



Exploring the Impact of Socioeconomic Factors on Academic Performance in Sri Lanka: A Quantitative Analysis of GCE O/L Results

Wickramadara, L. M.

Deputy Commissioner of Examinations

Department of Examinations, Sri Lanka

Email: lakshimwickramadara@gmail.com

Abstract: *This study examines the impact of socioeconomic factors – specifically household income and parental education – on academic performance in the General Certificate of Education Ordinary Level (GCE O/L) examination across districts in Sri Lanka. Despite the country’s commitment to free education, disparities in examination outcomes persist, prompting the need for a data-driven investigation into the underlying causes. Utilizing secondary data from the Department of Examinations and the Department of Census and Statistics, the study applies descriptive statistics, Pearson correlation and multiple linear regression analysis to explore the district level variations. Findings indicate that household income is not a statistically significant predictor of academic performance, suggesting that other variables may play a more critical role. Notably, certain low-income districts demonstrate high academic achievement, highlighting the influence of factors such as community engagement, school quality and cultural attitudes towards education. The study underscores the importance of adopting a multidimensional approach in addressing educational inequality and recommends targeted interventions, improved infrastructure and the integration of broader socio-economic indicators into future research and policymaking efforts.*

Keywords: *Socioeconomic Factors, Household Income, Parental Education, GCE (Ordinary Level) Examination, Academic Performance*

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1. Introduction

Education serves as a cornerstone of national development and social mobility. In Sri Lanka, the introduction of free education in 1945 has contributed to substantial progress in educational access and literacy (Ministry of Education, 2022). The country boasts one of the highest literacy rates in South Asia and has maintained near-universal

enrollment at the primary and junior secondary levels. However, while educational access is widespread, disparities in academic achievement remain a persistent concern, particularly when analyzed across geographic and socioeconomic divides (Perera & Weerasinghe, 2013).

The General Certificate of Education Ordinary Level (GCE O/L) examination is a pivotal academic benchmark in the Sri Lankan education system. It determines students’

eligibility to pursue advanced level studies and often influences their future academic and vocational trajectories. Despite the uniformity of the national curriculum and examination structure, student outcomes vary considerably across districts and provinces. These discrepancies point toward underlying structural inequalities that may affect students' preparedness and ability to succeed (Department of Examinations, 2023).

Globally, socioeconomic status (SES) has long been recognized as one of the most significant determinants of academic achievement. SES encompasses multiple dimensions, including household income, parental education level, and access to learning resources. Research from both high- and low-income countries suggests that students from higher SES backgrounds are more likely to perform well academically due to better school environments, supportive home learning conditions, and greater parental involvement (Sirin, 2005; Bradley & Corwyn, 2002; OECD, 2019). Conversely, students from low-income households often face constraints such as financial instability, limited access to private tutoring, and inadequate home infrastructure for study—factors that negatively impact academic performance.

In Sri Lanka, although these global patterns are generally assumed to hold, there is a notable scarcity of empirical studies that systematically quantify the relationship between SES and academic performance using nationally representative datasets. Most available research focuses on small-scale case studies or relies on qualitative accounts. While some localised studies have examined the role of private tuition or school-level factors (Cole, R., 2017), there is limited large-scale, data-driven analysis that captures how socioeconomic factors—particularly household income and parental education—correlate with student outcomes in the GCE O/L examination.

Interestingly, anecdotal and district-level data show that some low-income regions (e.g., Ampara and Batticaloa) report relatively high performance in national exams, suggesting that the relationship between income and academic success may not be linear. Cultural emphasis on education, teacher commitment, community-based learning support, and religious or ethnic group dynamics may also play moderating roles. These patterns underscore the need for more nuanced, quantitative research that moves beyond simple assumptions and investigates the mechanisms through which socioeconomic conditions shape academic outcomes in the Sri Lankan context.

This study seeks to fill this gap by examining the influence of key socioeconomic factors—namely household income and parental education—on district-level academic performance in the GCE O/L examination. By leveraging secondary data from the Department of Examinations and the Household Income and Expenditure Survey (2019), the study adopts a quantitative approach to assess whether and

to what extent these variables explain performance disparities across Sri Lanka.

1.1 Objective of the Study

The primary objective of this study is to examine the impact of socioeconomic factors, specifically household income and parental education, on students' academic performance in the GCE O/L examination in Sri Lanka. The study investigates whether these factors explain variations in academic performance across districts and to what extent they contribute to the achievement gap observed in the national education system.

1.2 Problem Statement

Although Sri Lanka has achieved commendable progress in expanding access to education through its free education policy, disparities in academic outcomes across socioeconomic and geographic groups remain a concern. Despite the provision of a common curriculum and uniform assessment standards, wide variations are observed in GCE O/L examination outcomes between urban and rural areas, and across income levels (Department of Examinations, 2023).

Globally, empirical evidence suggests a strong association between socioeconomic status and academic performance (Davis-Kean, 2005; UNESCO, 2021). However, in Sri Lanka, there is limited empirical research that rigorously tests this relationship using robust, nationally representative datasets. While government and non-governmental actors have acknowledged educational inequality as a policy concern, efforts to address the issue are hampered by the lack of comprehensive, evidence-based analysis at the national level.

Without a clear understanding of how socioeconomic disparities influence student performance—particularly at critical academic transitions like the GCE O/L—policymakers are unable to design targeted interventions. The absence of such analysis limits the potential to achieve national education goals and undermines the country's commitment to Sustainable Development Goal 4 (SDG 4), which calls for inclusive and equitable quality education for all.

1.3 Significance of the Study

This study makes several important contributions to both research and policy. First, it provides a data-driven assessment of the relationship between household income, parental education, and academic performance in Sri Lanka—an area that has been underexplored despite its policy relevance. By integrating education and household survey data, the study offers a more comprehensive understanding of how structural inequalities manifest in academic outcomes.

Second, the findings have direct implications for educational planning and equity-based policy formulation. By identifying key predictors of academic performance, the study can inform resource allocation strategies, especially for districts that underperform academically but show potential for improvement through targeted interventions. For instance, policy instruments such as conditional cash transfers, targeted teacher deployment, and community-based education programs can be fine-tuned using these insights.

Finally, this research supports Sri Lanka’s broader development objectives, including its commitments under the SDGs and national education reform initiatives. By advancing an evidence-based understanding of the drivers of educational inequality, the study helps bridge the gap between research and practice in the education sector.

1.4 Conceptual Framework

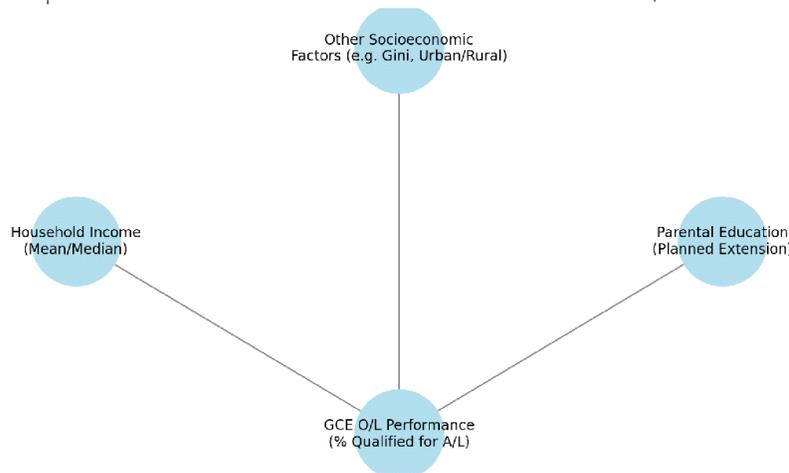


Figure 1: Conceptual Framework of Socioeconomic Influences on GCE O/L Performance

The conceptual framework for this study posits that academic performance in the GCE O/L examination is influenced by a range of socioeconomic variables, with household income and parental education serving as the primary predictors. Other mediating or moderating variables—such as access to educational resources, urban-rural location, and cultural capital—are acknowledged but not directly included in the current model due to data limitations.

2. Literature Review

Socioeconomic status (SES) remains one of the most widely studied and influential predictors of academic performance globally. SES typically encompasses indicators such as household income, parental education, and occupational status, which collectively shape a child’s access to educational resources, learning environments, and academic opportunities (Bradley & Corwyn, 2002; Sirin, 2005). Numerous international studies have documented that children from higher-income families consistently outperform their lower-income peers across various educational stages (OECD, 2019; Reardon, 2011). These differences are largely attributed to the advantages that higher SES affords, including private tutoring, access to educational materials, school readiness programs, and higher parental engagement.

Parental education, in particular, has been identified as a key SES indicator that significantly influences academic achievement. Davis-Kean (2005) demonstrated that parents with higher educational attainment tend to place more emphasis on academic success and create cognitively stimulating home environments. These parents are also more likely to model positive learning behaviors, support homework routines, and communicate higher academic expectations. Similarly, Dubow, Boxer, and Huesmann (2009) found that the educational level of parents, particularly mothers, was a strong predictor of children’s later academic and occupational success. Parental education not only influences direct support for learning but also correlates with parenting style, language use at home, and aspirations for higher education (UNESCO, 2021).

Household income also plays a pivotal role in shaping students’ academic trajectories. Families with higher income levels can afford better housing, healthier food, access to information technology, and private education services. These factors are linked to improved school readiness and sustained academic success (OECD, 2016). Conversely, students from low-income households often face multiple barriers to academic success, including economic stress, lack of study space, and poor nutrition, all of which affect cognitive development and school performance (Brooks-Gunn & Duncan, 1997). In the

Global South, studies from countries like India, Bangladesh, and Vietnam have confirmed that income disparities closely mirror educational inequality, especially in standardized national assessments (Asadullah & Chaudhury, 2013).

In the Sri Lankan context, while the government's policy of free education has ensured widespread access, significant disparities remain in academic outcomes across regions. Several studies have highlighted the urban-rural divide in access to quality education, with urban students typically benefiting from better infrastructure, teacher quality, and supplementary academic support (Perera & Weerasinghe, 2013). Jayasundara and Atapattu (2020) reported that school type—particularly national vs. provincial schools—correlates with performance in national exams, underscoring systemic inequities.

However, few empirical studies in Sri Lanka directly examine the influence of SES variables—specifically parental education and household income—on student performance at the GCE O/L level. Cole, R. (2017) studied the impact of private tuition on academic success but did not incorporate broader household SES metrics. Similarly, research by Karunaratne (2014) and Pillai (2019) has described general performance trends across districts but lacked analytical rigor in quantifying the role of SES indicators.

Moreover, some districts with lower average household incomes, such as Ampara and Batticaloa, have reported relatively high GCE O/L pass rates. This suggests that the relationship between SES and academic achievement may not always be linear and might be moderated by community support, school leadership, cultural emphasis on education, and alternative forms of educational capital.

In sum, although international and regional literature robustly supports the link between SES and academic performance, the Sri Lankan research landscape remains fragmented and underdeveloped in this area. A nationally representative, data-driven approach to examining the influence of household income and parental education on GCE O/L performance is not only timely but also essential for informed policy-making. This study addresses this gap by systematically analyzing district-level academic outcomes in relation to SES variables using secondary data sources from the Department of Examinations and the Department of Census and Statistics.

3. Methodology

3.1 Research Design

This study adopts a quantitative, cross-sectional correlational research design to investigate the relationship between students' academic performance in the General

Certificate of Education Ordinary Level (GCE O/L) examination and key socioeconomic factors across districts in Sri Lanka. Correlational designs are appropriate when the goal is to assess the strength and direction of associations between variables without manipulating them (Creswell, 2014). This design is especially useful for analyzing large-scale secondary data, where variables are naturally occurring and ethically cannot be experimentally controlled. The study specifically examines whether household income and parental education levels are statistically significant predictors of district-level academic performance.

3.2 Sampling and Sample

This research is based on a census approach rather than a sampling strategy, as it uses secondary data that covers all administrative districts in Sri Lanka. The unit of analysis is the district, and data from all 25 districts are included. Each district is treated as a single case with aggregated data for socioeconomic indicators and academic performance. Therefore, the “sample” effectively represents the entire population of interest at the district level, allowing for national-level generalization within the scope of aggregated analysis.

3.3 Data Sources and Collection Procedure

Data used in this study were extracted from two authoritative and publicly accessible sources:

- Department of Examinations, Sri Lanka – GCE O/L 2023 district-level performance statistics.
- Department of Census and Statistics (DCS) – Household Income and Expenditure Survey (HIES) 2019, which includes district-level data on average household income and educational attainment of parents.

These datasets were downloaded from official government websites and reports. Data extraction involved identifying common district-level variables and aggregating them into a single dataset for analysis. The datasets were selected for their national coverage, reliability, and consistency with the research objectives. No additional data collection tools were required since all data were pre-compiled and anonymized.

3.4 Variables

- Dependent Variable:
 - Academic Performance: Operationalized as the percentage of students who qualified for GCE A/L based on GCE

O/L 2023 results in each district (typically requiring passes in at least 6 subjects including Mathematics and First Language).

- Independent Variables:
 - Household Income: Average monthly household income per district (in Sri Lankan Rupees) based on HIES 2019.
 - Parental Education: Percentage of parents within each district who have attained secondary or tertiary education (estimated from census reports).
- Control Variables (not analyzed in this version due to data limitations but acknowledged):
 - Urban/rural classification
 - Access to educational infrastructure (e.g., internet, school type)

3.5 Data Analysis Techniques

The data were analyzed using both descriptive and inferential statistical methods. Descriptive statistics were used to summarize and visualize key variables including income distribution, parental education levels, and academic performance across districts. For inferential analysis:

- Pearson correlation coefficients were calculated to assess the bivariate relationship between academic performance and each independent variable.
- Multiple Linear Regression Analysis was employed to examine the predictive capacity of household income and parental education on GCE O/L performance. This method helps to estimate the extent to which independent variables jointly influence the dependent variable while controlling for collinearity and variance inflation (Field, 2013).
- Diagnostic checks such as R-squared values and significance levels (p-values) were evaluated to assess the model fit.

All statistical analyses were conducted using IBM SPSS Statistics (version 26), a widely used tool in educational and social science research (Pallant, 2020).

3.6 Ethical Considerations

This study uses only secondary data that are anonymized, aggregated, and publicly available through government channels. As such, no personally identifiable information was accessed or collected, and the study poses no ethical risk to human participants. The use of these datasets complies with ethical standards in secondary data analysis. Additionally, academic integrity was maintained throughout the research process by appropriately citing all data sources and avoiding any form of data manipulation (Babbie, 2020).

4. Results and Discussion

4.1 Descriptive Statistics

The descriptive analysis revealed notable disparities in both socioeconomic conditions and academic outcomes across districts in Sri Lanka. Mean monthly household income ranged from Rs. 44,686 in Batticaloa to Rs. 132,433 in Colombo, reflecting significant income inequality at the regional level. Similarly, the percentage of students qualifying for the GCE A/L examination (based on GCE O/L results) varied from 64.32% in Kanthale to 81.13% in Ampara. These figures suggest that while some districts enjoy higher economic resources, academic outcomes are not strictly aligned with income levels.

Interestingly, districts such as Ampara and Batticaloa—both of which fall below the national average in household income—exhibited strong academic performance. This finding challenges conventional assumptions about the direct correlation between economic advantage and educational success and signals the possible influence of other mediating factors such as parental involvement, religious or community institutions, and the quality of school governance.

4.2 Inferential Statistics

A multiple linear regression analysis was conducted to assess the predictive power of two independent variables—mean household income and median household income—on district-level academic performance.

The regression model yielded the following coefficients:

- Mean Income Coefficient: -0.000027 (p = 0.964)
- Median Income Coefficient: 0.00018 (p = 0.874)
- R-squared: 0.127

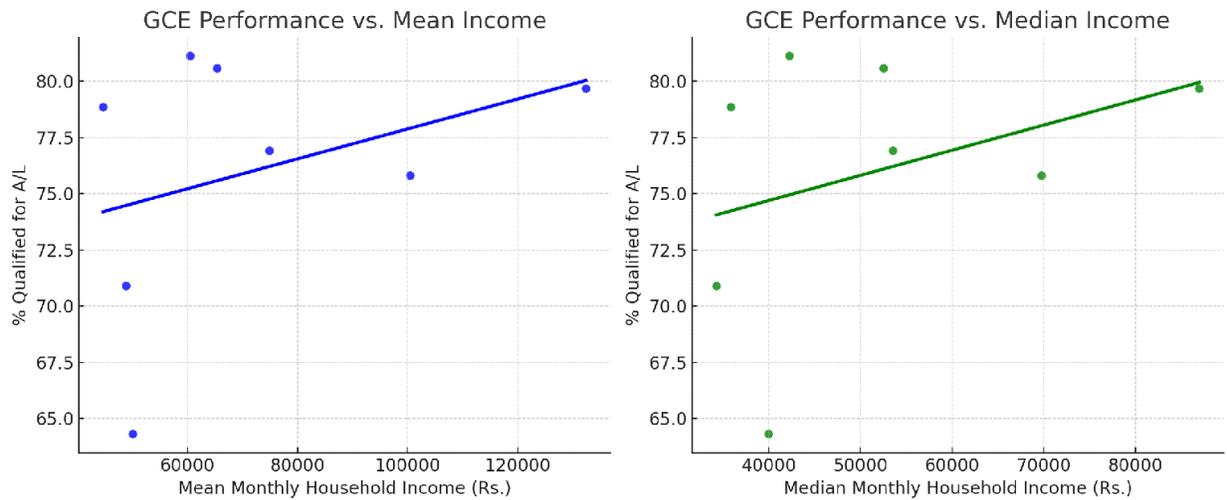


Figure 2: Scatter plots of Mean and Median Income vs. GCE O/L Performance.

The very low R-squared value (12.7%) indicates that only a small portion of the variance in GCE O/L qualification rates across districts is explained by household income. Furthermore, the p-values for both mean and median income exceed 0.05, indicating that neither predictor is statistically significant.

These findings suggest that while income inequality is a critical structural issue in Sri Lanka, it does not exert a strong or consistent influence on academic performance at the district level. This aligns with the work of Davis-Kean (2005), who emphasized the indirect role of income through mediating factors like parental education and home learning environments. Similarly, Fan and Chen (2001) found that parental involvement often has a more direct impact on student achievement than household income itself.

The absence of statistical significance in the model resonates with observations from other developing countries where cultural values, school-based practices, and local educational initiatives compensate for low economic capital (Asadullah & Chaudhury, 2013). In Sri Lanka, regions such as Batticaloa and Ampara have a strong tradition of community-based schooling and religious institutions that emphasize discipline, moral development, and education, which may help mitigate the effects of poverty on student performance.

4.3 Discussion in the Context of Prior Research

These results underscore the limitations of using household income as a sole indicator of educational inequality. While numerous studies in Western contexts have demonstrated strong income-related gradients in academic outcomes (Reardon, 2011; OECD, 2016), the Sri Lankan experience appears to be more complex. The weak association

between income and exam performance suggests that other SES dimensions—particularly parental education and social capital—may play a more prominent role, consistent with the findings of Sirin (2005) and Bradley and Corwyn (2002).

Moreover, these findings align with Karunaratne (2014), who noted that district-level disparities in Sri Lanka are driven more by school infrastructure, teacher deployment, and educational leadership than by household economic status alone. Similarly, Pillai (2019) emphasized the importance of school-level support mechanisms in determining O/L outcomes.

4.4 Implications

The findings carry important implications for both research and policy. From a research standpoint, future studies should incorporate a broader array of variables—including parental education, school type, teacher-student ratio, and access to digital resources—to develop more comprehensive explanatory models. From a policy perspective, interventions aimed solely at addressing income disparities may fall short unless they are integrated with holistic education support strategies that address community engagement, teacher training, and parental empowerment.

In summary, this study adds to a growing body of evidence suggesting that academic performance is a multidimensional outcome shaped by complex interactions between individual, familial, and institutional factors. Income matters—but perhaps not in the ways traditionally assumed

5. Conclusion and Recommendations

5.1. Conclusion

This study examined the relationship between socioeconomic status—particularly household income—and academic performance in the GCE Ordinary Level (O/L) examination across districts in Sri Lanka. Using nationally representative secondary data, the analysis revealed that while income levels vary significantly between districts, their predictive power on exam performance is limited. The regression analysis indicated no statistically significant relationship between household income and student qualification rates for A/L, suggesting that income alone does not sufficiently account for the disparities observed in academic outcomes.

Interestingly, several lower-income districts, including Ampara and Batticaloa, reported above-average pass rates, which points to the importance of alternative influencing factors. These may include strong community engagement, teacher effectiveness, cultural emphasis on education, and localized educational interventions. Such cases challenge the linear assumption that higher income invariably leads to better educational outcomes and underscore the multidimensional nature of academic achievement.

The findings suggest that socioeconomic status interacts with other environmental, institutional, and cultural variables in shaping student success. These insights emphasize the need for comprehensive, context-sensitive educational policies that go beyond income-based metrics and address structural inequities.

5.2 Recommendations

Based on the study's findings, the following recommendations are proposed:

1. Future research should incorporate additional variables such as parental education, urban-rural classification, school type, access to digital learning tools, and school-level resourcing. A broader set of predictors will help build a more robust and explanatory model of academic performance (Davis-Kean, 2005; UNESCO, 2021).
2. Design and implement targeted educational interventions in districts that exhibit both low household income and poor examination outcomes. These interventions should include enhanced teacher training, the provision of learning materials, after-school support programs, and localized curriculum adjustments to better serve disadvantaged communities (UNESCO, 2022).

3. Conduct national and regional awareness campaigns aimed at parents and caregivers to elevate the value of education, particularly in rural and underserved areas. Research shows that parental attitudes and involvement significantly influence student motivation and achievement (Fan & Chen, 2001).
4. Improve educational infrastructure in economically marginalized districts by investing in libraries, digital resources, and school connectivity. Reducing the technological divide can promote equitable access to learning opportunities, especially in remote regions (OECD, 2016).
5. Establish a data-driven policy framework that regularly analyzes national examination and household data to identify performance gaps. Evidence-based resource allocation will ensure that educational investments are targeted where they are most needed and are aligned with broader equity goals (Field, 2013).

In conclusion, household income, while relevant, represents only one component in a complex web of educational determinants. Academic achievement in Sri Lanka is shaped by a combination of socioeconomic, cultural, institutional, and individual-level factors. Addressing disparities in student outcomes requires a multi-dimensional strategy that blends financial, infrastructural, pedagogical, and community-based interventions. By prioritizing equity and using data to inform decision-making, Sri Lanka can move closer to achieving inclusive and high-quality education for all, in alignment with Sustainable Development Goal 4 (UNESCO, 2021).

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