



Trends and Determinants of Secondary School Achievement in Jamaica: A Time-Series Analysis of CSEC Five-Subject Passes in Mathematics and English Language (2010-2021)

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Abstract

This study examines trends in the annual number of Jamaican students achieving at least five subjects, including Mathematics and English Language, at the Caribbean Secondary Education Certificate (CSEC) examinations. Using secondary data spanning 2010-2021 from the Ministry of Education, Youth and Information (MOEYI) and the Caribbean Examinations Council (CXC), the research employs a longitudinal, quantitative approach to identify patterns, disparities, and the effects of educational reforms. Descriptive and bivariate analyses were conducted to assess overall attainment, subject-specific performance, and differences by school type and socio-economic context. Findings indicate that overall five-subject attainment improved gradually over the study period, increasing from 41.7% in 2010 to 50.0% in 2019, although declines occurred during 2020 due to COVID-19 disruptions. English Language pass rates consistently exceeded those of Mathematics, with averages of 66% and 47%, respectively, highlighting persistent challenges in numeracy. Traditional high schools and urban institutions consistently outperformed non-traditional and rural schools, demonstrating the impact of structural inequalities on educational outcomes. Bivariate analyses revealed strong positive associations between subject-specific pass rates and the five-subject benchmark, particularly for Mathematics, indicating its critical role in overall student success. Policy interventions, such as literacy programmes and teacher training initiatives, corresponded with measurable gains in English Language achievement, whereas increases in Mathematics were less sustained. The findings underscore the need for targeted, equity-focused interventions to strengthen numeracy skills, reduce socio-economic disparities, and enhance overall secondary school achievement. These insights have implications for national human capital development, social mobility, and education policy planning in Jamaica.

Keywords: CSEC, secondary education, Jamaica, Mathematics achievement, English Language, educational reform.

Introduction

Education remains a cornerstone of national development and individual advancement, particularly in small island developing states such as Jamaica. Academic success in Jamaica is often measured by students passing at least five subjects at the Caribbean Secondary Education Certificate (CSEC) level, including Mathematics and English Language. This benchmark has become the primary criterion for admission to tertiary institutions, qualification for employment, and eligibility for scholarships. As such, national statistics on students meeting this standard provide critical insight into the quality of education and potential for social mobility. Monitoring these figures over time is essential for evaluating the effectiveness of educational policies and reforms (Bourne, 2025; Burunciuc, 2025).

Despite decades of educational reforms since independence, Jamaica continues to experience challenges in student achievement, with Mathematics consistently emerging as the most problematic subject. Research has consistently shown that while English Language pass rates are generally higher, Mathematics remains a persistent barrier for many candidates (Cochrane, 2024; Ministry of Education, Youth and Information [MoEYI], 2023; Thomas, 2025; Miller, 2018). These persistent disparities raise questions about systemic inequities, including inadequacies in teacher preparation, uneven allocation of educational resources, and inconsistencies in curriculum delivery. Additionally, disparities in performance between urban and rural schools, as well as between traditional high schools and non-traditional institutions, suggest structural inequalities that extend well beyond classroom instruction (Bourne, 2025).

The significance of these challenges extends beyond the education sector into broader economic and social spheres. Human capital theory posits that educational attainment is directly linked to economic productivity and national development (Becker, 1993). In Jamaica, where youth unemployment is high and skilled workers often migrate abroad, the inability of a substantial proportion of students to meet the five-subject benchmark undermines national economic growth. This academic deficit limits access to skilled employment and higher education opportunities, perpetuating cycles of poverty and inequality. Consequently, improving student performance in core subjects is essential for fostering economic resilience and social equity (Burunciuc, 2025).

From a sociological perspective, Bourdieu's (1977) theory of social reproduction underscores the broader implications of persistent educational disparities. Students who struggle to meet the five-subject benchmark are often concentrated in under-resourced schools, reflecting broader societal inequalities. This dynamic perpetuates cycles of disadvantage across generations, as educational attainment strongly influences career prospects, income, and social mobility. Addressing these disparities requires interventions that consider both the quality of instruction and the socio-economic context in which students learn. Equity-focused policies are therefore crucial to breaking the intergenerational transmission of disadvantage (Cochrane, 2024).

This paper examines the annual number of Jamaican students who pass at least five subjects, including Mathematics and English Language, as reported by national statistics. It traces trends over time, highlighting periods of progress as well as persistent challenges. By situating these trends within broader economic and social contexts, the study illuminates the complex interplay

between educational outcomes and structural factors such as resource allocation, teacher quality, and socio-economic inequalities. Such analysis provides a foundation for evidence-based policy recommendations that can strengthen student learning outcomes.

In addition, the study evaluates Jamaica's performance in relation to regional patterns across the Caribbean. While some countries exhibit similar challenges, national differences in pass rates highlight the unique structural and socio-economic factors affecting Jamaican students. Comparative analysis allows for the identification of best practices and strategies that have succeeded elsewhere, which could be adapted for the Jamaican context. This regional perspective enhances understanding of Jamaica's educational challenges and informs approaches for improvement at both the national and Caribbean-wide levels (Miller, 2018; Thomas, 2025).

Ultimately, the study contributes to a nuanced understanding of Jamaica's educational landscape by linking student achievement in core subjects to broader social and economic outcomes. It identifies key barriers that must be addressed to ensure students meet the five-subject benchmark and achieve greater academic success. The findings emphasise the importance of integrated interventions that target curriculum quality, teacher training, and resource distribution while also addressing structural inequalities. By improving student performance in Mathematics and English, Jamaica can enhance individual opportunities and advance national development goals, creating a more equitable and prosperous society (Bourne, 2025; MoEYI, 2023).

Problem Statement

Education is widely recognised as a critical determinant of human capital development, social mobility, and economic growth. In Jamaica, the Caribbean Secondary Education Certificate (CSEC) examinations serve as a key benchmark for measuring student achievement, particularly the attainment of at least five subjects, including Mathematics and English Language. Success in these subjects not only facilitates entry into tertiary education and the labour market but also reflects the effectiveness of national educational policies and interventions. Despite significant reforms, many students continue to struggle, particularly in Mathematics, limiting overall achievement and perpetuating socio-economic disparities.

The consistent underperformance of Jamaican students in core subjects, particularly Mathematics, poses a serious challenge to the nation's educational and economic development. Passing at least five subjects, including Mathematics and English Language, has long been considered the standard indicator of academic readiness for tertiary education, vocational training, and employment. However, the data from the Ministry of Education and the Caribbean Examinations Council (CXC) suggest that only a fraction of candidates consistently meet this benchmark (Ministry of Education, Youth and Information [MOEYI], 2022). While the English Language tends to record relatively higher pass rates, Mathematics remains an obstacle for a significant proportion of students. This persistent challenge raises critical questions about curriculum delivery, teacher competence, student preparedness, and systemic inequities across schools.

The socio-economic disparities within Jamaican society further compound the issue. Students from rural schools, non-traditional high schools, and lower socio-economic backgrounds are

disproportionately less likely to achieve the required benchmark compared to their peers from urban or traditional institutions (Miller, 2018). These disparities contribute to widening inequalities in access to higher education and employment, reinforcing cycles of poverty and exclusion. Consequently, educational underachievement is not only an academic concern but also a socio-economic and developmental issue, with implications for Jamaica's long-term human capital formation and competitiveness.

Moreover, the failure of a large percentage of students to meet this benchmark has implications for national policy and labour market outcomes. Jamaica continues to face high youth unemployment, skills shortages, and outward migration of qualified professionals (Planning Institute of Jamaica [PIOJ], 2021). Suppose the majority of students are unable to achieve the fundamental qualifications required for progression. In that case, the country risks perpetuating a mismatch between the demands of the labour market and the qualifications of its workforce. This matter creates a cycle of underemployment, dependency, and social instability, further straining public resources.

The persistence of this problem underscores the need for a systematic analysis of the annual number of candidates achieving five or more passes, including Mathematics and English Language. By examining trends over time, policymakers and educators can better understand the magnitude of the challenge, assess the effectiveness of past interventions, and develop more targeted strategies to address weaknesses in the system. Without such analysis, educational reform risks being piecemeal, reactive, and insufficient to tackle the deep-rooted issues undermining student performance and national development.

Research Objectives and Questions

The central objective of this study is to investigate the annual trends in the number of Jamaican candidates who pass at least five subjects, including Mathematics and English Language, and to assess the broader implications of these trends for education and national development. Specifically, the study seeks to:

1. Examine the overall trends in student performance at the CSEC level about achieving five or more passes, including Mathematics and English Language.
2. Identify disparities in performance over time, highlighting fluctuations and potential patterns.
3. Analyse the implications of these trends for social mobility, human capital development, and labour market readiness in Jamaica.
4. Provide evidence-based recommendations to policymakers and educators on strategies for improving student achievement in these core subjects.

From these objectives, the following research questions are derived:

1. What are the annual trends in the number of Jamaican candidates achieving at least five subjects, including Mathematics and English Language?
2. How has performance in Mathematics compared to English Language over time?
3. What socio-economic and systemic factors contribute to variations in student achievement at this benchmark?

4. What are the implications of these patterns for Jamaica's education policies, labour market outcomes, and long-term development?

Theoretical Framework

The analysis of student achievement in Jamaica, particularly the number of candidates passing at least five subjects including Mathematics and English Language, is grounded in two primary theoretical perspectives: **Human Capital Theory** and **Social Reproduction Theory**. Together, these frameworks provide a comprehensive lens through which to interpret the educational, economic, and social implications of the findings. While Human Capital Theory emphasises the role of education in economic growth and individual productivity, Social Reproduction Theory highlights structural inequalities and the persistence of socio-economic disparities within the education system. This dual approach allows for a balanced examination of both the aspirational goals of education and the systemic barriers that hinder equitable achievement.

Human Capital Theory

Human Capital Theory, popularised by Becker (1993), posits that education is an investment in individuals that enhances their skills, productivity, and future earning potential. In this framework, the attainment of five or more CSEC passes, including Mathematics and English Language, represents not only a personal milestone but also a contribution to the nation's economic development. Mathematics and English are foundational subjects required for higher education and most professional occupations, and thus serve as critical thresholds for participation in the labour market. Countries with higher levels of educational attainment are more likely to experience sustained economic growth, improved innovation, and reduced unemployment (Schultz, 1961).

In the Jamaican context, Human Capital Theory underscores the importance of improving student achievement in these benchmark subjects as a strategy for building a more competitive and skilled workforce. If a significant proportion of students fail to meet this threshold, the country's pool of qualified human capital is diminished, limiting economic productivity and constraining social mobility. Policies aimed at improving teaching quality, curriculum relevance, and examination performance, therefore, align with the human capital perspective by directly investing in the skills and capabilities of the nation's youth.

Social Reproduction Theory

In contrast, Social Reproduction Theory, advanced by Bourdieu (1977) and Bowles and Gintis (2002), argues that education systems often reproduce rather than eliminate social inequalities. According to this perspective, the persistent disparities in academic performance between different socio-economic groups in Jamaica are not merely the result of individual effort or ability but reflect broader structural inequities. Students from wealthier families, urban schools, or traditional high schools often benefit from greater access to resources such as private tutoring, well-trained teachers, and supportive learning environments. Conversely, students in rural or under-resourced schools face structural barriers that limit their chances of success, thereby reproducing cycles of disadvantage.

This theory helps explain why, despite decades of educational reform, the proportion of Jamaican students passing Mathematics at the required standard has remained relatively low compared to English Language. The examination system, while presented as a meritocratic measure, often reflects and reinforces social inequalities. Thus, Social Reproduction Theory draws attention to the limitations of education policy interventions that fail to address underlying structural disparities, such as poverty, unequal school funding, and teacher distribution.

Integrative Perspective

Taken together, Human Capital Theory and Social Reproduction Theory provide a nuanced understanding of the problem. While Human Capital Theory highlights the necessity of raising academic achievement for economic and social progress, Social Reproduction Theory cautions that without addressing systemic inequalities, reforms may fail to deliver equitable outcomes. An integrative perspective suggests that improving the number of Jamaican candidates passing five or more subjects, including Mathematics and English Language, requires both **investment in educational quality** and **structural interventions to reduce inequality**. Policies must therefore be designed not only to enhance teaching and learning but also to address socio-economic barriers that perpetuate educational underachievement.

This dual theoretical framework situates the study within broader debates on the role of education in development, enabling a critical examination of both the opportunities and the constraints facing Jamaica's education system.

Literature Review

Educational Benchmarks in the Caribbean

In the Caribbean, educational attainment at the secondary level is primarily measured through the Caribbean Secondary Education Certificate (CSEC) examinations administered by the Caribbean Examinations Council (CXC). These examinations serve as the primary gateway to tertiary education, vocational training, and the formal labour market. Passing at least five subjects, including Mathematics and English Language, has been institutionalised as the benchmark qualification, commonly referred to in Jamaica as “five subjects including Maths and English” (Miller, 2018). This benchmark is not merely an academic requirement but also a social and economic one, shaping opportunities for employment, migration, and upward mobility across the region.

Research indicates that this educational threshold has become a standard measure of human capital development in the Caribbean (Almendarez, 2013). Countries such as Trinidad and Tobago, Barbados, and Jamaica have all adopted this standard as a minimum requirement for various entry points into the labour force and higher education. The importance of these subjects is underscored by their universal requirement, regardless of students' chosen field of study. English Language ensures competence in communication, while Mathematics reflects logical reasoning and numeracy, both of which are fundamental for functioning in a modern knowledge-based economy.

Performance in Mathematics and English Language

Despite the centrality of these subjects, performance outcomes have remained uneven, with Mathematics consistently lagging behind English Language. In Jamaica, Ministry of Education reports reveal that while pass rates in English Language often hover above 60 per cent, Mathematics pass rates frequently fall below 50 per cent, with occasional years of sharp decline (MOEYI, 2022). These disparities are not unique to Jamaica, as regional studies also show Mathematics as a chronic area of weakness across the Caribbean (Butcher & Zimmermann, 2023).

Several scholars have sought to explain the persistent underperformance in Mathematics. Evans (2001) attributed the problem to deficiencies in teacher preparation, limited use of technology in the classroom, and poor alignment between the curriculum and students' lived realities. Similarly, Miller (2018) argued that cultural attitudes toward Mathematics, where it is often perceived as overly complex or irrelevant, contribute to low student motivation and achievement. Conversely, English Language outcomes tend to be stronger, although still marked by variations across school types and socio-economic categories. English performance benefits from greater exposure in daily life, as it is both the medium of instruction and the lingua franca in most formal settings.

Socio-Economic Determinants of Academic Achievement

Beyond subject-specific factors, socio-economic conditions play a pivotal role in shaping educational outcomes. Studies have consistently found that students from wealthier households or urban environments are more likely to achieve the benchmark of five subjects, including Mathematics and English Language (Miller, 2018; PIOJ, 2021). Access to resources such as private tutoring, parental support, and well-resourced schools provides certain groups of students with a significant advantage. In contrast, those from rural or economically disadvantaged backgrounds often face barriers such as inadequate school infrastructure, limited access to textbooks, and inconsistent teacher quality.

The structural inequalities in Jamaica's education system mirror broader patterns of social stratification. According to Bourdieu's (1977) concept of cultural capital, students from middle- and upper-class families possess linguistic and social competencies that align more closely with the expectations of the education system, giving them an advantage in examinations. In practice, this means that systemic inequities are reproduced through differential achievement rates, with disadvantaged students disproportionately failing to meet the national benchmark. This trend not only reflects existing inequalities but also exacerbates them, as educational underachievement limits access to higher education and skilled employment.

Policy Responses and Reform Efforts

In response to these challenges, Jamaica has implemented several educational reforms aimed at improving student outcomes in core subjects. These include the National Standards Curriculum introduced in 2016, the expansion of teacher training programmes, and the integration of technology in the classroom (MOEYI, 2017). Additionally, targeted interventions such as

Mathematics camps, literacy initiatives, and after-school programmes have sought to address subject-specific weaknesses. However, evaluations of these initiatives reveal mixed results, with some improvements in literacy but continued struggles in numeracy (Lockheed et al., 2010).

Regional collaborations through CXC have also sought to address performance gaps, with curriculum revisions and alternative assessment methods designed to improve student engagement. Nevertheless, structural inequalities within the education system, particularly those tied to socio-economic disparities, remain largely unaddressed. As a result, while reforms may produce temporary gains, long-term improvements in the number of candidates achieving five or more passes, including Mathematics and English Language, have been slow to materialise.

In summary, the literature underscores the complexity of Jamaica's educational challenges. While the benchmark of five subjects, including Mathematics and English Language, is essential for social and economic mobility, persistent disparities in performance reveal deep-seated issues related to teaching quality, student motivation, and socio-economic inequality. These findings highlight the importance of conducting longitudinal analyses of national performance data to better inform policy and practice.

Methods and Materials

Research Design

This study employs a quantitative longitudinal research design, using annual secondary data to examine the trends in the number of Jamaican candidates who pass at least five subjects, including Mathematics and English Language, at the Caribbean Secondary Education Certificate (CSEC) examinations. The time-series approach is appropriate for capturing long-term patterns, fluctuations, and potential structural breaks in performance outcomes across different years. This design allows for an assessment not only of overall achievement levels but also of variations between Mathematics and English Language pass rates, thereby enabling a nuanced understanding of Jamaica's educational progress and challenges over time.

Longitudinal analysis is particularly relevant in this context because Jamaica has implemented multiple waves of educational reform since the 1970s, including curriculum changes, teacher training initiatives, and technological integration in schools. A time-series perspective permits the evaluation of whether such reforms have translated into sustained improvements in the national benchmark of students achieving five or more subjects, including the compulsory English Language and Mathematics.

Data Sources

The study relies primarily on secondary data obtained from official government and regional institutions. The Ministry of Education, Youth and Information (MOEYI) provides annual statistics on student entries, subject pass rates, and the number of candidates meeting the five-subject benchmark. Supplementary data were sourced from the Caribbean Examinations Council (CXC), which administers the CSEC examinations across the region, ensuring comparability and standardisation of results. Additional socio-economic indicators relevant to interpreting

educational performance, such as poverty rates and unemployment levels, were obtained from the Planning Institute of Jamaica (PIOJ) and the Statistical Institute of Jamaica (STATIN).

Where available, data spanning multiple decades were compiled to construct a robust time series. These datasets were cross-validated across institutional reports to ensure accuracy and consistency. In cases where data were incomplete or missing for specific years, interpolation methods and triangulation with CXC annual reports were used to minimise data gaps, while documenting such adjustments to maintain transparency.

Variables and Measures

The primary dependent variable is the annual number of candidates who pass at least five subjects, including Mathematics and English Language. Disaggregated variables include the pass rates in Mathematics **and** English Language, which allow for subject-specific comparisons. Control variables such as total examination entries, gender, and school type (traditional vs. non-traditional) may also be incorporated where data availability permits, in order to assess differential outcomes across student subgroups.

Socio-economic indicators (e.g., GDP per capita, unemployment, poverty rates) are treated as contextual variables to situate educational trends within broader macroeconomic conditions. While the primary focus remains on academic performance data, the inclusion of these indicators enhances the interpretation of results by highlighting possible external influences on student achievement.

Analytical Techniques

Descriptive statistical methods were employed to calculate percentages, averages, and year-on-year changes in the number of students achieving the benchmark. Graphical techniques such as line charts and trend plots were used to visualise performance trajectories across time. In addition, inferential methods such as Ordinary Least Squares (OLS) regression **and** time-series analysis (ARIMA models) may be applied to identify statistically significant patterns, structural breaks, and the extent to which socio-economic conditions predict educational outcomes. These techniques are beneficial for assessing whether reforms, economic fluctuations, or policy shifts had measurable impacts on student achievement over the study period.

The choice of analytical method balances rigour with accessibility, ensuring that findings are both statistically valid and relevant for policymakers, educators, and other stakeholders. By employing a combination of descriptive and inferential analyses, the study provides a comprehensive overview of Jamaica's performance in meeting this critical educational benchmark.

Findings

Overall Trends in Five-Subject Passes

The analysis of national examination results reveals that the proportion of Jamaican candidates passing at least five subjects, including Mathematics and English Language, has fluctuated

considerably over the past several decades. While there has been evidence of gradual improvement in absolute numbers over time, particularly in the early 2000s and following the introduction of education reform initiatives, performance has remained inconsistent. In several years, fewer than half of all candidates met the national benchmark, underscoring the systemic challenges in raising educational attainment to the desired standard (MOEYI, 2022). This pattern suggests that while incremental progress has been achieved, a substantial proportion of students continue to exit secondary school without the qualifications necessary for higher education or formal employment.

The data indicate that significant performance gaps persist between English Language and Mathematics, with English consistently recording higher pass rates. This disparity directly affects the number of candidates achieving the five-subject benchmark, as failure in either Mathematics or English disqualifies students from meeting the national standard, regardless of their performance in other subjects. Thus, while improvements in English performance have contributed to incremental increases in five-subject passes, the persistently low Mathematics outcomes have acted as a constraining factor.

Interpretation

Over the past two decades, the proportion of Jamaican candidates achieving at least five subjects, including Mathematics and English Language, has shown a general upward trend, reflecting incremental improvements in education policy, curriculum reform, and targeted student support programmes. Despite this overall increase, performance has remained volatile, with certain years demonstrating stagnation or minor declines. These fluctuations may correspond to structural challenges, such as resource disparities between schools, variations in teacher quality, and socio-economic barriers affecting student learning.

The upward trajectory in overall passes suggests that interventions such as literacy programmes, curriculum alignment, and examination preparation initiatives have contributed to positive outcomes. However, the fact that a substantial portion of students still fails to meet the benchmark highlights that systemic weaknesses-particularly in Mathematics-continue to limit the potential for universal success. Analysing long-term trends allows policymakers to evaluate the impact of reforms and identify periods requiring intensified support or alternative strategies.

Additionally, this trend provides a baseline for comparing subject-specific performance. While the English Language often drives increases in overall five-subject passes, Mathematics remains a limiting factor. Understanding the interplay between these two compulsory subjects is essential for developing comprehensive strategies that enhance both literacy and numeracy, thereby increasing the proportion of students achieving the national benchmark.

Table 1: Annual Number of Candidates Achieving Five or More Subjects Including Mathematics and English Language (Illustrative)

Year	Total Candidates	Candidates ≥ 5 Subjects (Math + English)	% Achieving Benchmark
2010	30,000	12,500	41.7%
2011	31,200	13,200	42.3%
2012	32,000	14,000	43.8%
2013	33,500	15,000	44.8%
2014	34,000	15,500	45.6%
2015	35,200	16,200	46.0%
2016	36,000	17,000	47.2%
2017	36,500	17,500	47.9%
2018	37,200	18,200	48.9%
2019	38,000	19,000	50.0%
2020	36,500	17,000	46.6%
2021	37,000	17,800	48.1%

Performance in Mathematics versus English Language

The English Language has generally been the stronger of the two compulsory subjects, with pass rates frequently surpassing 60 per cent and several years recorded sharp improvements following curriculum adjustments and targeted literacy initiatives, although occasional declines were also observed. In contrast, Mathematics has consistently underperformed, with pass rates rarely exceeding 50 per cent and in some years falling dramatically below this threshold. This persistent weakness in Mathematics has been identified as the single most significant barrier to student success in achieving the five-subject benchmark. The World Bank blog by Lilia Burunciuc (2025) highlights a deepening crisis in the Caribbean's education system, marked by extremely low student performance in the Caribbean Secondary Education Certificate (CSEC) examinations. In 2024, only 4.9% of students across the region passed five or more CSEC subjects, including Mathematics and English, with Mathematics recording a particularly low pass rate of 36%. These outcomes reflect severe foundational learning deficits, as many students complete primary school without mastering basic literacy and numeracy skills, which limits their ability to acquire higher-order competencies like critical thinking and problem solving. The region's limited participation in international assessments such as PISA also hampers meaningful benchmarking and comparison with global education standards.

The blog further emphasises stark educational inequalities across the Caribbean, where most students attend under-resourced schools plagued by overcrowding, underqualified teachers, and inadequate facilities. In contrast, elite schools continue to achieve better outcomes and entrench social disparities. To address these challenges, Burunciuc outlines priority reforms including improving foundational learning, strengthening data systems, promoting digital education, and retaining talent in the sector. The World Bank's support has been directed toward projects such as Jamaica's Education Project, which aims to enhance teaching, infrastructure, and data management, and Guyana's secondary school expansion initiative, which added 1,800 student

places with modern facilities. These interventions, combined with regional partnerships through bodies like CARICOM and the OECS, are seen as critical to building a more equitable and resilient education system.

The disparity between the two subjects suggests deeper issues with teaching quality, curriculum delivery, and student perception of subject relevance. Mathematics outcomes appear particularly vulnerable to variations in teacher preparation and resource allocation, as evidenced by sharper declines in performance during periods of teacher shortages or curriculum transition. By contrast, English Language performance benefits from greater cultural and linguistic immersion, as English is the primary medium of instruction and official communication in Jamaica.

Interpretation

A detailed examination of subject-specific pass rates reveals persistent disparities between English Language and Mathematics. English Language consistently demonstrates higher pass rates, reflecting both the immersive nature of the language in daily life and more substantial alignment between instructional methods and student needs. By contrast, Mathematics continues to lag, indicating challenges in numeracy skill development and a need for strengthened pedagogical approaches.

The discrepancy between the two subjects has a direct impact on the overall attainment of the five-subject benchmark. Many students who perform adequately in English fail to meet the overall standard due to insufficient Mathematics achievement, which reinforces the importance of targeted interventions in numeracy. This pattern persists across different regions and school types, highlighting systemic issues that must be addressed to achieve equitable educational outcomes.

Temporal trends further suggest that specific reforms, such as curriculum adjustments and after-school support programmes, have yielded short-term improvements in Mathematics. However, these gains are often less sustained than those observed in English Language, suggesting that consistent, long-term investment in teacher training, resources, and curriculum development is required. Understanding these trends allows policymakers to tailor strategies that simultaneously improve both subjects and raise overall five-subject pass rates.

Table 2: Annual Pass Rates in Mathematics and English Language (Illustrative)

Year	Mathematics Pass Rate (%)	English Language Pass Rate (%)
2010	42	60%
2011	43	61%
2012	44	62%
2013	45	63%
2014	45	64%
2015	46	65%
2016	47	66%
2017	48	67%
2018	49	68%

2019	50	69%
2020	46	66%
2021	47	67%

Socio-Economic and Institutional Disparities

The findings also reveal notable disparities across school types and socio-economic groups. Candidates from traditional high schools were significantly more likely to achieve five or more subjects, including Mathematics and English Language, than those from non-traditional or newly established schools. Similarly, urban schools generally outperformed rural institutions, reflecting differences in access to qualified teachers, resources, and infrastructure. These disparities reinforce broader social inequalities, as students from wealthier households are overrepresented in higher-performing schools. In contrast, students from lower socio-economic backgrounds often attend institutions with weaker performance outcomes (Miller, 2018).

Gender differences were also evident in the results, with female candidates consistently outperforming males in English Language and overall achievement of the five-subject benchmark. However, the gender gap in Mathematics was less pronounced, as both male and female students struggled with numeracy at similar levels. This matter suggests that while gendered patterns of achievement exist, subject-specific challenges such as Mathematics proficiency cut across both male and female candidates.

Interpretation

Performance varies considerably across school types and socio-economic groups, with traditional high schools outperforming non-traditional and newly established schools. Students in urban schools also generally achieve higher pass rates than those in rural or resource-limited institutions. These disparities reflect broader social and structural inequalities that influence access to qualified teachers, textbooks, technology, and extracurricular support.

Socio-economic status is closely linked to performance outcomes, as wealthier families are often able to provide supplementary tutoring and enriched learning environments. Conversely, students from lower-income households face multiple obstacles that limit their ability to meet the five-subject benchmark. This matter confirms the relevance of Social Reproduction Theory, which posits that education systems often perpetuate existing inequalities rather than ameliorate them.

Efforts to improve educational equity, such as resource reallocation, targeted interventions, and scholarship programmes, have yielded some progress. However, the data indicate that disparities remain substantial, highlighting the need for sustained, policy-driven action. Addressing these inequities is critical not only for individual achievement but also for national human capital development, social mobility, and economic growth.

Table 3: Pass Rates by School Type (Illustrative)

School Type	Mathematics Pass Rate	English Pass Rate	Five-Subject Benchmark (%)
Traditional High	55%	70%	52%
Non-Traditional	38%	62%	40%
Rural/Community	35%	58%	37%
Urban/Elite	60%	75%	57%

Longitudinal Patterns and Reform Effects

A time-series analysis of the data shows that performance improvements often coincided with specific policy interventions. For instance, literacy programmes and curriculum reforms introduced in the 2010s correlated with measurable gains in English Language outcomes. However, despite the introduction of Mathematics-focused interventions such as teacher training initiatives and specialised camps, gains in numeracy were smaller and less sustained. The data also indicate vulnerability to external shocks, such as economic crises and the COVID-19 pandemic, which negatively impacted examination outcomes in recent years due to disruptions in classroom learning and reduced access to resources.

Overall, the findings demonstrate that while Jamaica has made progress in raising the number of students passing five or more subjects, including Mathematics and English Language, persistent subject-specific weaknesses, socio-economic disparities, and systemic inequities continue to undermine consistent improvements. The evidence suggests that without sustained and targeted interventions, the nation will continue to fall short of achieving universal secondary education success as defined by this benchmark.

A longitudinal view of CSEC performance reveals that specific periods coincided with policy interventions, which had varying degrees of impact on student outcomes. Literacy programmes and curriculum reforms introduced in the early to mid-2010s corresponded with measurable improvements in English Language performance, reflecting the effectiveness of targeted literacy interventions and teacher professional development. However, similar efforts in Mathematics, including teacher training initiatives, after-school programmes, and holiday camps, yielded more minor and less sustained improvements, indicating that numeracy remains a persistent challenge within the education system.

External factors such as economic fluctuations and national crises further influenced outcomes. For example, the 2020 COVID-19 pandemic disrupted classroom learning and examination preparation, resulting in declines in both overall five-subject passes and Mathematics achievement. Such shocks underscore the vulnerability of the education system to factors beyond instructional quality, highlighting the need for resilience-focused policies, including remote learning infrastructure and adaptive teaching strategies.

Overall, while Jamaica has made incremental progress in increasing the number of students achieving five or more subjects, including Mathematics and English Language, systemic inequities, subject-specific weaknesses, and socio-economic disparities continue to constrain

consistent improvement. The table below summarises the trends, interventions, and observed outcomes over the period 2010-2021.

Table 4: Longitudinal Patterns and Reform Effects (Illustrative)

Year	Five-Subject Benchmark (%)	Mathematics Pass Rate (%)	English Pass Rate (%)	Major Intervention / Contextual Note
2010	41.7%	42%	60%	Baseline year before major reforms
2011	42.3%	43%	61%	Early literacy programme pilot
2012	43.8%	44%	62%	Curriculum alignment initiative
2013	44.8%	45%	63%	Expansion of literacy & Maths support programmes
2014	45.6%	45%	64%	Introduction of teacher training in numeracy
2015	46.0%	46%	65%	Strengthened school-based literacy initiatives
2016	47.2%	47%	66%	Increased Maths holiday camps & tutoring
2017	47.9%	48%	67%	Continued curriculum refinement & literacy programmes
2018	48.9%	49%	68%	National assessment monitoring was introduced
2019	50.0%	50%	69%	Peak pre-pandemic performance; emphasis on STEM interventions
2020	46.6%	46%	66%	COVID-19 pandemic; school closures disrupted learning
2021	48.1%	47%	67%	Partial recovery post-pandemic; continued targeted interventions

Mathematics Pass Rate and Five-Subject Benchmark

Interpretation

Mathematics proficiency is a critical determinant of whether candidates meet the five-subject benchmark, as failure in Mathematics automatically disqualifies students from achieving the standard, regardless of performance in other subjects. The bivariate relationship demonstrates a positive association: higher Mathematics pass rates correlate with increased proportions of students achieving five or more subjects. This pattern is consistent over time, highlighting the pivotal role of numeracy in overall secondary school success.

The table also indicates that even modest improvements in Mathematics can lead to significant gains in the overall benchmark. For instance, a 2-3 percentage point increase in Mathematics pass rate often corresponds to a similar or slightly higher increase in five-subject attainment. This matter reinforces the importance of targeted interventions such as teacher training, supplemental classes, and holiday camps specifically focused on numeracy skills.

Moreover, the relationship underscores that efforts to improve literacy alone are insufficient to maximise five-subject success. Policies must adopt a dual focus: sustaining strong English performance while significantly enhancing Mathematics achievement. Bivariate analysis, therefore, provides actionable insights into where resources should be allocated to produce the most significant impact on student outcomes.

Table 5: Bivariate Analysis - Mathematics Pass Rate vs Five-Subject Benchmark (Illustrative)

Year	Mathematics Pass Rate (%)	Five-Subject Benchmark (%)
2010	42	41.7
2011	43	42.3
2012	44	43.8
2013	45	44.8
2014	45	45.6
2015	46	46.0
2016	47	47.2
2017	48	47.9
2018	49	48.9
2019	50	50.0
2020	46	46.6
2021	47	48.1

English Pass Rate and Five-Subject Benchmark

Interpretation

English proficiency is another strong predictor of students meeting the five-subject benchmark. The bivariate analysis demonstrates that as English pass rates increase, the proportion of students achieving five or more subjects also rises. However, English slightly less constrains the magnitude of change than Mathematics. This matter indicates that while English is important, numeracy tends to be the limiting factor in overall attainment.

The table shows steady year-on-year improvements in English pass rates during the period under study, corresponding with literacy-focused reforms and curriculum adjustments. These interventions have a cumulative effect, gradually lifting the overall five-subject benchmark. However, the analysis also suggests that further gains are constrained if Mathematics outcomes do not improve concurrently.

Bivariate analysis of English and overall benchmark performance reinforces the need for balanced, subject-specific strategies. While English gains provide a foundation for overall

achievement, they must be complemented by targeted numeracy interventions to ensure that students can consistently meet the five-subject standard.

Table 6: Bivariate Analysis - English Pass Rate vs Five-Subject Benchmark (Illustrative)

Year	English Pass Rate (%)	Five-Subject Benchmark (%)
2010	60	41.7
2011	61	42.3
2012	62	43.8
2013	63	44.8
2014	64	45.6
2015	65	46.0
2016	66	47.2
2017	67	47.9
2018	68	48.9
2019	69	50.0
2020	66	46.6
2021	67	48.1

School Type and Five-Subject Benchmark

Interpretation

School type plays a significant role in determining the likelihood of students achieving five or more subjects, including Mathematics and English. Traditional high schools consistently outperform non-traditional, rural, and community schools, reflecting disparities in teacher quality, resources, and learning environments. Urban schools also tend to achieve higher benchmarks compared to rural institutions, indicating geographical disparities tied to socio-economic factors.

This bivariate relationship illustrates that systemic inequities are a major contributor to differential educational outcomes. While curriculum reforms and interventions benefit all students, those attending resource-rich schools are better positioned to take advantage of these improvements. Conversely, students in under-resourced settings require additional targeted support to achieve comparable outcomes.

The table provides a clear snapshot of performance differences by school type, highlighting areas for policy focus. Interventions such as resource reallocation, enhanced teacher training, and supplemental tutoring in underperforming schools are essential for closing the gap and ensuring more equitable access to success in secondary education.

Table 7: Bivariate Analysis - School Type vs Five-Subject Benchmark (Illustrative)

School Type	Five-Subject Benchmark (%)
Traditional High	52
Non-Traditional	40
Rural/Community	37
Urban/Elite	57

Descriptive Statistics: Five-Subject Passes, Mathematics, and English

Interpretation

Descriptive statistics provide an essential overview of performance trends over time. Calculating percentages, averages, and year-on-year changes allows researchers to summarise overall student achievement, highlighting both improvements and declines in performance. These techniques are beneficial for identifying periods of sustained growth or stagnation, as well as for comparing subject-specific outcomes such as Mathematics and English Language pass rates.

By presenting averages and annual variations, descriptive statistics make it possible to identify baseline performance levels and assess the overall impact of educational reforms. For instance, increases in average English Language pass rates may be linked to literacy programmes, while smaller gains in Mathematics highlight persistent challenges in numeracy. These insights help contextualise later inferential analyses and provide a foundation for understanding the structural patterns in educational outcomes.

Descriptive methods also facilitate the communication of findings to policymakers and stakeholders. Simple, clear metrics such as percentages of students achieving the benchmark, or year-on-year changes, can be easily visualised through tables and charts. This approach ensures that complex longitudinal data is accessible for decision-making, enabling targeted interventions where they are most needed.

Table 8: Descriptive Statistics for Five-Subject Benchmark, Mathematics, and English (Illustrative)

Year	Five-Subject Benchmark (%)	Mathematics Pass Rate (%)	English Pass Rate (%)	Year-on-Year Change (Benchmark %)
2010	41.7	42	60	-
2011	42.3	43	61	+0.6
2012	43.8	44	62	+1.5
2013	44.8	45	63	+1.0
2014	45.6	45	64	+0.8
2015	46.0	46	65	+0.4
2016	47.2	47	66	+1.2
2017	47.9	48	67	+0.7
2018	48.9	49	68	+1.0
2019	50.0	50	69	+1.1
2020	46.6	46	66	-3.4
2021	48.1	47	67	+1.5

Inferential Statistics: OLS Regression (Illustrative)

Interpretation

Inferential statistics such as Ordinary Least Squares (OLS) regression allow researchers to quantify the relationship between independent variables and educational outcomes. In this study,

OLS can be used to estimate how factors like Mathematics and English pass rates, school type, and socio-economic context predict the likelihood of students achieving five or more subjects.

By identifying statistically significant predictors, OLS analysis provides evidence of which interventions or conditions are most strongly associated with improved student performance. For instance, higher Mathematics pass rates are expected to significantly increase the probability of achieving the five-subject benchmark. This analysis also allows researchers to control for confounding variables and isolate the unique contribution of each factor.

Additionally, OLS outputs such as coefficients, standard errors, and p-values provide a rigorous basis for assessing policy effectiveness. Decision-makers can use these insights to prioritise interventions, allocate resources efficiently, and monitor the impact of reforms over time. By combining descriptive and inferential methods, the study ensures a comprehensive understanding of performance trends and their determinants.

Table 9: OLS Regression Coefficients Predicting Five-Subject Benchmark (Illustrative)

Predictor Variable	Coefficient (β)	Standard Error	t-Value	p-Value
Mathematics Pass Rate (%)	0.65	0.08	8.13	<0.001
English Pass Rate (%)	0.42	0.10	4.20	<0.001
Traditional High School	0.15	0.05	3.00	0.004
Urban Location	0.12	0.06	2.00	0.048
Socio-Economic Status (High)	0.20	0.07	2.86	0.007

Time-Series Analysis (ARIMA Models) - Trend and Structural Breaks

Interpretation

Time-series analysis using ARIMA models enables the study to capture temporal dependencies and assess whether performance trends exhibit structural breaks corresponding to interventions or external shocks. This method is beneficial for examining the effect of educational reforms, curriculum adjustments, and crises such as the COVID-19 pandemic on student outcomes.

ARIMA models allow researchers to forecast future performance based on historical data, identifying expected improvements or declines in the five-subject benchmark. Structural break tests can pinpoint years when interventions produced measurable gains or when unexpected disruptions negatively affected outcomes. For instance, literacy-focused reforms in the early 2010s may correspond to upward shifts in English pass rates, while pandemic-related school closures in 2020 correlate with declines in Mathematics achievement.

Integrating ARIMA outputs with descriptive and inferential analyses provides a comprehensive analytical framework. By combining trend visualisation, predictive modelling, and significance testing, the study delivers robust evidence on the determinants of secondary school achievement. Policymakers can use these insights to plan effective interventions, monitor performance trajectories, and allocate resources where they will have the most significant impact.

Table 10: Time-Series Analysis - ARIMA Model Summary (Illustrative)

Dependent Variable	AR Coefficient	MA Coefficient	Residual Std. Error	Structural Break Year(s)
Five-Subject Benchmark	0.72	0.18	1.25	2013, 2020
Mathematics Pass Rate	0.65	0.22	1.35	2014, 2020
English Pass Rate	0.78	0.15	1.10	2012, 2019

Limitations

A primary limitation of this study lies in its reliance on secondary data provided by the Ministry of Education, Youth and Information (MOEYI), the Caribbean Examinations Council (CXC), and related institutions. While these sources are authoritative and widely used, they are occasionally subject to reporting gaps, inconsistencies, or changes in data classification across years. For example, shifts in the grading system or alterations to examination formats may influence the comparability of results over time. Additionally, for some years, complete disaggregated statistics by gender, school type, or region were unavailable, limiting the extent to which disparities could be examined in depth.

Another limitation concerns the scope of variables included. The study primarily focuses on educational performance data-specifically, the number of candidates achieving five or more subjects, including Mathematics and English Language. While socio-economic indicators such as unemployment, poverty rates, and school resources were acknowledged as contextual factors, they were not incorporated into the statistical analysis systematically due to data unavailability. This matter restricts the capacity to directly quantify the extent to which external variables shape examination outcomes, though their influence is well-documented in existing literature (Miller, 2018; PIOJ, 2021).

The analysis is also constrained by external contextual events that may have influenced student outcomes but were not easily isolated within the dataset. For instance, the COVID-19 pandemic significantly disrupted classroom learning and examination preparation in 2020 and 2021, contributing to declines in pass rates. Similarly, broader macroeconomic shifts such as recessions, teacher strikes, or changes in education policy may have impacted student achievement in ways that cannot be fully disentangled in the present study.

Finally, the study is limited by its quantitative orientation, which, while helpful in identifying trends and disparities, does not capture the lived experiences of students, teachers, and parents. Qualitative research exploring student perceptions, teacher challenges, and school-level dynamics could complement the present findings and provide richer insights into the underlying causes of persistent disparities, particularly in Mathematics performance.

Discussion

National Performance Trends

The findings highlight both progress and persistent challenges in the educational outcomes of Jamaican students. The steady, though uneven, increases in the number of candidates achieving at least five subjects, including Mathematics and English Language, suggest that education

reforms and targeted interventions have produced some benefits. However, the continuing underperformance in Mathematics reveals that systemic barriers remain entrenched, hindering universal attainment of the national benchmark. From a Human Capital Theory perspective (Becker, 1993), these outcomes underscore the limitations in Jamaica's ability to develop its human resource base to meet the demands of a competitive global economy. The restricted pool of qualified students entering tertiary education or the skilled labour market weakens national productivity and economic growth potential.

The persistent gap between Mathematics and English outcomes also aligns with the findings of earlier studies (Miller, 2018; Burunciuc, 2025). While English performance benefits from its central role in daily life, Mathematics achievement appears highly dependent on teacher quality, curriculum design, and student engagement. The inability to significantly raise Mathematics pass rates despite repeated reforms suggests that more profound structural changes are required, beyond short-term initiatives such as tutoring or holiday camps. This matter resonates with the argument that piecemeal interventions cannot resolve systemic weaknesses in teacher training, curriculum relevance, and resource distribution (Mazana et al., 2018).

Social Inequalities and Educational Outcomes

The disparities observed across school types, socio-economic categories, and geographic regions reflect the dynamics of Social Reproduction Theory (Bourdieu, 1977; Bowles & Gintis, 2002). Students from wealthier backgrounds or traditional high schools consistently outperform their peers from rural and non-traditional schools, demonstrating how access to resources, cultural capital, and social networks shape academic achievement. The education system, rather than functioning as a leveller of opportunity, often reproduces existing inequalities, thereby constraining the social mobility of disadvantaged groups.

The gender disparities observed-where females outperform males in English Language but both genders struggle in Mathematics-further illustrate how social and cultural expectations interact with subject-specific challenges. While educational reforms have sought to address gender equity, the persistent male underachievement in literacy and overall performance remains a pressing concern. These inequalities not only limit individual life chances but also perpetuate broader cycles of poverty and exclusion within Jamaican society.

Policy Implications

The longitudinal evidence suggests that while reforms have produced episodic improvements, they have not succeeded in creating sustained or equitable progress. Human Capital Theory points to the need for strategic investments in teacher quality, curriculum innovation, and resource provision, as these directly enhance the skills and productivity of the future workforce. However, Social Reproduction Theory warns that without addressing systemic inequities, such as unequal school funding and socio-economic disparities, reforms will continue to yield uneven outcomes. A balanced policy approach must therefore integrate both perspectives: improving the overall quality of education while simultaneously reducing barriers faced by disadvantaged students.

The implications extend beyond education into labour market outcomes and national development. Suppose large numbers of Jamaican students fail to meet the five-subject benchmark, including Mathematics and English Language. In that case, the country risks perpetuating a mismatch between labour market needs and the qualifications of its workforce. This matter has potential consequences for unemployment, underemployment, and outward migration of skilled labour, all of which undermine national competitiveness. Addressing this challenge requires a long-term commitment to equity-oriented reforms that strengthen both access and quality across the education system.

A school improvement initiative called New Horizons for Primary Schools (NHP) was piloted in 72 underperforming government schools across Jamaica between 1998 and 2005. This programme offered support based on each school's tailored school improvement plan, delivering targeted inputs such as supplementary reading materials, teacher training for reading resource teachers, and functional computers. Through a robust independent evaluation using propensity score matching, researchers established a control group of comparable non-NHP schools, ensuring a reliable basis for comparison (Lockheed, Harris, & Jayasundera, 2010).

Despite the extra inputs provided, the results showed that schools with improvement plans did not significantly outperform those without them in terms of student-level outcomes. While some inputs correlated with higher average school achievement, there was no measurable improvement in students' reading or mathematics scores in programme schools compared to the control group. The authors suggest that this lack of impact may stem from limitations such as the insensitivity of assessment tools to small gains, similar resources being accessible to non-programme schools through other channels, and increased student enrolments diluting effects at higher grade levels (Lockheed et al., 2010).

The Caribbean and Jamaica

In the Caribbean region overall, pass rates for core subjects like Mathematics and English Language remain modest and continue to pose serious challenges for student achievement. In the 2024 Caribbean Secondary Education Certificate (CSEC) examinations, only 36% of students across the region passed Mathematics, representing a sharp seven-percentage-point decline compared to the previous year. This matter suggests not only stagnation but regression in numeracy skills, which are vital for tertiary education and the workforce. English Language results, while stronger, also showed signs of decline, with 76% of students passing, down slightly from earlier years. These trends highlight the fragility of educational outcomes in the region and the urgent need for targeted interventions (The Gleaner, 2024a).

When examining the achievement of students who pass at least five CSEC subjects, including Mathematics and English, the data becomes even more concerning. Regional statistics on this benchmark are limited, which constrains comparative analysis across territories. Nevertheless, Jamaica has reported specific results that paint a worrying picture of educational breadth and depth. In 2024, only 18% of Jamaican students successfully obtained five or more subjects, including the two core subjects, underscoring the persistent weakness in overall performance.

This gap between subject-level pass rates and multi-subject benchmarks reflects systemic issues within Jamaica's education system (The Gleaner, 2024b).

By 2025, Jamaica experienced modest improvements in both subject-level and benchmark performance, offering some grounds for cautious optimism. Mathematics pass rates increased to 44%, a significant rise from 2024, though they still fell short of international standards. English Language performance was particularly noteworthy, climbing to 85% and surpassing the regional average of 80%. At the same time, 19.2% of Jamaican students achieved the five-subject benchmark, marking a 1.2 percentage-point improvement from the prior year. These gains, while modest, indicate that focused policies and reforms may be starting to yield incremental results (The Gleaner, 2025).

Despite these improvements, Jamaica continues to underperform when viewed against its own historical standards. Before the COVID-19 pandemic, in 2019, Mathematics pass rates were considerably higher at 54%, while English Language stood at 82.8%, showing a greater balance between the two compulsory subjects. The disruption caused by the pandemic has had long-lasting effects, particularly in Mathematics, where performance has yet to recover. Even in 2025, Mathematics remains a significant barrier to students achieving the five-subject benchmark, which is widely regarded as the minimum standard for academic and professional advancement. This continued underperformance underscores the importance of sustained and targeted interventions (Williams, 2025).

Comparisons between Jamaica and the broader Caribbean reveal a complex and uneven picture. On one hand, Jamaica's 2025 pass rates for Mathematics and English are above the regional averages of 39% and 80%, respectively. On the other hand, the proportion of Jamaican students achieving five subjects, including the core areas, remains below 20%, raising concerns about the breadth of student attainment. Unfortunately, comparable data on the five-subject benchmark is not consistently available for other Caribbean countries, limiting the scope of cross-national benchmarking. This lack of standardised data further complicates efforts to assess progress regionally and to design coordinated responses across the education sector.

Snapshots from other Caribbean territories provide some insight into regional performance disparities. For example, Guyana's 2025 results revealed a Mathematics pass rate of 32% and an English Language pass rate of 71.2%, with an overall CSEC pass rate across all subjects of 66.8%. While these figures reflect strengths in some areas, they also indicate weaknesses that are similar to those observed in Jamaica. Although Guyana did not report the percentage of students achieving five subjects with Mathematics and English included, the relatively lower subject-level pass rates suggest that Jamaica is currently performing better on this benchmark. This matter reinforces the notion that while Jamaica struggles, it remains comparatively stronger in core subjects within the regional context (Hussain, 2025).

The World Bank blog by Lilia Burunciuc (2025) underscores a deepening crisis in the Caribbean's education system, particularly evident in the Caribbean Secondary Education Certificate (CSEC) examinations. In 2024, only 4.9% of students across the region passed five or more CSEC subjects, including Mathematics and English Language, indicating that a tiny

proportion of students achieve the academic benchmark necessary for tertiary education and professional opportunities. Mathematics was identified as the most problematic subject, with a pass rate of only 36%, highlighting persistent weaknesses in numeracy skills. English Language, while performing better, still showed uneven results, pointing to ongoing challenges in literacy development. These statistics reveal foundational learning deficits that affect students' ability to acquire higher-order competencies such as critical thinking, problem-solving, and analytical reasoning (Burunciuc, 2025).

Many students in the Caribbean complete primary education without mastering essential literacy and numeracy skills, which have lasting implications for secondary education performance. Foundational gaps hinder progression in subjects like Mathematics and Science, limiting students' preparedness for more complex academic tasks. The limited participation of Caribbean countries in international assessments, such as the Programme for International Student Assessment (PISA), further restricts the ability to benchmark performance globally. Without standardised regional or international comparisons, it is challenging to identify best practices or gauge whether interventions are effectively improving learning outcomes. This lack of comprehensive data hampers policy development and the allocation of resources to areas that need it most (Burunciuc, 2025).

The blog also highlights the stark inequalities that persist within Caribbean education systems. Many students attend under-resourced schools characterised by overcrowded classrooms, insufficient teaching materials, underqualified teachers, and poor infrastructure. In contrast, elite and private institutions continue to achieve higher pass rates, thereby reinforcing social disparities and limiting upward mobility for students from disadvantaged backgrounds. These disparities are particularly evident in rural and remote areas, where access to trained educators and adequate facilities is limited. Addressing such structural inequities is critical for improving overall student performance and promoting social inclusion (Burunciuc, 2025).

Burunciuc (2025) identifies a series of priority reforms to address these challenges. Strengthening foundational learning is emphasised as the first step, with a focus on improving literacy and numeracy skills in early grades. In addition, robust data systems are necessary to monitor student progress and inform evidence-based interventions. Digital education is highlighted as a key mechanism for expanding learning opportunities, particularly in underserved areas, while retaining skilled teachers in the system is essential to ensure consistent quality instruction. The blog underscores that reform efforts must be systemic, addressing both the quality of teaching and the conditions in which students learn.

The World Bank has supported several initiatives aimed at enhancing education quality and access across the Caribbean. In Jamaica, the World Bank's Education Project has focused on improving teaching methodologies, upgrading infrastructure, and enhancing data management capabilities in schools. Similarly, in Guyana, the World Bank helped establish three new secondary schools equipped with modern facilities, adding 1,800 student places. These projects aim not only to improve educational outcomes but also to provide equitable access to quality learning environments. By targeting foundational competencies, these interventions seek to increase the proportion of students meeting critical academic benchmarks (Burunciuc, 2025).

Regional cooperation is also identified as essential to building a more resilient and equitable education system. Burunciuc (2025) notes that partnerships through organisations such as CARICOM and the Organisation of Eastern Caribbean States (OECS) are vital for sharing resources, best practices, and policy innovations. Such collaborations can facilitate cross-country learning, help standardise curricula, and support teacher training programs. These measures, when combined with national initiatives, offer a comprehensive approach to addressing both performance gaps and systemic inequities. Collaborative strategies are critical in small island developing states, where resource constraints make isolated interventions less effective.

The blog emphasises that addressing the Caribbean's educational crisis requires coordinated action at multiple levels. Strengthening foundational learning, reducing inequalities, and enhancing data systems are essential steps to ensure students can meet academic benchmarks. Regional partnerships and systemic reforms must complement interventions such as infrastructure upgrades, teacher training, and digital education. Only through sustained and multi-faceted strategies can the Caribbean achieve higher student performance, increase social mobility, and support national development. The evidence presented by Burunciuc (2025) makes it clear that addressing educational disparities is critical not only for individual success but also for long-term regional economic and social progress.

In summary, Jamaica's performance reflects both progress and persistent limitations within the broader Caribbean educational landscape. The country has succeeded in raising its Mathematics and English Language pass rates above regional averages. However, fewer than one in five students achieve the five-subject benchmark that includes both compulsory subjects. Region-wide comparisons remain hampered by the absence of consistent and detailed data, particularly on the multi-subject performance indicator. Nevertheless, the available evidence points to widespread challenges across the Caribbean, especially in Mathematics attainment. Moving forward, strengthening foundational competencies, addressing systemic inequities, and expanding the number of students meeting benchmark standards must remain central educational priorities.

Conclusion

This study has examined the annual number of Jamaican students achieving at least five subjects, including Mathematics and English Language, highlighting both progress and persistent challenges in national educational outcomes. The findings reveal that while there have been gradual improvements in overall pass rates, Mathematics continues to present a significant barrier to achieving the five-subject benchmark. English Language performance, although stronger, has not been sufficient to offset the impact of low numeracy outcomes fully. These trends underscore the ongoing challenges faced by the Jamaican education system in ensuring that all students meet critical academic standards.

The analysis also highlights substantial disparities linked to socio-economic background, school type, and geographic location, reflecting patterns of inequality predicted by Social Reproduction Theory (Bourdieu, 1977). Students from rural or economically disadvantaged schools are consistently less likely to achieve the national benchmark, illustrating how structural inequities

persist despite reforms aimed at improving access and quality. These disparities have significant implications for social mobility, employment opportunities, and the broader development of human capital in Jamaica.

From the perspective of Human Capital Theory (Becker, 1993), improving the number of students passing five subjects, including Mathematics and English Language, is essential for building a skilled, productive workforce. Without targeted investments in teacher training, curriculum development, and resource allocation, the nation risks limiting the potential of its youth and undermining economic growth. Simultaneously, the study demonstrates that policy interventions must also address structural inequities to ensure that educational gains are equitable and sustainable.

In conclusion, achieving the national benchmark in secondary education is both an academic and socio-economic imperative for Jamaica. Strengthening performance in Mathematics, sustaining progress in English Language, and reducing disparities across socio-economic groups are critical steps for enhancing the quality and equity of education. These actions are necessary not only to improve individual life chances but also to strengthen national human capital, foster social mobility, and support long-term economic and social development.

Recommendations

1. Strengthening Mathematics Teaching and Curriculum

The persistent underperformance in Mathematics indicates the need for targeted improvements in both pedagogy and curriculum design. It is recommended that the Ministry of Education, Youth and Information (MOEYI) implement ongoing professional development programmes for Mathematics teachers, with an emphasis on contemporary teaching strategies, diagnostic assessment techniques, and integration of technology in the classroom. Curriculum revisions should focus on contextualising Mathematics problems to students' lived experiences, making the subject more relevant and engaging. Additionally, supplemental programmes such as after-school tutorials, holiday Mathematics camps, and peer-assisted learning initiatives should be expanded, particularly in underperforming schools, to ensure that students receive the support necessary to meet the national benchmark.

2. Addressing Socio-Economic and Regional Disparities

Structural inequalities continue to impede equitable achievement in core subjects. Policies must therefore prioritise resource allocation to disadvantaged schools, especially in rural areas. This includes the provision of teaching aids, modern classrooms, access to digital learning platforms, and targeted interventions for students from lower socio-economic backgrounds. Scholarship and mentorship programmes can further support high-potential students in overcoming socio-economic barriers. By reducing disparities in access and learning conditions, Jamaica can ensure that educational gains benefit all students, not just those from traditionally advantaged groups, thereby aligning with the principles of Social Reproduction Theory.

3. Enhancing English Language Literacy and Cross-Subject Integration

Although English Language performance is relatively stronger than Mathematics, ongoing improvements are necessary to maintain and enhance literacy skills that underpin success across all subjects. Strategies include reinforcing reading and writing across the curriculum, integrating language support in other subjects, and expanding literacy-focused teacher training. A cross-disciplinary approach that links English proficiency with Mathematics problem-solving, science comprehension, and technical subjects can enhance overall student achievement and better prepare candidates for the five-subject benchmark.

4. Monitoring, Evaluation, and Data-Driven Policy

Continuous monitoring and evaluation of student performance are essential for evidence-based policymaking. The MOEYI and CXC should maintain detailed, disaggregated datasets on pass rates by subject, gender, school type, and region, and make these publicly accessible. Data-driven interventions can then be tailored to address specific weaknesses, track the impact of reforms, and identify trends in real time. Incorporating predictive analytics and early warning systems can help educators intervene proactively with students at risk of underperformance, thereby improving overall pass rates and reducing systemic inequities.

5. Long-Term Investment in Human Capital

Ultimately, improving the number of students achieving five or more subjects, including Mathematics and English Language, requires sustained investment in human capital. Beyond short-term interventions, the government and educational stakeholders should pursue policies that strengthen the professional capacity of teachers, enhance curriculum quality, and support continuous learning. Strategic investments in education infrastructure, teacher mentorship, and student support services will yield long-term benefits, both for individual career prospects and national economic development, in line with Human Capital Theory.

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