

IMPACT EVALUATION OF THE 'BOLSA DA MÃE' SOCIAL ASSISTANCE PROGRAM ON IMPROVING CHILDREN'S ACCESS TO EDUCATION AND HEALTH IN DILI, TIMOR-LESTE

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Abstract

Conditional Cash Transfer (CCT) programs have become a globally popular policy instrument for breaking the intergenerational cycle of poverty. In Timor-Leste, the 'Bolsa da Mãe' (Mother's Allowance) program was implemented with a similar objective, targeting the most vulnerable families within the nation's socio-economic structure. This study aims to quantitatively evaluate the impact of the Bolsa da Mãe program on improving access to education and health for children from beneficiary families in the urban area of Dili, a context with unique poverty dynamics. Using a quantitative approach with a quasi-experimental (non-equivalent control group) design, this research compares 400 households (200 beneficiaries and 200 non-beneficiaries) matched on key socio-economic characteristics to minimize selection bias. Data was collected through in-depth structured questionnaire surveys and triangulated with secondary data from school records and health center medical records for validation. Inferential data analysis was conducted using an independent samples t-test to compare the mean achievements between the two groups. The results show that the Bolsa da Mãe program has a statistically and practically significant positive impact. The average school attendance rate for children from beneficiary families reached 94.5%, a substantial difference of 13.3 percentage points compared to 81.2% in the non-beneficiary group ($p < 0.05$). In terms of health, 91% of children from beneficiary families had received complete basic immunizations, far exceeding the 75% figure in the non-beneficiary group ($p < 0.05$). These findings indicate that Bolsa da Mãe functions not only as a social safety net that mitigates economic shocks but also as an effective human capital investment tool at the household level. The primary recommendations are for the government to strengthen compliance monitoring mechanisms digitally to enhance efficiency and to consider integrating the program with complementary services, such as nutrition education and sanitation programs, to maximize long-term impacts on human development.

Keyword: Bolsa da Mãe, Conditional Cash Transfer, Education Access, Health Access, Impact Evaluation.

1. INTRODUCTION

Timor-Leste, as one of Asia's youngest nations, continues to grapple with significant challenges in post-conflict human development. Despite remarkable progress in building political stability and basic infrastructure, poverty and inequality remain central issues hindering the nation's progress toward its full potential. According to World Bank data (2021), approximately 41.8% of Timor-Leste's population lives below the national poverty line, with sharp disparities between urban and rural areas. This economic vulnerability has a direct and profound impact

on households' capacity to invest in the education and health of their children, which are the primary foundations of human capital and absolute prerequisites for inclusive and sustainable economic growth. Data from the National Statistics Directorate of Timor-Leste paints a clear picture of the strong correlation between economic status and human development achievements.

Table 1. Key Socio-Economic Indicators for Timor-Leste (2023)

Indicator	National Figure	Notes
Primary School Participation Rate	85%	Drops drastically to below 60% at the middle and high school levels, creating a skilled labor bottleneck.
Stunting Rate (Children under 5)	47.1%	One of the highest in the world, indicating chronic malnutrition that can cause permanent cognitive damage.
Access to Clean Water & Sanitation	73% (water) / 45% (sanitation)	A significant gap between urban and rural areas, becoming a major factor in communicable diseases like diarrhea in children.

Source: National Statistics Directorate of Timor-Leste & UNICEF Report (2023)

Recognizing this urgency, the Government of Timor-Leste, through the Ministry of Social Solidarity and Inclusion (MSSI), launched the Bolsa da Mãe program in 2008. This program is a flagship Conditional Cash Transfer (CCT) scheme that provides quarterly cash transfers to poor and vulnerable families. Targeting is based on poverty proxy data, with priority given to female-headed households, those with disabled members, or those with school-aged children and toddlers. The main conditions for receiving assistance are the fulfillment of obligations in health (routine pregnancy check-ups, child weighing and immunization) and education (ensuring a minimum of 85% school attendance each month).

Research on the effectiveness of CCTs is well-documented globally. A seminal study by Fiszbein and Schady (2009), which synthesized evidence from dozens of programs in Latin America, showed that CCTs consistently succeed in increasing school enrollment by 3-8 percentage points and the utilization of preventive health services by 10-25 percentage points. In Asia, research by Chaudhury et al. (2013) on the CCT program in the Philippines (Pantawid Pamilyang Pilipino Program) also found significant positive impacts, not only on school enrollment but also on reducing child labor by 7 percentage points. However, some studies also highlight context-specific implementation challenges. A qualitative study by Soares (2018) in Timor-Leste found that in its initial stages, the Bolsa da Mãe program faced serious obstacles in compliance verification due to limited administrative capacity and difficult outreach in remote rural areas, potentially weakening the effectiveness of the conditions.

Further quantitative research by Pereira & Gusmão (2021) in the rural district of Ermera provided evidence of mixed impacts; an 8% increase in school attendance was found, but there was no significant impact on children's nutritional status (measured by weight-for-age), highlighting the need for complementary interventions beyond cash transfers. Meanwhile, an analysis by Costa (2022) emphasized that program impacts can vary greatly between urban and rural contexts due to fundamental differences in service accessibility, economic structures, and social challenges. From this review, a clear research gap emerges. To date, there has been no specific, comprehensive, and up-to-date quantitative impact evaluation of the Bolsa da Mãe program in the urban context of Dili. The urgency of this research lies in Dili's unique characteristics as the capital: high population density, different urban poverty challenges (e.g., higher cost of living and reliance on the informal economy), and theoretically better service accessibility that is often hampered by non-medical costs such as transportation and higher opportunity costs. This study aims to fill that

gap by providing solid empirical evidence for policymakers to adjust strategies and allocate resources more effectively in the country's main urban center.

This theory, pioneered by Becker (1964), serves as the primary conceptual framework for CCT programs. It postulates that investments in individuals through education, health, and training are not merely consumptive costs but productive investments that enhance an individual's capabilities, productivity, and future income. Poverty is often seen as a cyclical "poverty trap," where poor families lack the resources to invest in their children's human capital, which in turn causes those children to remain poor as adults. Programs like Bolsa da Mãe are explicitly designed to break this cycle. By providing financial incentives linked to human capital investment behaviors, the program helps families overcome short-term liquidity constraints and encourages them to make choices that are optimal for their children's future and, in aggregate, for the long-term development of the country.

CCTs are social transfer programs that provide cash assistance to poor households on the condition that they comply with a set of predetermined behaviors (Fiszbein & Schady, 2009). These programs have two interconnected primary goals: (1) to reduce current poverty through direct income transfers (poverty mitigation effect), and (2) to break the intergenerational transmission of poverty by promoting human capital accumulation (developmental effect). The element of conditionality is the main distinguishing feature of CCTs from unconditional cash transfer schemes. However, this element is also a subject of debate. Proponents argue that conditions are necessary to address information failures (parents may not fully realize the long-term benefits of preventive services) and to ensure political accountability. On the other hand, critics argue that conditions can be paternalistic, administratively expensive to monitor, and potentially exclude the most vulnerable families who struggle to meet the requirements due to geographical or social constraints (de Janvry & Sadoulet, 2006).

Empirically, CCTs have proven highly effective in improving various education indicators. Cash assistance helps families cover direct costs (uniforms, books, transportation) and the opportunity cost of sending children to school, particularly by reducing the incentive for child labor (Chaudhury et al., 2013). However, their impact on learning outcomes (quality of education) is often more limited, suggesting that the increased demand for education must be matched by improvements on the supply side (quality of teachers and schools). In the health sector, cash assistance and conditions encourage the use of preventive health services, such as immunizations, nutrition check-ups, and prenatal visits, which are crucial for a child's development in the first 1000 days of life. These benefits not only improve a child's short-term health status but also contribute to better cognitive and physical development, which ultimately increases their productivity as adults.

2. METHOD

This study employed a quantitative approach with a quasi-experimental design, specifically a post-test-only non-equivalent control group design. This design was chosen as the most feasible alternative when randomization of program beneficiary allocation could not be performed for ethical and logistical reasons. The treatment group consisted of families receiving Bolsa da Mãe, while the control group comprised families registered in the unified database as poor and eligible but not yet

receiving program benefits. To mitigate potential bias, the selection of the control group was done very carefully to ensure comparability.

The research was conducted in several densely populated sub-districts in Dili, Timor-Leste, which have a high concentration of poor households. Field data collection was carried out from June to August 2024 to capture data within the same school period and health cycle. The target population was all poor households in Dili with school-aged children (6-15 years) and/or toddlers (0-5 years). The sample consisted of 400 households selected using purposive sampling with a matching method. This included 200 beneficiary households that had received assistance for at least one year (to ensure sufficient program exposure) and 200 non-beneficiary households. The matching process was based on key demographic and economic characteristics, such as the head of household's education level, number of family members (± 2), dependency ratio, and primary occupation type (formal/informal sector).

Primary data were collected through face-to-face surveys using a structured questionnaire. The questionnaire included modules on demographics, household assets and expenditures, and specific modules on school participation and healthcare utilization. Secondary data were used as a verification mechanism to enhance data validity. This included cross-checking attendance records from relevant schools and verifying the completeness of immunizations from children's health cards at the nearest health centers.

This study defined two main types of variables. The independent variable was the participation status in the Bolsa da Mãe program, coded as a categorical dummy variable (1=Beneficiary, 0=Non-Beneficiary). The dependent variables covered two main domains. First, education access was measured by three indicators: (a) school participation rate (whether a school-aged child is enrolled), (b) attendance rate (percentage of days present out of total effective school days in the last semester), and (c) dropout rate (whether a child dropped out of school in the last year). Second, health access was measured by: (a) complete basic immunization status according to the Timor-Leste Ministry of Health standards for toddlers, (b) frequency of visits to health posts for growth monitoring in the last 6 months, and (c) dietary diversity as a proxy for nutrition, measured by the frequency of animal protein consumption per week.

Data were analyzed using SPSS version 26. Descriptive statistics were used to map the sample characteristics. To test the program's impact hypothesis, an independent samples t-test was used to compare the means of the dependent variables between the beneficiary and non-beneficiary groups. The significance level was set at $\alpha = 0.05$. All participants gave verbal informed consent after the research objectives were explained. Data confidentiality was ensured by anonymizing all personal respondent information.

3. RESULT AND DISCUSSION

3.1 Respondent Characteristics

Demographic analysis indicated the success of the matching process. There were no statistically significant differences between the beneficiary and non-beneficiary groups in terms of key control variables: the average age of the head of household (42.3 vs. 43.1 years), the number of household members (5.6 vs. 5.8 people), and the percentage of household heads who did not complete primary

education (68% vs. 71%). This suggests that the two groups were reasonably comparable, strengthening the confidence that differences in the dependent variables can likely be attributed to the Bolsa da Mãe program intervention.

3.2 Impact on Education Access

The analysis results show that the Bolsa da Mãe program has a highly significant positive impact on various indicators of children's education access.

Table 2. Comparison of Education Indicators Between Beneficiary and Non-Beneficiary Groups

Education Indicator	Beneficiary Group (N=200)	Non-Beneficiary Group (N=200)	t-value	p-value
Average Attendance Rate (%)	94.5%	81.2%	7.842	< 0.001
Net Participation Rate (enrolled)	99.0%	95.5%	-	-
Dropout Rate (last year)	1.5%	6.0%	-	-

Source: Author's analysis

Based on Table 2, the most significant impact of the Bolsa da Mãe program is manifested in the drastic increase in the average student attendance rate, which is the foundation of all learning outcomes. The beneficiary group recorded a very high attendance rate of 94.5%, a figure far surpassing the non-beneficiary group's level of only 81.2%. This 13.3 percentage point difference is not only statistically valid with a p-value < 0.001, but it also has immense practical implications in the classroom. An attendance rate of 81.2% means a child is absent, on average, nearly one day every week, creating a cumulative learning deficit, disrupting the teacher's teaching rhythm, and complicating social interactions with peers. Conversely, 94.5% attendance indicates a stability that allows children to follow the curriculum fully. This suggests that the program effectively breaks down daily barriers—such as lack of transport fare, the urgent need to help parents work, or even the absence of a packed lunch—that often force children from low-income families to miss school. Thus, this finding is strong evidence that the program successfully keeps children within a consistent educational ecosystem.

In addition to significantly increasing attendance, the program has also proven to be a powerful defense against the risk of dropping out. The dropout rate in the beneficiary group was only 1.5%, an outstanding achievement that is four times lower than the 6.0% rate in the non-beneficiary group. This sharp difference underscores the crucial role of financial assistance as an economic safety net. This aid provides the stability families need to get through difficult times—such as when a family member falls ill or a harvest fails—without having to sacrifice a child's education. It changes the decision-making dynamics at the household level, where a child's education is no longer the first expenditure to be cut during a crisis. When this fact is combined with the already very high net participation rate (enrollment) of 99.0%, it becomes clear that the program has a dual impact: it not only succeeds in attracting children to enroll but, more importantly, it succeeds in keeping them on the educational path to completion.

The data in Table 2 provide a strong confirmation that a well-designed and well-targeted economic intervention like Bolsa da Mãe can address the root causes of educational access inequality. Direct cash assistance gives parents real financial flexibility to cover various essential costs that are often a heavy burden, from transportation, uniforms, and books to other small contributions required by the

school. More than just material aid, the program also reduces the psychological burden and economic stress on parents, allowing them to make better long-term choices for their children's future. By reducing the pressure to use children as an additional source of income, the program indirectly restores a child's right to learn and play. The program's success in drastically increasing attendance while suppressing the dropout rate demonstrates a highly effective intervention model, which functions not only as a poverty alleviation program but also as a strategic investment in human capital to break the intergenerational cycle of poverty.

3.3 Impact on Health Access

The Bolsa da Mãe program also demonstrated a strong and significant positive impact on the utilization of preventive healthcare services for children, which is key to long-term development.

Table 3. Comparison of Child Health Indicators Between Beneficiary and Non-Beneficiary Groups

Health Indicator	Beneficiary Group (N=200)	Non-Beneficiary Group (N=200)	t-value	p-value
Complete Basic Immunization Coverage	91.0%	75.0%	4.133	< 0.001
Average Visits to Health Facility (6 mos)	3.2 times	1.8 times	5.619	< 0.001
Animal Protein Consumption ($\geq 3x$ /week)	65.0%	48.0%	-	-

Source: Author's analysis

Based on the data in Table 3, the "Bolsa da Mãe" program shows statistically significant success in promoting health behavior changes among the beneficiary group. The 16 percentage point increase in complete basic immunization coverage (91% vs. 75%) and the nearly doubled frequency of visits to health facilities (average of 3.2 times vs. 1.8 times) constitute strong quantitative evidence. The p-value below 0.001 for both indicators confirms that the probability of this difference occurring by chance is extremely small. This means we can have very high confidence that this positive impact is a real result of the program's intervention, not just a random fluctuation. This success specifically confirms that the applied conditionality mechanism is highly effective in overcoming psychological and informational barriers, such as inertia or the tendency to procrastinate, as well as a lack of knowledge about the schedule and importance of preventive health services. The program acts as a powerful driver, motivating families to actively seek and utilize services that are crucial for the long-term development and protection of children from dangerous diseases.

Further analysis reveals a very important and strategic secondary impact: the improvement of child nutrition. Although not an explicit condition to be met, the beneficiary group showed a 17 percentage point increase in animal protein consumption (65% vs. 48%). This finding strongly suggests that the provided cash assistance offers the flexibility that empowers families to allocate it to what they consider their most urgent needs—in this case, purchasing high-nutrition food. Increased intake of animal protein is vital for children in their growing years, as it directly contributes to brain development, muscle formation, and strengthening the immune system. In the context of Timor-Leste's high rate of chronic stunting—a condition that can cause permanent cognitive damage and hinder productivity in adulthood—this impact on nutritional improvement holds a strategic value equal to, if not greater than, the fulfillment of health service conditions. This proves that the

program indirectly helps tackle the root cause of malnutrition, an achievement often difficult to realize through more rigid assistance programs.

Overall, the data present a comprehensive picture of the synergy and dual impact of this program. On one hand, the program successfully achieves its primary goal of increasing the use of health services through binding conditions, which effectively "steer" family behavior in a more positive direction. On the other hand, the program empowers families economically through cash assistance, giving them the resources and autonomy to make investment decisions beyond the requirements, such as improving their children's nutritional intake. This combination of behavioral nudging (through conditionality) and economic empowerment (through cash assistance) creates a virtuous cycle. The financial aid not only serves as a social safety net but is transformed into a real investment in human capital. By ensuring children are healthier and better nourished, the program lays a solid foundation for them to succeed in school and break the intergenerational cycle of poverty, making it a holistic and effective development intervention.

These findings from both domains cannot be viewed in isolation; they reinforce each other in a positive cycle. A child who receives better nutrition and is protected from diseases through immunization has the cognitive ability and physical energy to attend and perform better in school. Conversely, higher education, especially for girls, is globally correlated with better health outcomes for the next generation. The Bolsa da Mãe program, by simultaneously targeting these two fundamental pillars of human capital, creates a synergistic effect whose impact is far greater than the sum of its parts. The program not only provides aid but also actively shapes household behaviors and priorities to invest in the long-term future of their children.

The implications of this success in the urban context of Dili are significant. It demonstrates that the CCT model remains relevant and effective even in an environment where the cost of living is higher and economic pressures differ from those in rural areas. However, this success also highlights the program's dependence on the availability and quality of public services. The Bolsa da Mãe program succeeded in increasing the demand for education and health services. If this increased demand is not matched by improvements on the supply side—namely, quality schools, competent teachers, and well-equipped health centers—then the long-term impact on human capital accumulation could be limited. Therefore, the sustainability of this positive impact heavily depends on a broader government commitment to strengthening the entire public service system, a crucial point that needs to be the focus of future policy.

4. CONCLUSION

Based on a robust data analysis, this study concludes that the 'Bolsa da Mãe' social assistance program has a positive, statistically significant, and practically meaningful impact on improving access to education and health for children among poor families in Dili, Timor-Leste. The program is proven effective in substantially increasing school attendance rates (a 13.3 percentage point difference) and dramatically reducing dropout rates, while also increasing complete basic immunization coverage (a 16 percentage point difference) and the frequency of preventive healthcare utilization. This dual impact demonstrates that the Bolsa da Mãe program successfully achieves its objective as a policy instrument that effectively promotes human capital investment at the household level, which is a crucial

foundation for breaking the intergenerational cycle of poverty and building a stronger foundation for national development.

Based on the research findings, several policy and academic recommendations are proposed:

1. For the Government of Timor-Leste (MSSI): It is recommended not only to continue but also to expand the coverage of the Bolsa da Mãe program, with a focus on improving targeting accuracy. To enhance efficiency, the government should invest in a digital management information system (MIS) for real-time compliance monitoring, which would reduce administrative costs and improve accuracy. Furthermore, to maximize impact, the government should design mechanisms to integrate Bolsa da Mãe with complementary interventions, such as intensive nutrition counseling programs and community-level water, sanitation, and hygiene (WASH) programs.
2. For Future Researchers: Future research is advised to use a panel or longitudinal design to track the program's long-term impacts on more difficult-to-measure outcomes, such as academic achievement (test scores), nutritional status (anthropometric measurements like height-for-age), and parental aspirations for their children's education. Additionally, in-depth qualitative studies are needed to unpack the "black box" of the program's impact: how resource allocation decisions are made within the household, how the program affects women's empowerment, and what implementation challenges are perceived by beneficiaries and service providers on the ground.

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