

Counting the Costs: The Economic and Social Impact of School Dropout in Madagascar

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Abstract: *This article addresses the issue of the social cost of school dropout in Madagascar. Despite education being considered one of the main pillars of economic development, the dropout rate remains high, with approximately 1 in 9 children dropping out of school before completing their studies. The external effects of school dropout are significant and require a monetary evaluation, as young people who drop out often have difficulty finding stable and well-paid employment, which can harm their families and lead them into poverty and precariousness. In addition, young dropouts often struggle to integrate into society, which can result in significant costs for themselves, society, and the state. The article examines the different dimensions of the social cost of school dropout and evaluates the social costs of early school leaving by young dropouts. It also presents various strategies for combating school dropout and promoting academic success, taking into account the specificities of each situation. Using an economic approach, the article analyzes the direct and indirect costs of school dropout and explores the factors that contribute to dropping out of school.*

Keywords: school dropout, social cost, economic development, precariousness, employment, monetary evaluation, social integration.

1. Introduction

On a global scale, the overriding objective is to combat illiteracy and ensure that all individuals reaching the age of understanding have access to education, given that having a literate population is one of the fundamental building blocks for catalysing progress and emerging from the economic slowdown. Indeed, since the declaration of Education For All (EFA) in 1990 in Jomtien (Thailand), renewed in 2000 in Dakar (Senegal) and then in New York in 2015, all developing countries have sought at all costs to enrol their school-age populations and get them into school. Malagasy society is currently undergoing a profound socio-economic transformation. Like all developing countries in the world, it is also trying to keep up with the world's technological advances. Education is generally considered to be the most effective means of achieving this objective, prompting the relevant authorities to focus their efforts on improving the literacy and education rate, currently at 28%, with a prevalence of 26% among individuals aged between 15 and 49 (Bank, 2019). From this perspective, student success is clearly a priority. However, a more in-depth analysis of the drop-out rate reveals the persistence of obstacles to be overcome if these ambitious objectives are to be fully achieved. (Duflo, 2012). Education is a fundamental pillar of a nation's social, economic and cultural progress (Glewe & Kremer, 2006). Nevertheless, the school drop-out phenomenon is a major issue in Madagascar, where many children find themselves forced to abandon their educational path each year. The high drop-out rate in Madagascar highlights the need to implement effective education policies to encourage children to continue their studies and thus promote the country's sustainable development. The reasons

for dropping out of school in Madagascar are complex and multifaceted, ranging from economic and social difficulties to educational challenges. Despite the efforts of the government and international partners to improve access to education. According to the Malagasy Ministry of Education, the national drop-out rate in 2020 was 11.8%. This means that around 1 in 9 children dropped out of school before completing their studies. Dropping out of school is a complex issue that affects many young people in our society. Its social consequences are of great importance, both for the individuals concerned and for society as a whole. (Rumberger, 2011). When students drop out of education before completing a degree, it can trigger a series of cascading challenges with major social and economic implications, creating direct economic costs for individuals and the state alike. (Rumberger, 2011) (Heckman & et al., 2014)

2. Research Object

The purpose of this article is to examine the various dimensions of the social cost associated with dropping out of school, drawing in particular on the work of Belfield, Levin and Rosen, who have assessed the economic value of young people in situations of reduced opportunity. (Belfield, Levin, & Rosen, 2012). This exploration will be followed by an assessment of the socio-economic consequences of early school leaving among young dropouts, as highlighted by Cameron and Heckman's research on the equivalence of secondary school diplomas (Cameron & Heckman, 1993). This in-depth analysis will lead us to examine the educational trajectories and living standards of individuals who left the education system early, based on the work of

Rumberger, who studied the causes of early school leaving (Rumberger, 2011). Finally, we will present various strategies aimed at combating early school leaving and encouraging educational success. These strategies will be adapted to the specificities of each context, taking into account the recommendations made by these eminent researchers in the field of education.

Objectives

The main objectives of this study are to

- 1) Accurately estimate the social costs of dropping out of school
- 2) To analyze the factors contributing to the costs of dropping out of school
- 3) Compare the direct and indirect social costs of dropping out of school at individual, family and societal levels.

3. Literature Review

The work of Dussault and Lapointe examines the social costs associated with dropping out of school from an economic perspective. The study examines how dropping out of school can lead to lower future income, greater dependence on social assistance, and mental and physical health problems. The results of this study reaffirm the importance of investing in education and implementing strategies to prevent early school leaving and its negative social and economic consequences. (Dussault & Lapointe, 2015). Both authors highlighted the fact that dropping out of school has a negative economic impact on individuals, families and society as a whole. Both authors also argued that dropping out of school can lead to a loss of productivity and an impact on overall economic growth. According to a study conducted by Rumberger, the costs of dropping out of school are considerable (Rumberger, 2011). Young people who leave school early are more likely to experience financial difficulties and precarious employment. In addition, individuals who leave school before graduating are more likely to become poor adults. This situation also increases the risk of mental and physical health problems. They are also more likely to have negative interactions with the police and to come into conflict with the justice system. (Russel, Rumberger, & Katherine, 1998). These costs are also significant for society as a whole, as dropping out of school has negative effects on the economy, crime and public health. Other studies have also shown that the social cost of dropping out of school varies according to the individual characteristics of each student. For example, the costs are higher for students from disadvantaged backgrounds, for students with behavioural problems or for students with learning difficulties (Lecocq, Fortin, & Lessard, 2014). Another study conducted by Alex Romeo Suebang and Daouda Maingari at the Faculty of Arts, Letters and Humanities of the University of Yaoundé has shown that the costs of dropping out of school can be reduced by investing in education. The results of the study concluded that dropout prevention programmes, tutoring programmes and vocational training programmes can help to reduce the dropout rate and improve the quality of education. (Suebang & Maingari, 2021) Dropping out of school therefore has considerable social costs, both for individuals and for society as a whole. The individual characteristics of students can have an impact on these costs, but targeted education programs can help to

reduce them. It is therefore important to invest in education to prevent students dropping out and to improve their future prospects.

4. Methodology

4.1 Materials

Data from the Cisco in Port-Bergé on school dropouts in the Sofia region of Madagascar were used in the context of this study. To collect data from the parents of children who had dropped out of school in the Sofia region, we designed a questionnaire. This focused on the reasons for dropping out of school, the external effect on their personal and professional lives, and their psychological well-being. With regard to the rationale for choosing the study area, it is important to note that we deliberately selected the SOFIA region. This decision was based on a review of the various education policies implemented since independence. It is logical to focus on regions that are still evolving in terms of education. In this context, the Port-Bergé district stands out for its policy of improving education rates in recent years.

4.2 Methods

Sampling was carried out using a stratified random sampling method to select parents of children who had dropped out of school in the Sofia region of Madagascar. For the selection of participants, a set of 139 pupils from 45 separate households was included. On average, this represents around 3 children per household, which is below the national average fertility rate of 4.2 children per woman of childbearing age according to the World Bank in 2021. It should be noted that the number of children varies from one household to another, and these children come from both the urban and rural communes of Port-Bergé, as shown in the graph above.

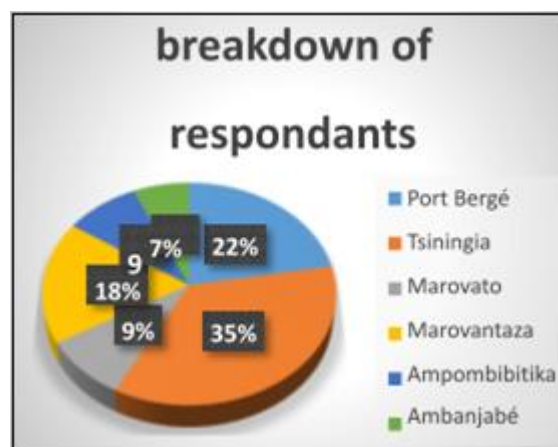


Figure 1: Breakdown of respondents

This graph shows the number of respondents in each commune, with variations ranging from 3 to 16 respondents per commune. The percentages indicate the share of each commune in the total number of respondents. The survey was carried out taking into account the distribution of the population in the region, which means that it was stratified to reflect this distribution.

5. Results

Numerous studies have been carried out to assess the cost of dropping out of school to the community. Most of these studies have been conducted in the context of the impact of dropout activities and are based on the evaluation of private and external cost studies.

5.1 Social cost

5.1.1 Types of costs included in the analysis

This assessment, encompassing society as a whole, takes account of both direct and indirect costs. Time constraints prevented us from extending this assessment to intangible costs and measuring the costs borne by the families of school leavers. In examining the costs associated with dropouts, it becomes clear that there are significant implications for society as a whole. These costs are spread across a range of stakeholders, from the dropouts themselves and their parents to local and regional authorities.

- **Direct costs:** Direct costs are the immediate expenses borne directly by the family of the pupil dropping out of school, including losses caused by truancy, in particular school fees and expenses linked to the acquisition of school supplies (Galang & Hospel, 2015).
- **Costs of direct consequences:** These include the financial losses accumulated over the years as a result of dropping out of school. These losses can also take the form of public costs in the form of grants and subsidies to support students in difficulty (Jones & Brown, 2018).

Equally important are the costs of indirect consequences. They include long-term disruptions such as unemployment, reduced future earnings and deterioration in quality of life for students who drop out (Johnson, 2019). In addition, these costs translate into lost savings, income and tax revenues that have an impact on society as a whole and on public finances (Adam, 2017).

The costs of intangible consequences are an essential element to consider. They include less tangible aspects such as depression, mental health problems, stress, loss of well-being, as well as social problems such as instability of social security (Brown & Wilson, 2021). As a result, dropping out of school has a direct financial impact on families (Smith, 2020) and generates long-term costs for society as a whole, affecting mental health (Brown & Wilson, 2021), well-being, and public resources (Jones & Brown, 2018; Adams, 2017; Johnson, 2019). It is therefore imperative to put in place measures to prevent early school leaving and its consequences.

5.1.2 Direct costs

As far as direct costs are concerned, the pupil himself, as a source of disruption and external effects in his environment, does not directly incur the costs of the externalities of his actions in the short term, so the method of estimating direct costs will take account of the direct costs incurred by the student's parents and guardians.

Table 1: Method of estimating schooling costs

School Fees	School Supplies	Annual Fees	Total
Public school	41000 Ariary	25000 Ariary	66000 Ariary

On average, a household spends around 66,000 Ariary per child attending school, according to INSTAT¹ data in 2013, compared with 38,589 Ariary in 2010, as indicated in the 2010 EPM². It is clear that this expenditure has changed significantly over the years, with variations depending on the level of education and the category of expenditure. However, for the purposes of this analysis, the amount of 66,000 Ariary will be taken into account for all levels, as mentioned above.

Valuations models

The Direct Cost for Parents (COD(P)) in the context of education is calculated by multiplying the Cost of Schooling (COSC) by the School Survival Year (SSA) and the Number of Cases (Ncas). This formula makes it possible to determine the direct financial burden borne by parents as a function of the cost of schooling, the duration of the student's schooling and the number of students concerned. The COD(P) therefore provides a measure of the specific expenditure incurred by families in educating their children.

Monetary estimation

As part of this study, we took into account a sample of 139 students who had dropped out of school.



Chart 1: Estimated direct cost

COD(P) = 4,290,000. Ariary for school survival of 5 years, 51,480,000 for school survival of 8 years and 41,184,000 for school survival of 15 years. In total, the direct cost of dropping out for the 45 parents is 92,994,000 Ariary. The method we have just described makes it possible to estimate the average cost of direct consequences of early school leaving for each year of school survival for our sample. The method we have just described makes it possible to estimate the average direct consequence cost of early school leaving for each year of school survival for our sample.

5.2 Indirect cost evaluation method

The evaluation of indirect costs will take into account the costs of losses due to exclusion as a result of difficulty in finding a job of any kind, costs linked to absenteeism (unemployment), for long periods in a job to generate income.

Estimated income gains

According to decree no. 2019-927 of the MFB (Ministry of Finance and Budget) in category M1, the Minimum Hiring Wage is set at 575,000 ariary, equivalent to 50 euros. To

¹ National Statistics Institute, ID Reference: MDG- INSTAT- ENSOMD-2012-2013

² Household survey

illustrate, let's assume that a person who has completed a middle-level education starts work at the age of 30 and continues until retirement age, which is 60. This person receives a monthly income of 500,000 ariary, which exceeds the Minimum Hiring Wage.

Evaluation model

$COI(EL) = S \times AT \times N_{cas}$

COI: Indirect Cost of Students S: Wages AT: Work Year

N_{cas} : Number of Case

Monetary estimation

$575000 \times 12 = 6.900.000$ Ariary

For early school leavers, this results in an estimated loss of at least 6,900,000 Ariary per year in potential earnings. This loss stems from their limited intellectual skills, excluding them from the formal labour market. Over a period of 30 years, corresponding to the period during which they could have worked, this loss amounts to a total of 207,000,000 Ariary. Overall, for the 139 individuals we examined, this translates into a total loss of 28,773,000,000 Ariary.

Monetary estimate of the loss to the State:

For ease of reference, and based on the calculation using Madagascar's income tax scale: in our simulation, the individual income salary is 575,000 Ariary per month, which falls into the 15% tax bracket.

Income tax is therefore calculated as follows

To calculate the payroll tax of 575,000 Ariary, we first deduct 1% for OSTIE³ (5,750 Ariary) and 1% for CNaPS⁴ (5,750 Ariary), giving a total of 563,500 Ariary.

Then we apply a 15% reduction. We make these calculations individually:

- Part (a) (less than 350,000 Ariary) is subject to a tax rate of 0%, so it is not taxed, i.e. 0 Ariary.
- Part (b) (between 350,001 Ariary and 400,000 Ariary) is subject to a rate of 5%. Therefore, (400,000 Ariary - 350,001 Ariary) x 5% = 49,999 Ariary x 5% = 2,499.95 Ariary, which we will round up to 2,500 Ariary.
- Part (d) (between 400,001 Ariary and 500,000 Ariary) is subject to a rate of 10%. Therefore, (500,000 Ariary - 400,001 Ariary) x 10% = 99,999 Ariary x 10% = 9,999.9 Ariary, which we will round up to 10,000 Ariary.
- Part (e) (between 500,001 Ariary and 563,500 Ariary) is subject to a rate of 15%. Therefore, (563,500 Ariary - 500,001 Ariary) x 15% = 63,499 Ariary x 15% = 9,524.85 Ariary, which we will round up to 9,525 Ariary.

By adding these amounts, we obtain the total IRSA⁵: 0 Ariary (Part a) + 2,500 Ariary (Part b) + 10,000 Ariary (Part d) + 9,525 Ariary (Part e) = 22,025 Ariary.

Therefore, for a monthly salary of 22025 Ariary, the income

tax payable would be 264300 Ariary for one year. Each individual in our sample will have to pay IRSA income tax rounded up to 264300 Ariary annually for the State during their working year, which is estimated at 30 years.

Model for assessing the indirect cost to the State

$COI(ET) = IR^6 \times ANT \times N_{cas} = 900000 \times 30 \times 139 = 3.753.000.000$ Ariary

5.3 Social cost calculation

Observing the facts, it is evident that the government loses 900,000 Ariary in taxes per year due to the 139 dropouts, which amounts to a total loss of 3,753,000,000 Ariary over a period of 30 years.

We have estimated both the direct and indirect costs of early school dropout for an individual above. We now add these two categories of costs to estimate the overall economic impact of each impact on society.

$COS = COD + COI$

$COS = COD (P) + [COI(EL) + COI(ET)]$

$COD(P) = 92.994.000$

$COI(EL) = 26.820.000.000$

$COI(ET) = 3.753.000.000$

$COS = 30.639.494.000$

In our analysis, school dropout generates a total social cost of 30.639.494.000 Ariary for our entire sample and the community.

6. Discussions and Recommendations

The results of our study on the social cost of early school dropout demonstrate that the social consequences of dropout are significant and diverse. Young dropouts often struggle to find stable and well-paying employment, which can lead to poverty and insecurity. Furthermore, these young individuals often face difficulties in integrating into society, resulting in substantial societal costs in terms of crime and security.

By analyzing the educational trajectories and living standards of individuals who leave school prematurely, we have also found that the socio-economic costs of school dropout are high. Dropouts have lower incomes, are more likely to rely on social assistance, and experience lower levels of health compared to those who complete their education. To combat school dropout and promote educational success, we have identified various strategies such as adapting school programs to meet students' needs, creating a supportive learning environment, improving the socio-economic conditions of students, raising awareness among families and communities about the importance of education, and fostering collaboration among different stakeholders in the educational system.

In this context, our study underscores the importance of addressing school dropout for the socio-economic development of a country. Therefore, we recommend continuing efforts to enhance access to education and reduce

³ Inter-Enterprise Tananarivian Health Organization

⁴ National Provident Fund.

⁵ Tax on Wage and Salary Income

⁶ Income Tax

the school dropout rate using strategies tailored to the specific circumstances of each context.

7. Conclusion

In conclusion, the social cost of early school dropout in Madagascar is a pressing issue with wide-ranging and profound implications for individuals and society as a whole. Our study has shed light on the significant economic and social burdens that result from students leaving school prematurely. These consequences include reduced earning potential, increased reliance on social support systems, and adverse effects on physical and mental health.

To address these challenges, it is imperative for Madagascar and similar developing nations to prioritize education as a means of fostering economic growth and social progress. Strategies aimed at preventing school dropout and promoting academic success must be tailored to the unique circumstances of each region. These strategies should encompass improvements in educational programs, the creation of supportive learning environments, and efforts to enhance the socio-economic conditions of students.

In essence, our research underscores the critical importance of investing in education and addressing the root causes of early school leaving. By doing so, we can not only mitigate the substantial social costs associated with school dropout but also pave the way for a brighter and more prosperous future for individuals and nations alike.

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