFPS to include a new teacher post for that school. These restrictions result in a relatively fixed teaching force with marginal teacher movement across schools, which can lead to inefficiencies in teacher allocation over time.

Across schools, there are real shortages of qualified teachers in specific areas such as mathematics and English (Hastings, 2018). Yet, due to the design of the hiring process as described, the MOEYI cannot, at the central level, shift teaching staff from one school to another to respond to arising needs. This situation could affect education quality and be further exacerbated if the need for teachers in particular subject areas cannot be satisfied with vacancy openings or teacher transfers.

There are important equity implications here. Research shows that students in lower SES schools are more likely to be exposed to higher teacher turnover with less qualified teachers than students in more privileged schools. Indeed, lower SES schools face multiple challenges in attracting and retaining highly qualified teachers (Ajzenman et al., 2020; Berry, 2004; Boyd, Lankford, Loeb & Wyckoff, 2005; Darling-Hammond, 2000; Darling-Hammond & Sykes, 2003; Elacqua, et al., 2020; Petty, Fitchett & O'Connor, 2012). In Jamaica, while all schools are autonomous in their recruitment of teachers, the pool of applicants for a particular vacancy might be systematically different depending on the schools' socio-economic level. Higher SES schools, for example, have more resources and better working conditions and sometimes offer top-ups to the standard teacher salaries.

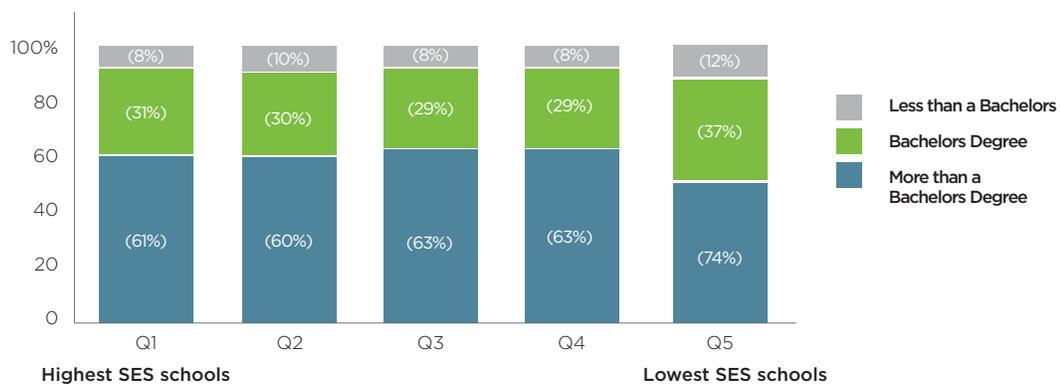
26. The evaluation committee typically comprises the school principal, vice principal, one or two school board members, and a current teacher from the same subject area or grade level.

Thus, the best teachers apply and are selected in the most privileged schools, creating an inequitable distribution of qualified teachers. Importantly, staffing determines funding in that highly qualified teachers have higher salaries. The Ministry not only pays teachers directly but encourages schools to hire the most qualified teachers possible, independent of their cost. As Barro (2002) observes, “Given that some schools are much more attractive than others to the better-qualified teachers, the result is wide interschool variation in the makeup of the teaching force, with correspondingly wide variation in per-pupil spending for teachers.”

In 2018, there were 11,519 teachers in Jamaica’s primary schools across the country. Approximately 36 percent of these teachers worked in Class I schools (the smallest schools, which comprise 70 percent of primary schools) while merely 10 percent worked at the largest schools (3 percent of primary schools). Around 60 percent of the teachers had a bachelor’s degree plus a specialized education qualification (i.e., teachers college diploma) while fewer than 10 percent had less than a bachelor’s degree.

An analysis of teacher qualifications across our sample of 163 primary schools suggests that there are teacher allocation disparities for schools in the lowest SES quantile (Q5). Schools where 65 percent or more of the student body are recipients of PATH grants have a teacher population that is less qualified²⁷ than that of higher SES schools. While in the first four quantiles at least 60 percent of the teachers have more than a bachelor’s degree, in schools in the 5th quantile only 51 percent of the teachers reach this same level of qualification (see Figure 13). Moreover, about 12 percent of teachers in the lowest SES schools do not have a bachelor’s degree, 4 percent above the average of higher SES schools. These differences in teacher educational attainment could suggest an unequal allocation of resources, since teachers in Jamaica are paid a salary that is dependent on their level of qualification, and teachers in high SES schools are more likely to have greater levels of education.

FIGURE 13 **Teacher qualification and school SES**

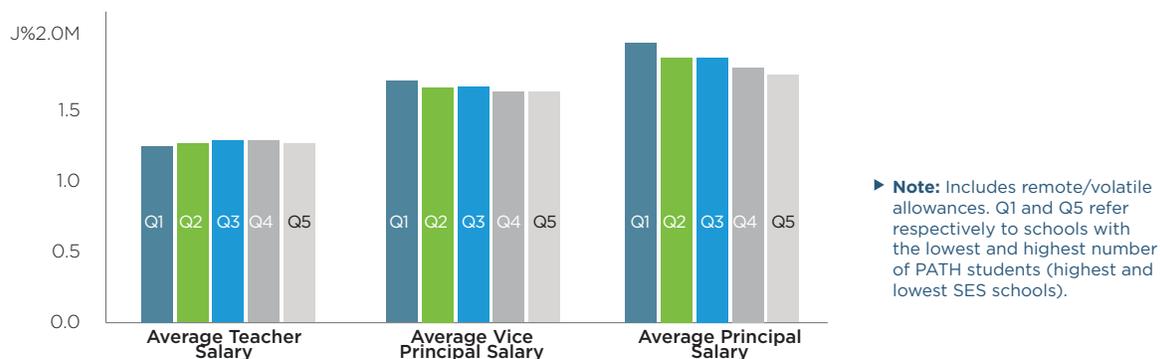


Source: IDB (2020). School Financing Questionnaire and Teacher Census.

27. Note that we used educational attainment of teachers as a proxy of teacher quality given that we do not have information on teacher value-added in Jamaica. We acknowledge that current evidence suggests that teacher education is not always associated with teacher effectiveness (Araujo et al., 2016; Cruz-Aguayo et al., 2017). The estimation of teacher value-added would be feasible if Jamaica had administrative databases where students could effectively be linked to their corresponding teachers.

The teacher salary scale in Jamaica is mainly based on qualifications. Teachers are assigned to a category (pre-trained teacher, trained teacher-certificate, trained teacher-diploma, pre-trained graduate, trained graduate and specialist I & II), and each category has an 11-point scale that is also dependent on teacher experience and performance²⁸ (a case-by-case component). There is, therefore, an incentive to increase one's qualifications in order to advance to the next salary scale. In theory, the type of school they work in does not determine the salary assigned by the Ministry. Principals are an exception to this, in that their salaries are, as mentioned, determined by school classification (essentially school size). Within our sample, principals and vice principals receive higher salaries when working in high SES schools, while we observe a small but inverse relationship between the average salary of teachers and school SES. Since small schools are more likely to be of low SES, the existing salary scale for principals can create inequity in that the best leaders have an incentive to work in larger and more privileged schools (see Figure 14).

FIGURE 14 | **Staff salaries across SES**

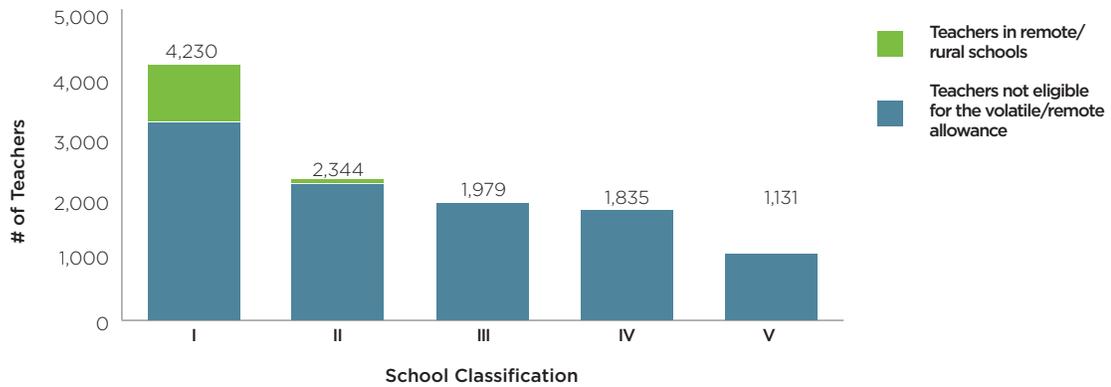


Source: IDB (2020). Teacher Census.

Teachers that work at rural schools are granted a special allowance (the volatile/remote allowance) as additional payment for working in hard-to-staff schools. This respectively accounts for 13 percent and 18 percent of teachers and principals/vice-principals' average base salary. By design, such an allowance could serve as an equity mechanism by providing an incentive for highly qualified teachers to choose schools in neighborhoods or schools with less resources. Still, currently less than 10 percent of the teachers in the entire system benefit from this allowance, and of those, just 23 percent are in Class I schools (the smallest schools) (see Figure 15).

28. Since 2004, the Ministry of Education has implemented the Teacher Performance Evaluation Programme. A team comprised of the principal, the head of department, and another professional conducts a performance evaluation of each teacher using an instrument that involves: (i) the observation of teaching skills, (ii) consideration of the teacher's professionalism, and (iii) the teacher's leadership and management skills. Despite the existence of this evaluation instrument, the process is still highly subjective and mainly based on observation and the principal's considerations (Campbell, 2014).

FIGURE 15 **Volatile/remote allowance beneficiaries**

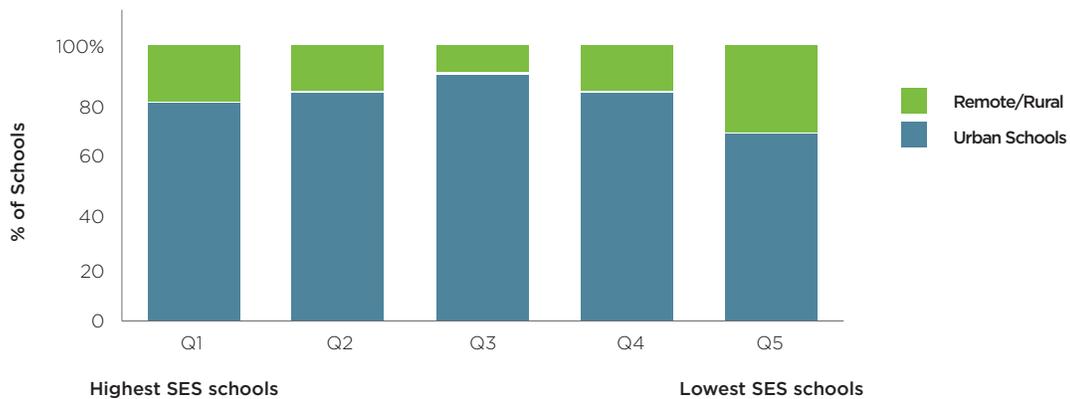


► **Note:** Class I schools are the smallest, with an enrollment of less than 250 students. Class V are the largest with an average enrollment of more than 1,200 students.

= **Source:** IDB (2020). Teacher Census.

The volatile allowance currently has a minor distributional effect on teacher salaries across SES levels given both its magnitude and the fact that it benefits such a small proportion of teachers in the system. In addition, although rural schools are more prevalent in poorer communities, they are spread across the SES scale (see Figures 15 and 16). In this sense, the distribution of teachers does not compensate for other income inequities across schools, since the current institutional arrangement creates little incentive for teachers to prefer jobs in low-SES, small, and rural schools, and teacher compensations are mainly independent from the type of school they serve.

FIGURE 16 **Percentage of schools categorized as rural/urban by SES quintile²⁹**



= **Source:** IDB (2020). Jamaica Teacher Census.

29. The urban/rural distribution corresponds to our sample of 163 primary schools for which we have information on PATH students, used to create a proxy for SES in this study. It does not necessarily represent the actual urban/rural distribution in the universe of primary schools in Jamaica.

Despite the fact that the teacher salary scale is structured in a way that incentivizes teachers to obtain higher levels of education and training, there are areas that could be improved to ensure equity in the distribution of teachers across schools. First, inequities may arise due to the fact that principals have reasons to seek employment in larger, higher SES schools, as opposed to small, rural, or low SES schools. Second, while the volatile/remote allowance provides an important tool for advancing equity in teacher allocation, its reach is limited, suggesting a need for additional mechanisms that would make more schools eligible and motivate teachers to search for jobs in hard-to-staff schools in remote regions. Education officials might therefore work on designing more attractive institutional or financial incentives to draw teachers to low SES schools. We discuss several potential strategies and their limitations in the next section.

SECTION 4:

DISCUSSION AND POLICY DIRECTIONS

In an era in which governments around the world have been affected by the economic shock induced by the COVID-19 pandemic, the reality of constrained budgets calls for innovative and effective solutions for optimizing resources in a variety of sectors, not least education. Despite the important strides that Jamaica has made in the last 20 years in this domain, there remains room for improvement in terms of resource allocation and achieving a more equitable school system. To continue to move its education agenda forward, the Jamaican government could benefit from better information systems as well as a more transparent and efficient use of information to aid decision-making processes. The use of cost-effective tools to attract qualified teachers to hard-to-staff schools could also help to enhance equity across schools. In this report, we analyzed two main components of school finance in Jamaica that are fundamentally associated with achieving quality and equity in educational outcomes: school income (defined as public and private funds managed directly by each school) and teacher allocation.

Our main findings contribute relevant insights to current dialogue among Jamaican education stakeholders, particularly concerning important challenges and opportunities in school funding and teacher allocation. These might be considered by authorities involved in advancing education policies, notably in the present context of considerable inequity and limited public funding.

REGARDING DIRECT FUNDING, OUR FINDINGS SUGGEST THAT:

1

Lower SES schools mainly rely on public funds while a significant portion of high SES school income is contributed by parents and other voluntary donations. Among the sample of schools observed here, there is a seemingly progressive allocation of public funding (in line with the new funding formula), in that lower SES schools reported both greater public income per student and greater income per student in general. However, there is less leeway in the use of public funds. Private resources can be employed more flexibly to respond to individual school needs, including the hiring of specialized and temporary staff, top-ups to teacher salaries, purchase of education resources, and other initiatives to improve the quality of the school's education offer. They also contribute to an inequitable allocation of

resources since access to them depends on institutional capacity and school composition. Schools that serve more privileged students are thus at an advantage compared to those that serve pupils from poorer families or communities. Although schools must report all their resources, such contributions are not always quantifiable or consistently described in Ministry registries. This “cost-sharing” scheme distorts the MOEYI’s allocation and makes it difficult to guarantee an equitable distribution across schools.

2

Like several other countries in the LAC region, Jamaica has moved to a school funding formula that aims to account for the particular needs of schools in determining the allocation of public resources. To this end, it incorporates equity targets. The data assessed here substantiates this funding distribution. However, as the funding formula has only been implemented since 2018 and is thus relatively new, the MOEYI might consider investing in studies that measure the extent to which it effectively responds to a need to provide more equitable education across schools.

3

Greater information on the real needs of schools would allow the MOEYI to more accurately determine whether the funds allocated to each school are sufficient. Interviews with school principals indicate that funds are inadequate, especially in low SES schools where they are expected to feed PATH students and others in need, provide education supplies, and supplement funds for school outings, among other things. Meanwhile, schools with high levels of parental, alumni, and community support benefit from significant contributions, both financial and in-kind, which contribute to quality improvements that are not always captured by the MOEYI.

REGARDING TEACHER ALLOCATION, OUR FINDINGS SUGGEST THAT:

1

A particularity of the Jamaican system is that the hiring and payment of teachers is centralized at the Ministry level, but their recruitment and selection is decentralized at the school level. While the MOEYI decides the number of vacancies to be opened for each educational institution, it has little control over teacher distribution in and across schools or the makeup and quality of each school’s teaching force. The main criteria guiding the MOEYI’s approval for opening new teacher vacancies is maintaining/reaching specific pupil-teacher ratios. This setup could lead to shortages of qualified teachers in vital subject areas. Additionally, rigidities in teacher mobility across

schools limit the Ministry's ability to redeploy teachers to meet national learning needs. The fact that teacher allocation is left to the recruitment capacity of each school, together with the rigidities in teacher mobility, means that educator resources are neither being optimized nor strategically positioned to close gaps and guarantee equity.

2

Under the current institutional arrangement, the teaching staff at each school is determined by the school's ability to attract and recruit teachers. This means that schools with a greater capacity to draw more qualified educators (based largely on teaching conditions and the school's reputation, since teacher salaries depend on teacher qualifications) might then be advantaged in the resulting distribution of resources (Barro, 2002). In other words, a concentration of highly qualified educators in high SES schools would mean an inequitable distribution of the most important educational resource—teachers—thus contributing to widening gaps in teaching quality and in learning outcomes across schools.

3

By design, the school principal salary scale promotes an inequitable allocation. Salaries are greater for principals hired at larger schools, thus creating an incentive for highly qualified individuals to seek positions in big, urban schools, which also tend to be of higher SES. Meanwhile, although teacher salary scales are not dependent on school characteristics but rather on teacher qualifications, and despite the existence of a system in place to attract teachers to small and rural schools, the allowances granted are too small to make a significant impact. To this regard, there does not seem to be an incentive scheme in place able to promote a more equitable allocation of teaching staff.

REGARDING THE AVAILABILITY AND USE OF INFORMATION FOR RESOURCE ALLOCATION AND EVIDENCE-BASED DECISION MAKING, OUR FINDINGS SUGGEST THAT:

1

Jamaica does not currently have a comprehensive Education Management Information System (EMIS) or any centralized data protocol to collect, integrate and analyze school-level information. Such a system would help to guide education-related policy making and financial planning. Furthermore, the lack of robust and real-

time information hinders the Ministry's efforts to guarantee an equitable allocation of resources that responds to the needs of the schools in the system. A timely inclusion of variables that go beyond the basic funding formula (student performance, school staffing, school costs) would provide more complete data, enabling Jamaican authorities to prioritize equity in allocation and decision-making processes.

2

Some schools have access to private sources of income and other resources that are not accurately reported to the MOEYI nor accounted for during the financial allocation process. This lack of updated and factual information on school income and assets distorts the perception of government officials and impedes the task of ensuring an equitable distribution of public funds. Further, private contributions to schools, such as infrastructure improvements, specialized teachers and coaches, and learning aids (computers and other technology) are currently captured and stored by independent MOEYI information systems. As these systems are not interoperable, obtaining a holistic picture of the status of each school remains a challenge (Chapelet, 2019).

Our conclusions call for discussion of specific areas where structural inequities might be alleviated, and information systems improved. Indubitably, how best to allocate resources within a given school system is a universal issue in education finance. Debate continues over the mechanisms and approaches best able to determine the amount of resources to assign to schools or other administrative levels.

WHAT HAVE WE LEARNED FROM OTHER COUNTRIES IN THE LAC REGION?

Public spending in education has increased significantly in the Latin American and Caribbean region over the last several decades. Yet, due to their different school funding formulas and institutional arrangements, the extent to which this spending has translated into a more equitable distribution of resources varies across countries (Bertoni, et al., 2020).

Diverse reforms have, since the 1990s, sought to increase equity in the education sector. Some countries have opted for funding formulas shaped by specific policy objectives, such as equity promotion, or allocation rules that rely on compensatory grants to address fiscal imbalances (Elacqua, et al., 2018).

Chile's voucher system, for example, provides a universal subsidy to schools based on their student enrollment and attendance. This per capita funding formula considers the characteristics of each school and its population, such as geographic location, rurality and other SES considerations. In 2008, the government enacted the Preferential School Subsidy Law (SEP), which assigns an additional subsidy to schools that serve disadvantaged students (Elacqua, et al., 2020). The country has over time achieved a progressive financing system, offering a potential mechanism for other countries in the region to look towards as they endeavor to achieve equity in public education spending. In Jamaica, the Ministry of Education has issued official bulletins that communicate the government's commitment to tailoring resource allocation to the specific needs of each school and its student body, and our data suggests that adjustments have been implemented to some degree. Still, to ensure that allocations are responding to the varying circumstances and needs of different schools and their students, Jamaica might follow Chile's example; that is, further institutionalize its policies and strengthen mechanisms to guarantee transparency in allocation criteria and processes (Bertoni, et al., 2020).

The case of Peru provides another relevant experience for the Jamaican context. Despite the lack of legal guidelines for the allocation of school funding, Peru has transitioned from a regressive system towards a fairly progressive one by institutionalizing monetary incentives for teachers working in disadvantaged areas. Government transfers are mainly discretionary, guided by school enrollment and historical budget criteria (Elacqua, et al., 2020). A similar incentive scheme to draw good teachers to positions in rural areas and less advantaged schools might be a potential way for the Jamaican government to promote equity across schools. To this regard, Ajzenman et al. (2020) find that low-cost behavioral strategies can be a useful tool for teacher sorting. Using a nation-wide low-cost government program in Peru, the authors tested two behavioral strategies to motivate or "nudge" teachers to apply to job vacancies in disadvantaged schools: one that emphasized their altruistic reasons for teaching, and another that simplified the information and stressed the monetary premium they would receive by working in these establishments. They show that both strategies were successful, and altruistic motivations were stronger among high-performing teachers. In Jamaica, the volatile/remote allowance motivates teachers to work in rural and small, low SES schools, in theory. Yet the initiative is limited by design and currently lacks the capacity to achieve a significant effect in promoting more equitable teacher allocation.

Lastly, unprecedented progress in educational indicators has been made in the state of Pernambuco in Brazil over the last decade, even if spending inequality remains an important challenge. In an effort to improve the distribution of resources, Pernambuco implemented— with support from the IDB—a monitoring system that provides school-level information on expenditures and budgets. The system enables educational administrators to identify inefficiencies in teacher allocation or the use of school supplies, as well as better overall transparency (Elacqua, et al., 2020). Jamaica could benefit from a strengthening of its accountability and information systems. Greater school-level data on income and expenditure could both help to ensure the progressive allocation of resources and to identify inefficiencies at the local level.

Now more than ever, developing countries must pursue innovative strategies to mitigate the effects of the current economic crisis and to protect their most vulnerable populations. Jamaica should consider implementing policies that foster an equitable distribution of

resources within its education system. These might include expanding incentives to attract qualified teachers to hard-to-staff schools, improving information systems, and increasing transparency to avoid inefficiencies and guarantee an allocation of resources that favors the students and schools most in need.

SPECIFIC RECOMMENDATIONS FOR JAMAICA

Based on our school financing study and our review of public spending in other LAC countries, we would recommend the following:

1

Develop a robust interoperable EMIS able to capture data that is currently collected independently by different MOEYI systems, such as school infrastructure, teacher qualifications, learning resources, student and teacher profiles, administrative data, and so forth. There are a number of reasons for doing so:

A Some schools have access to private sources of income and contributions that are not accurately reported to the MOEYI nor accounted for during the financial allocation process. There is a need to better capture schools' total income and the ways it is being used, in an up-to-date manner. A shared school management system, integrated into the MOEYI's core EMIS platform, would provide transparency and efficiency in a variety of processes, including transfers, executions, budgetary control, accounting, and digital accountability of expenses, and allow the MOEYI to make real-time decisions.

B To improve equity among schools and close learning gaps using evidence-based policy decisions, a system that captures administrative data for students and teachers in all schools must be fully developed. A strengthened accountability and information system should include databases that track student performance throughout their schooling, as well as teacher-student assignments so as to be able to retrace which teachers taught which students at any given point in time. This information would allow for calculation of more objective measures of teacher effectiveness and

could be used to implement incentive-pay schemes (related to recommendations below).

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- C In addition, if a common unique identifier (such as the National Identification System, NIDS) were to be adopted by the MOEYI, the Ministry of Labor and Social Security, and other related government agencies, PATH beneficiaries could be more easily identified and followed, helping to ensure that students and schools receive the corresponding funds to meet their needs. In addition, since PATH collects socio-demographic information, this data could be merged to build better SES profiles of the schools.

2

Restructure the current teacher recruitment system or create an incentive scheme to attract and retain teachers in rural areas and less advantaged schools. Currently, schools are autonomous in their recruitment of teachers, and high SES schools have less trouble than low SES schools in drawing qualified and specialized educators, creating an inequitable distribution of teachers. Moreover, the volatile/remote allowances in place to incentivize teachers to work in less privileged schools are low and only benefit teachers in a very small group of schools. Potential strategies for reform include:

- A Introduce better monetary incentives for teachers working in disadvantaged areas, such as additional bonuses granted to high performing teachers who agree to move to and stay in low-performing schools (Glazerman et al, 2013).

-
- B Use behavioral strategies, like the altruistic motivations employed in Peru, to lead high performing teachers to choose to work in low SES schools.

-
- C Modify the teacher salary scale so that teachers recruited in remote or low SES schools earn an adjusted salary above that of teachers with similar qualifications working in privileged schools with high performing students.

3

Provide discretionary funding to school principals to allow them to respond more flexibly to the particular needs of their schools, beyond the 10 percent permitted for sports and extracurricular activities. This would furthermore grant principals a means of responding to issues identified during school inspections and the recommendations accordingly made by the National Education Inspectorate.

The above recommendations are meant to provide the Jamaican government with a set of potential policy measures for improving their allocation of resources and moving towards a more equitable education system. More broadly, the findings herein highlight opportunities for progress, achievable with appropriate and timely policy alternatives.

REFERENCES

Ajzenman, N., Bertoni, E., Elacqua, G., Marotta, L., & Mendez Vargas, C. (2020). Altruism or Money? Reducing Teacher Sorting using Behavioral Strategies in Peru. Reducing Teacher Sorting using Behavioral Strategies in Peru (July 30, 2020).

Araujo, C. M., Carneiro, P., Yannú, C.-A., & Schady, N. (2016). Teacher Quality and Learning Outcomes in Kindergarten. *The Quarterly Journal of Economics*.

Barro, S. M. (2002). Alternative Formulas for Funding Jamaica's High Schools. The World Bank.

Berry, B. (2004). Recruiting and Retaining "Highly Qualified Teachers" for Hard-to-Staff Schools. Southeast Center for Teaching Quality.

Bertoni, E., Elacqua, G., Marotta, L., Martinez, M., Santos, H., & Soares, S. (2020). Is School Funding Unequal in Latin America? A Cross-country Analysis. Stanford Center for Education Policy Analysis.

Biasi, B. (2019). School finance equalization increases intergenerational mobility: Evidence from a simulated-instruments approach (No. w25600). National Bureau of Economic Research.

Borman, G. D., & Hewes, G. M. (2002). The long-term effects and cost-effectiveness of success for all. *Educational Evaluation and Policy Analysis*.

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2000). Understanding teacher labor markets: Implications for educational equity. In Plecki, M. L., & Monk, D. H. (Eds.), *School finance and teacher quality: Exploring the connections* (pp. 55-84). Larchmont, NY: Eye on Education, Inc.

Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2005). The draw of home: How teachers' preferences for proximity disadvantage urban schools. *Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management*.

Candelaria, C. A., & Shores, K. A. (2019). Court-ordered finance reforms in the adequacy era: Heterogeneous causal effects and sensitivity. *Education Finance and Policy*.

Card, D., & Payne, A. A. (2002). School finance reform, the distribution of school spending, and the distribution of student test scores. *Journal of public economics*.

Chapelet, P. (2019). Analysis of the Education Management and Information System of Jamaica: Diagnosis and proposal for strengthening the EMIS [IDB, Unpublished report]. Inter-American Development Bank

Chunnu, W. (2009). Whither Are We Drifting? Primary Education Policy in Jamaica. A dissertation presented to the faculty of the College of Education of Ohio University.

Cruz-Aguayo, Y., Ibararán, P., & Schady, N. (2017). Do Tests Applied to Teachers Predict their Effectiveness? IDB.

Darling-Hammond, L. (2000). Teacher quality and student achievement. Education policy analysis archives.

Darling-Hammond, L., & Sykes, G. (2003). Wanted, a national teacher supply policy for education: The right way to meet the "highly qualified teacher" challenge. Education policy analysis archives.

Elacqua, G., Marotta, L., Bertoni, E., Mendez, C., Wstth Olsen, A. S., Roman, A., & Soares, S. (2020). Is School Funding Unequal in Latin America? Education Division, Social Sector, Inter-American Development Bank.

Elacqua, G., Marotta, L., Martinez, M., Soares, S., Santos, H., & Vegas, E. (2018). School Finance in Latin America: A Conceptual Framework and a Review of Policies. IDB.

Flug, K., Spilimbergo, A., & Wachtenheim, E. (1998). Investment in education: do economic volatility and credit constraints matter? Journal of Development Economics.

Harwell, M., & LeBeau, B. (2010). Student Eligibility for a free Lunch as an SES Measure in Education Research. American Educational Research Association.

Hastings, J. (2018). Jamaica: School Profile. School Finance, Teacher Allocation, Governance and Accountability.

Hauser, R. M. (1994). Measuring socioeconomic status in studies of child development. Child Development.

IDB. (2014). Country Program Evaluation: Jamaica (2009-2014).

Ingersoll, R. (2002). Out-of-field teaching, educational inequality, and the organization of schools: An exploratory analysis. . Center for the Study of Teaching and Policy, University of Washington.

Jackson, C. K., Johnson, R. C., & Persico, C. (2015). Boosting educational attainment and adult earnings. Education Next.

Jamaica Information Service. (2011, January 28). Holness says MOE reviewing canteen-tuck shop policies. Retrieved from Jamaica Information Service: <https://jis.gov.jm/holness-says-moe-reviewing-canteentuck-shop-policies-2/>

Jamaica Information Service. (2011, May 20). School Tuck Shops to be Privatised. Retrieved from Jamaica Information Service: <https://jis.gov.jm/school-tuck-shops-to-be-privatised-2/>

Jamaica Information Service . (2020, August 13). School Administrators Implored Not To Increase Auxiliary Fees. Retrieved from JIS: <https://jis.gov.jm/school-administrators-implored-not-to-increase-auxiliary-fees/>

Jamaica Observer. (2015, September 12). Cost of education hurting parents. Retrieved from Jamaica Observer: https://www.jamaicaobserver.com/news/cost-of-education-hurting-parents_19228557

Jamaica Observer. (2018, January 07). Fast Foods Folly. Retrieved from The Jamaica Observer: http://www.jamaicaobserver.com/front-page/fast-foods-folly-parents-unhappy-with-offerings-in-schools_121837?profile=1373

Jamaica Observer. (2020, August 13). Schools again urged not to increase auxiliary fees. Retrieved from Jamaica Observer: https://www.jamaicaobserver.com/latestnews/schools_again_urged_not_to_increase_auxiliary_fees

Johnson, R., Persico, C., & Jackson, K. (2016). The Effects of School Spending on Education and Economic Outcomes: Evidence from School Finance Reforms. *The Quarterly Journal of Economics*.

Kurki, A., Boyle, A., & Alajdem, D. K. (2005). Beyond free lunch: Alternative poverty measures in educational research and program evaluation. . Montreal, Canada: Paper presented at the annual meeting of the American Educational Research Association.

LaFortune, J., Rothstein, J., & Schanzenbach, D. W. (2016). School Finance Reform and the Distribution of Student Achievement. National Bureau of Economic Research.

Lafortune, J., Rothstein, J., & Schanzenbach, D. W. (2018). School finance reform and the distribution of student achievement. *American Economic Journal: Applied Economics*.

Lai, F., Sadoulet, E., & de Janvry, A. (2009). The contributions of school quality and teacher qualifications to student performance: Evidence from a natural experiment in Beijing middle schools. *Journal of Human Resources*.

Landau, D. (1986). Government and economic growth in the less developed countries: an empirical study for 1960-1980. *Economic Development and Cultural Change*.

Levin, J., & Quinn, M. (2003). Missed opportunities: How we keep high-quality teachers out of urban classrooms. New York: The New Teacher Project.

Levy, D., & Ohls, J. (2010). Evaluation of Jamaica's PATH Conditional Cash Transfer Programme. *Journal of Development Effectiveness*.

Lubienski, S. T., & Lubienski, C. (2006). School sector and academic achievement: A multilevel analysis of NAEP mathematics data. *American Educational Research Journal*.

Miller, D. (2017). Consider the Children: Unintended Consequences of the Jamaican Primary Education Accountability System. Doctoral dissertation, Harvard Graduate

School of Education.

Miller, L., & Lee, J. (2014). Policy Barriers to School Improvement: What's Real and What's Imagined? CRPE.

Mingat, A., & Tan, J. (1998). The mechanics of progress in education. Evidence from cross-country data. World Bank Policy Research Working Paper 2015. The World Bank.

MOEYI. (2017). Education Statistics 2016/2017.

MOEYI. (2017). Government Working To Achieve Teacher-Pupil Ratio Of 1:25. Retrieved from Ministry of Education, Youth & Information: <https://moey.gov.jm/government-working-achieve-teacher-pupil-ratio-125>

MOEYI. (2018). Bulletin 90-2018. Funding Arrangements- Infant, Primary, All Age and Junior High Schools (2018-2019). MOEYI.

MOEYI. (2018). Bulletin 91. Funding arrangements for secondary institutions - 2018/2019.

MOEYI. (2020). Bulletin 134-2020. Funding Arrangement for Infant, Primary, All Age and Junior High Schools - 2020/2021.

MOEYI. (2020, October 23). Education Ministry Releases Fee Guidelines for Public Schools. Retrieved from Ministry of Education, Youth & Information: <https://moey.gov.jm/education-ministry-releases-fee-guidelines-public-schools>

Molnar , A., Smith, P., Zahorik, J., Palmer, Halbach, A., & Ehrle, K. (1999). Evaluating the SAGE program: A pilot program in targeted pupil-teacher reduction in Wisconsin. Educational Evaluation and Policy Analysis.

Noss, A. (1991). Education and Adjustment: a review of the literature. The World Bank.

ODI. (2005). Policy Brief 4. The Programme for Advancement through Health and Education (PATH). London: Secretariat of the Inter-Regional Inequality Facility at the Overseas Development Institute.

Petty, T. M., Fitchett, P., & O'Connor, K. (2012). Attracting and Keeping Teachers in High-Need Schools. Dwight Schar College of Education, Ashland University.

Plecki, M., Alejano, C., Knapp, M., & Lochmiller, C. (2006). Allocating Resources and Creating Incentives to Improve Teaching and Learning. University of Washington. Center for the Study of Teaching and Policy.

Rice, J. (2003). Teacher quality: Understanding the effectiveness of teacher attributes. Washington, D.C.: Economic Policy Institute.

Roza, M. (2017). With New Data, School Finance is Coming Out of the Dark Ages. Education Next.

Roza, M., & Silberstein, K. (2020). Financial Uncertainty Requires Leaders To Make Tough

Choices And Stay Focused On Students. Edunomics.

Scales, P., & Roehlkepartain, E. (2003). Boosting student achievement: New research on the power of developmental assets. Search Institute Insights and Evidence.

Stein, M., Berends, M., Fuchs, D., McMaster, K., Saenz, L., & Yen, L. (2008). ds, M., Fuchs, D., McMaster, K., Saenz, L., Yen, L., et al. (2008). Scaling up an early reading program: Relationships among teacher support, fidelity of implementation, and student per formance across different sites and years. Education Evaluation and Policy Analysis.

Tan, J. P., & Mingat, A. (1992). Education in Asia: A comparative study of cost and financing. . The World Bank.

The Gleaner. (2011, November 27). Jamaica has high pupil-teacher Ratio. Retrieved from The Gleaner: <http://jamaica-gleaner.com/gleaner/20111127/lead/lead3.html>

The Gleaner. (2015, September 2). The Gleaner. Retrieved from School Canteen as an Affordable Alternative: <http://jamaica-gleaner.com/article/letters/20150903/school-canteen-affordable-alternative>

The Gleaner. (2020, July 22). High School Registration Packages Limited to \$5,000, No Cost at Primary Level, MOE. Retrieved from The Gleaner: <http://jamaica-gleaner.com/article/news/20200722/high-school-registration-packages-limited-5000-no-cost-primary-level-moe>

The World Bank. (2012). Jamaica: School Finance. SABER Country Report. The World Bank.

UNESCO. (2020). UNESCO Institute of Statistics (UIS).

USAID. (2014). A summary analysis of education trends in Latin America and the Caribbean. USA Agency for International Development.

World Bank. (2020). The impact of the Covid-19 Pandemic on Education Financing. World Bank.

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