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Do Educational Expenditures Influence The Relative Gap Of Monetary Poverty Among Households In Benin?

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Abstract
This study investigates the effect of educational expenditures on the relative monetary poverty gap among Beninese households, measured as the difference between a household's standard of living and the national poverty line. Using a Fractional Regression Model (FRM)—with robustness checks performed via a Generalized Linear Model (GLM)—the analysis leverages data from the Harmonized Survey on Household Living Conditions (EHCVM 2022). Beyond educational spending, the research explores socioeconomic and cultural factors that shape the depth of relative poverty among households burdened by education costs. The results indicate that expenditures on private or mixed (public-private) education, the ratio of enrolled children to household size, and exposure to economic shocks are all positively correlated with a widening of the relative monetary poverty gap. These findings underscore a key policy challenge: balancing the need to mitigate the immediate financial strain of education on vulnerable households while ensuring inclusive and equitable access to schooling as a long-term strategy to disrupt the intergenerational cycle of poverty.

Keywords: Educational expenditures; Relative poverty gap; Monetary poverty; FRM model; Vulnerable households

Introduction

Poverty, positioned at the forefront of the United Nations' Sustainable Development Goals (UN, 2015), persists as one of the most formidable humanitarian challenges of our time. Its eradication remains a paramount objective for nations worldwide. In recent decades, education has been increasingly championed as a pivotal mechanism for addressing this challenge. Prominent international institutions—such as the World Bank, the International Monetary Fund (IMF), and the United Nations—emphatically advocate for education as a cornerstone of poverty alleviation and economic development (Lauwerier, 2017). Empirical evidence suggests that nations with higher levels of human capital exhibit more pronounced reductions in poverty compared to those with lower educational attainment. For instance, between 1990 and 2015, the expansion of school enrollment across Africa contributed to a decline in poverty rates from 54% to 41% (World Bank, 2018). Consequently, investment in human capital has ascended as a strategic priority in the global campaign against poverty (Beegle & Christiaensen, 2019).

The growing prominence of education within poverty-reduction strategies is rooted in human capital theory, which seeks to quantify the economic returns of knowledge and skills. Seminal works by Schultz (1961), Becker (1962), and Mincer (1974) conceptualize education as an investment—both temporal and financial—made by individuals, households, and the state, with anticipated future dividends. Within this paradigm, education is posited as a medium- to long-term investment, underscoring the imperative to prioritize schooling, particularly for children.

Beyond its economic ramifications, education serves as a catalyst for individual and societal empowerment, equipping individuals with the skills necessary to enhance their livelihoods and those of their families. It augments labor productivity, elevates living standards, and lays the groundwork for sustained economic development. Moreover, education fosters ancillary benefits, including higher incomes, improved health outcomes, gender equity, and environmental sustainability (Dupont, 2023; Dupont & Martin, 2023; Bernard

& Meunier, 2023; Lopez, 2022; Feinstein & Mach, 2020; Leal & Hemstock, 2019; Beegle et al., 2016; Koné, 2016).

The scholarly consensus affirms that human capital investment is not only a driver of economic growth (Lucas, 1988; Romer, 1990) but also a strategic instrument for poverty reduction (Nguyen, 2023; Gomez, 2021; World Bank, 2018). A robust body of empirical research corroborates the positive association between educational attainment and poverty alleviation (Carcillo et al., 2017; Sohns & Diez, 2017; Dey, 2018; David, 2019; Yang & Guo, 2020).

As a result, expanding access to education has become a central tenet of development agendasin nations pursuing both economic advancement and social welfare improvements (Ndoye, 2023; Tcham & Kouadio, 2022; Diouf, 2021; Bourdon et al., 2019; Magnan et al., 2017). Notably, the most substantial increases in school enrollment have been observed in the world's poorest countries (Bidias, 2024), reflecting a concerted commitment to leveraging human capital as a pathway out of poverty.

In Sub-Saharan Africa, gross enrollment rates (GER) exhibit marked disparities across educational levels. As of 2023, primary-level GER stood at approximately 102%, a figure inflated by high rates of grade repetition and delayed entry (World Bank, 2023; UNESCO, 2024). Secondary enrollment, however, lags significantly at around 50%. Intriguingly, the region has achieved an average annual growth rate of 4.30% in tertiary enrollment, surpassing the global average of 2.80% (Bidias, 2024; Darvas et al., 2017).

Despite these advancements, the escalating demand for education has strained public institutions, resulting in overcrowded classrooms and universities due to persistent shortfalls in public infrastructure and resources (Ngouabi, 2023; Sow, 2022; Niane, 2022; Dia, 2021; Kouamé, 2020; Ouedraogo, 2020; Tshibanda & Mbadu, 2019; Zongo, 2018). In response, governments have increasingly encouraged private-sector participation in education to absorb excess demand and sustain quality (Niane, 2022; Dia, 2021; Kouamé, 2020).

This shift has engendered the rise of a capitalist education model, wherein schooling is commodified and marketed to households (Dupont & Lefebvre, 2023; Bernard & Roux, 2022; Laval et al., 2012). Consequently, the financial burden on families has intensified, with many allocating up to 30% of their budgets to education—despite nominal commitments to free primary education (World Bank, 2022). A 2012 Pôle de Dakar study spanning 15 Sub-Saharan African countries revealed that household contributions accounted for an average of 46% of total national education expenditures (AFD, 2018).

Today, this trend endures, with households incurring substantial costs to access basic education in contexts where wages and incomes are often institutionally determined rather than market-driven (Omondi & Otieno, 2023; Moyo & Dube, 2022; Ngugi & Kamau, 2021; Cockx & Francken, 2014, 2016; Fleischhauer, 2007). Despite financial constraints, parents prioritize education, frequently reallocating expenditures from other essential needs, thereby eroding their standard of living (Kpodar & Mosley, 2020; Chu, 2008; Lei, 2005; Gustafsson & Li, 2004). Thus, education-related costs have emerged as a potential catalyst for household vulnerability, exacerbating poverty among already marginalized populations (WHO, 2015).

In health economics, the impoverishing effects of out-of-pocket healthcare expenditures are well-documented (Whitehead et al., 2001; Xu, 2005; WHO, 2013). A parallel phenomenon may be unfolding in education, particularly where households face prohibitive costs.

In Benin, households devote 15% to 35% of total expenditures to education (World Bank, 2023). Public secondary education alone incurs annual costs of USD 155.5 to 350—a significant burden in a nation with a per capita GDP of approximately USD 1,300 (World Bank, 2023). Private education fees range from USD 378.4 to 1,371.3 annually, spanning preschool to tertiary levels. These expenditures not only strain budgets but also exacerbate inequality: the wealthiest quintile spends five times more on education than the poorest (Dossou et al., 2023).

Meanwhile, trends in monetary poverty remain stagnant. In 2024, Benin's poverty rate reached 38.5%, a marginal increase from 36.3% in 2004 (TBS-Benin, 2010; World Bank & INSAE, 2024), suggesting limited progress despite educational expansion.

Furthermore, 61.8% of Beninese households routinely endure adverse economic shocks, particularly price surges for essentials (AGVSAN, 2017). Within this precarious context, the constitutional mandate for free primary education (Article 13) contrasts starkly with reality, as households shoulder substantial costs, often at the expense of their welfare.

This study addresses a critical, policy-relevant question: To what extent do educational expenditures influence the relative poverty gap among financially burdened households? Specifically, it quantifies the

effect of education costs on the relative monetary poverty gap, focusing on households whose resources are severely constrained by such expenditures.
The paper proceeds as follows: Section 1 adapts the methodological framework of Wagstaff and Doorslaer (2003) to identify households impoverished by education costs. Section 2 outlines the analytical models and estimation strategies. Section 3presents and interprets the empirical findings. Finally. Section 4concludes with policy recommendations derived from the analysis.

1. Theoretical Approaches to Poverty Measurement and Identifying the Poor

1.1 Theoretical Framework for Poverty Measurement

The conceptualization of poverty varies substantially across economic schools of thought. Nevertheless, two dominant theoretical paradigms have historically framed poverty discourse: utilitarian perspectives and non-utilitarian approaches, particularly those rooted in basic needs and capabilities frameworks.
This study employs a monetary approach to poverty measurement, utilizing consumption expenditures as its foundational metric. The rationale for adopting consumption-based monetary poverty analysis rests upon four principal arguments: (i) Welfare proximity: Consumption expenditures more accurately reflect household well- being than income measures, as income fundamentally serves to finance such expenditures; (ii) Temporal and spatial stability: Household consumption patterns demonstrate greater consistency across time and geographical contexts compared to income fluctuations; (iii) Measurement reliability: Expenditure data proves more empirically tractable than income reporting, as households typically exhibit greater willingness to disclose spending behaviors than income sources; (iv) Strategic insight: Consumption analysis reveals critical household coping mechanisms (e.g., subsistence production) and facilitates identification of in-kind or cash transfer benefits.

1.2 Identifying the Poor Using the Wagstaff and Doorslaer Approach

The economic literature demonstrates considerable methodological diversity in establishing monetary poverty lines (Deaton, 1997; Ravallion & Bidani, 1994; Ravallion, 1994; Wodon, 1997a). The selection of measurement methodology exerts significant influence on both poverty estimates and the identification of individuals falling below the poverty threshold. Establishing robust poverty lines that ensure welfare comparability across temporal and spatial dimensions therefore represents a critical methodological consideration.
The adopted methodology for determining the monetary poverty threshold incorporates two fundamental components: (1) a food expenditure component and (2) a non-food expenditure component (covering essential needs). The aggregation of these components yields the comprehensive monetary poverty threshold (INStaD; EHCVM, 2022). Application of this methodology in the Beninese context yields an estimated poverty threshold of 638.2 USD for 2022 (INStaD, 2023).
While this conventional monetary poverty metric remains widely employed across developing nations, including Benin, it necessitates adjustment to account for household expenditures on human capital investments, particularly in health and education (Houéninvo, 2014; Wagstaff & Doorslaer, 2003). Empirical evidence demonstrates that households frequently resort to asset liquidation or debt accumulation to finance children's education and healthcare (Kim & Yang, 2010), while others implement consumption rationing strategies - reducing expenditures on food, clothing, utilities, and other essentials (Knaul et al., 2013).
These critical dimensions remain unaddressed in standard poverty measurement frameworks. The imperative for methodological adjustment becomes particularly salient in Benin's context, where households face elevated poverty vulnerability risks while simultaneously bearing legal obligations for universal school enrollment - mandated both nationally (through constitutional provisions) and internationally (via the SDG framework's "Education for All" agenda).
This study operationalizes the Wagstaff and Doorslaer (2003) methodology to evaluate the impoverishment effects of educational expenditures. The approach advocates poverty assessment following deduction of human capital investment expenditures (health and education) from household resources (Wilkinson & Peters, 2015; Houéninvo, 2014; Peters et al., 2008). Standard methodologies may produce distorted poverty classifications when:

1. Non-discretionary educational expenditures artificially inflate total consumption above poverty thresholds, resulting in false non-poor classifications;

2. Asset-depleting strategies to finance education maintain nominal consumption levels while eroding long-term economic resilience.
   To mitigate these measurement artifacts and prevent systematic poverty underestimation, we implement an adjusted poverty metric incorporating educational expenditure burdens.

Figure 1, illustrating the impoverishing effect of household educational expenditures derived from the Wagstaff and Doorslaer (2003) approach, is presented below.

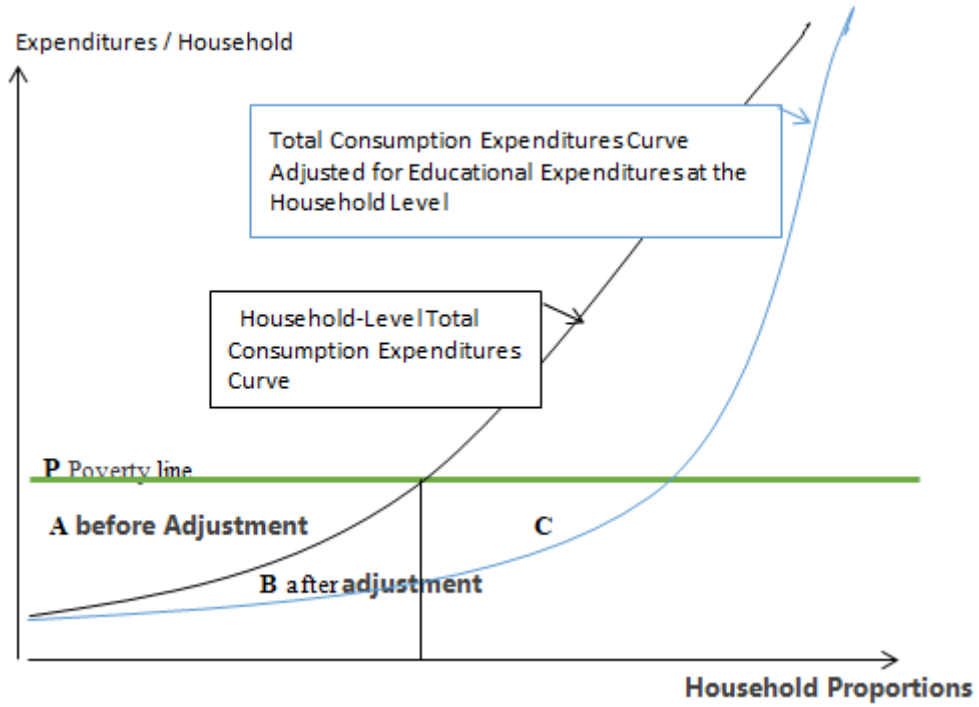

Figure 1: Determination of Households Impoverished by Educational Expenses
Source : Wagstaff et Doorslaer (2003)

Graphical Representation of Educational Expenditure Impacts on Poverty Measurement
The vertical axis represents two distinct measures of household consumption:
1. Gross consumption expenditures inclusive of educational costs (pre-adjustment)
2. Net consumption expenditures following deduction of educational expenses (post-adjustment)

The horizontal axis displays the cumulative distribution of households, ordered by their gross consumption expenditure levels. The intersection point between the poverty threshold and the gross consumption curve, when projected onto the horizontal axis, yields the baseline poverty headcount ratio (P_0).
The poverty gap decomposition reveals:
- The initial aggregate poverty gap corresponds to area A
- Following expenditure adjustment, the comprehensive relative poverty gap expands to encompass areas (A + B + C)

This adjustment produces two measurable effects:
1. Depth intensification: Existing poor households experience increased deprivation severity (quantified by area B)
2. Incidence expansion: Additional households are reclassified as poor (represented by area C)
   Mathematically, the adjustment impacts can be expressed as:
   ΔHeadcount = (P_1 - P_0)
   ΔPoverty Gap = (B + C)

Where:
P_0 = Pre-adjustment poverty headcount
P_1 = Post-adjustment poverty headcount
The mechanism underlying these changes operates through:

1. Consumption depression: Educational expenditures reduce disposable resources for originally poor households (B)
2. Poverty threshold crossing: Marginal households fall below the poverty line after education cost accounting (C).

2.Methods for Analyzing the Effect of Educational Expenses on Household Monetary Poverty Gaps

This section outlines the analytical framework and the selection of empirical models to evaluate the impact of educational expenses allocated to children. A specification test is performed to assess the robustness of the Fractional Response Model (FRM) parameters using the Generalized Linear Model (GLM).

2.1. Analytical Framework for the Effect of Educational Expenses on Household Poverty Gaps

To assess the effect of educational expenses on household monetary poverty gaps, we quantify the poverty gap for each household by considering not only the number of poor households but also the shortfall between their consumption expenditures and the poverty line, using the Foster-Greer-Thorbecke (FGT) class of indicators as the variable of interest. This "poverty gap" variable is a proportion, defined and observed strictly within the standard unit interval $(0 < grp < 1)$ (values between 0 and 1).

This variable of interest does not satisfy the assumptions of Ordinary Least Squares (OLS), which require normally distributed errors and constant variance. According to Wajnberg (2011), two key reasons justify avoiding OLS: (1) Distributional Incompatibility: The dependent variable's values are confined to the interval [0, 1] by definition. However, a general linear model may predict values outside this range. Furthermore, assuming normality for the dependent variable (and its error term) implies symmetry around the mean, which is unlikely to hold here ; (2) Linearity Assumption: OLS assumes explanatory variables have a linear effect on the dependent variable (via regression coefficients). In reality, these effects may be nonlinear.

To address these issues, several solutions exist. The most common involves mathematically transforming the dependent variable to approximate normality and stabilize variances. However, such transformations are not always effective, and their normalizing impact can be difficult to quantify. Moreover, using raw data is preferable for ease of interpretation. A model that circumvents the limitations of linear models in economic research is the Fractional Response Model (FRM) (Papke and Wooldridge, 1996). This framework allows us to analyze the fractional regression methodology to examine the poverty gap.

2.2. Fractional Regression Model (FRM)

In many economic contexts where the dependent variable (grp) is a proportion defined and observed strictly within the standard unit interval [0, 1], Papke and Wooldridge (1996) propose the use of the Fractional Regression Model (FRM) for modeling. Our dependent variable the relative monetary poverty gap of households, denoted as (grp) is fractional data that fulfills the conditions outlined by Papke and Wooldridge (1996).The correct specification of the conditional mean of this dependent variable is a critical assumption for the validity of any regression model. In this framework, the authors assume a functional form for the relative monetary poverty gap that imposes desired constraints on the conditional mean of the dependent variable, as follows:

$E(grp \mid X) = G(Xi\beta)$ avec i =1…..N (1)

where G(•) is a known nonlinear function satisfying $0 < G(\bullet) < 1$. Papke and Wooldridge (1996) suggest using any cumulative distribution function as a possible specification for G(•). Therefore, the logistic function is a valid choice for G(•) :

$$E(grp/X) = \frac{e^{x\beta}}{1+e^{x\beta}} \quad (2)$$

However, instead of being linearized first, the model defined by (1) is now estimated directly using nonlinear techniques. Papke and Wooldridge (1996) showed that although consistent estimators (beta) can be obtained by estimating (1) via nonlinear least squares, it is more efficient to assume a Bernoulli distribution for the dependent variable (grp) conditional on (X), and to estimate the parameters (beta) in (1) by maximizing the quasi-likelihood function:

$L_i(\beta) = (grp_i \log [G(X_i\beta)] + (1 - grp_i) \log [1 - G(X_i\beta)]$ (3).

Indeed, since the Bernoulli distribution is a member of the linear exponential family, the resulting quasi-maximum likelihood (QML) estimator for (beta) will remain consistent regardless of the true conditional

distribution of (grp) given (X), provided that (1) is correctly specified (see Gourieroux, Monfort, and Trognon, 1984, for details).
In practice, since the Bernoulli distribution cannot in any case represent the true conditional distribution of the ratios, robust standard errors must be used.
In this article, the fractional response model (FRM) proposed by Papke and Wooldridge (1996) is employed to handle our dependent variable (grp), which is defined on the unit interval.

2.3. Robustness Check of the Estimation

Econometric tests are required to ensure the robustness of the results obtained from estimating the fractional regression model (FRM). According to Papke and Wooldridge (1996), a superior alternative for testing the robustness of the parameters in the fractional regression model is to estimate it using the Generalized Linear Model (GLM). This approach is adopted in this paper. Following the analysis methodology, we present the data sources and variables used in this study.

2.4. Data Sources and Construction of Analysis Variables

2.4.1. Data Sources

This paper uses data from the Household Consumption and Living Conditions Survey (EHCVM) conducted by the National Institute of Statistics and Demography (INStaD) in 2022. The survey covers a total of 14,435 households distributed across the entire national territory (6,528 in urban areas across 251 clusters and 7,907 in rural areas across 304 clusters). For each surveyed household, information was collected on:
- The legal status of schools attended by children (public; private);
- Educational expenses borne by households;
- The ratio of enrolled children per household;
- Total annual consumption expenditures;
- Among other variables.

Additionally, the dataset provides sociodemographic and cultural characteristics of household heads.

2.4.2. Construction of Analysis Variables

The analysis variables include two categories: the dependent variable (or explained variable) and the independent variables (or explanatory variables).

The Dependent Variable

The dependent variable in this study is "grp," represented by the relative monetary poverty gap of households subject to educational expenses for children. This variable measures the relative gap in consumption expenditures between poor households and the poverty line. In line with the analytical method described above, this variable is a proportion, with values ranging between 0 and 1.

Explanatory Variables

The explanatory variables include two categories: the variable of interest, represented by educational expenses disaggregated by the types of schools to which the expenses are linked, and the control variables.

The Variable of Interest

As the variable of interest in this analysis, educational expenses associated with school types are a qualitative variable with three categories (public schools, private schools, and a combination of both types of schools attended by the household's children). Drawing on insights from the literature on children's schooling in general, it is important to note that education is an investment and thus requires upfront expenditures. These expenses, which vary depending on the legal status of the schools attended by the household's children, the number of children enrolled in schooling within the household, and the education level of the children, could affect the household's short-term well-being. This literature-based understanding leads us to hypothesize a positive effect of educational expenses linked to school types on the monetary poverty gap. If the educational expenses faced by the household are excessive, they could push vulnerable households into monetary poverty or widen the relative expenditure gap between the poor and the poverty line in the short term.

Control Variables

In addition to the variable of school type attended by the household's children, the following variables - commonly included in the analysis model to refine estimation results - are:

- The share of educational expenses in the household's total consumption expenditures;
- Household size;
- The ratio of enrolled children to household size, which reflects the household's enrollment effort;
- Economic covariate shocks experienced by the household;
- The gender and education level of the household head.

3. Presentation and Analysis of Results

3.1. Descriptive Statistics

The descriptive analysis of the dataset of households affected by educational expenses for their children reveals that approximately 64% of these households have a size of at least 6 members. Furthermore, 51% of these households enrolled their children in private schools/universities, compared to approximately 40% in public schools and 10% in both public and private schools/universities simultaneously. The average educational expenditure for children amounts to 871 US dollars, with a maximum of 2,897.7 US dollars. Regarding household vulnerability, the descriptive statistics show that 55 % of the studied households experience shocks, particularly economic ones. Focusing on the education level of the household head, the results indicate that 52 % have no formal education, while 26% and 22% have primary and secondary education levels, respectively.

Table 1 : Below illustrates the results of the descriptive statistics.

Variables	Obs	Fréq	Pourcent	Cumul
Household size	594			
[2 4[		58	9.76	9.76
[4 6[		159	26.77	36.53
6 or more		377	63.47	100.00
Expenses by School Type	594			
Expenses by School public		231	38.89	38.89
Expenses by School private		303	51.01	89.50
Expenses by School (Public+ private)		60	10.10	100.00
Household Head's Education Level	594	309	52.02	52.02
No formal education		157	26.43	78.45
Primary		128	21.55	100.00
Secondary				
Gender of the household head				
Male	594			
Female		320	53.87	53.87
Economic shocks		274	46.13	100.00
Yes	594			
No		329	55.39	55.39
Household educational expenses		265	44.61	100.00
	594	**Mean**	**Std.Dev.**	**Min Max**
Data Sources : EHCVM,2022		784US	352US	35US 2608 US

In addition to the analysis of statistical results, we conduct an explanatory analysis using the estimation of the FRM model to quantify the effect of educational expenses on the monetary poverty gap of households enrolling their children in private schools/universities; public schools/universities; and both private and public schools/universities simultaneously.

3.2. Estimation Results, Analyses, and Discussions

The estimation of the fractional regression model (FRM) on the 2022 EHCVM data allowed us to derive coefficients reflecting the effect of each explanatory variable on the relative monetary poverty gap of households facing educational expenses across different schools / universities, as presented in Table 2.

Table 2: FRM and GLM Estimation Results

	(Modèl frm)	(Modèl glm)
VARIABLES	Grp (**poverty gap**)	Grp (**poverty gap**)
Educational expenses / household consumption expenditures (P_ED)	0,722***	0.682***
	(0.438)	(0.0567)
Male household head	0.0380	0.0102
	(0.0972)	(0.0209)
Female household head	-	-
Household size	0.191**	0.0387**
	(0.0778)	(0.0158)
Economic shocks	0.362***	0.0698***
	(0.0883)	(0.0192)
Ratio of enrolled children to household size	0.258	0.0258
	(0.360)	(0.0781)
Household Head's Education Level : Secondary	0.230*	0.0476*
	(0.121)	(0.0266)
Household Head's Education Level Primary	0.326***	0.0638***
	(0.112)	(0.0232)
Household Head's Education Level : No formal education	-	-
Expenses by School (Public+ private)	0.510***	0.105***
	(0.157)	(0.0328)
Expenses by School private	0.473***	0.0935***
	(0.0975)	(0.0207)
Expenses by School public	-	-
Constant	2.505***	0.984***
	(0.306)	(0.0521)
Observations	594	594

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The estimation results of the FRM and GLM models reveal the factors influencing the relative monetary poverty gap of households burdened by educational expenses for their children. Among these factors are the educational expenses borne by households for their children's schooling in general, those associated with private or public schools/universities, and mixed institutions (both private and public simultaneously); the ratio of enrolled children to household size; and the economic covariate shocks experienced by households. Educational expenses allocated to children widen the relative monetary poverty gap of households, as they push their standard of living far below the subsistence level. Furthermore, the analysis of estimation results indicates that households incurring educational expenses for private or mixed schools/universities (both private and public) experience a significantly larger relative poverty gap compared to those facing educational expenses in public schools/universities.

- **Educational expenses influence the relative monetary poverty gap of households.**

The analysis of the results shows that households' educational expenses significantly affect their standard of living, pushing it further below the subsistence level. When the share of their educational expenses (P_ED) allocated to children increases by 1%, their relative poverty gap rises by 7.2%. Thus, excessive educational expenses faced by households positively impact their monetary poverty gap, either by making the poor poorer or pushing vulnerable households into poverty in the short term. In the literature, increased educational expenses borne by households have been shown to exacerbate financial precarity and heighten the risk of monetary poverty (Mansour & Ben Salem, 2022; García & Roldan, 2021; Kouamé, 2018). This is why households adopt coping strategies to manage these expenses, such as taking out loans, reducing consumption, or increasing working hours to fund education. According to Lemoine & Dupont (2022), nearly 35% of parents enrolling their children in private schools take out loans or cut essential spending (e.g., food, leisure, vacations). Indeed, private school tuition fees represent a significant portion of family budgets, forcing households to reduce other essential expenditures (healthcare, leisure, savings, etc.). Families allocating over 20% of their income to tuition fees diminish their capacity to save and access healthcare (Durand et al., 2023).

In Sub-Saharan African countries, excessive educational expenses borne by households explain or justify inequalities in access to education (Barro & Lee, 2021; Kouamé, 2018).This is why, to shield households from the likely risks of falling into monetary poverty and unequal access to schooling, some countries have adopted public study loan policies. Indeed, study loans granted to students alleviate financial pressure on families and contribute to household financial stability (Doe & Smith, 2021). Similarly, a comparative study of Latin America and Africa reveals that growing privatization of education exacerbates household distress (Djankov & Patrinos, 2022). This aligns with our estimation results, which indicate that households incurring educational expenses for private or mixed schools/universities (both public and private) are more likely to see their standard of living pushed far below the subsistence level compared to those burdened by educational expenses in public schools/universities. This probability increases by 4.7% and 5.1% in the FRM model at the 1% significance level, and by 1% in the GLM model, relative to households facing public educational expenses. Furthermore, households facing simultaneous educational expenses in both public and private schools/universities are 4.9% more likely to widen their relative monetary poverty gap compared to those subject to educational expenses in public institutions. In the literature, the phenomenon of mixed educational expenses faced by households today is explained by contexts such as supplementary education, academic reinforcement, equal opportunities, social distinction strategies, or specific educational policies (e.g., bridge classes or public-private partnerships). Indeed, dual enrollment choices reflect social and cultural distinction strategies aimed at maintaining a high social image or cultural capital (Bourdieu, 2022; Bouchard & Amant, 2022). For some, mixed enrollment allows for modular learning tailored to students' needs and broader access for children from disadvantaged backgrounds. For others, the growing trend of maximizing educational opportunities also reflects households' motivations to enroll children across public and private institutions (Razy, 2022; Laval, 2020). Additionally, practices of splitting students' enrollment between schools are emerging in Canada at the secondary level, where students attend academic classes in public schools and pursue sports/artistic training in private institutions (De Koninck, 2023).

- **Economic covariate shocks experienced by households affect their relative poverty gap**

In a context of deteriorating living standards and deepening social inequalities, households are likely to face shocks. In this study, descriptive statistics reveal that 55.4% of households experienced economic covariate shocks. Their inability to respond effectively to mitigate the effects of these shocks renders them vulnerable to monetary poverty. According to the literature, economic covariate shocks have profound effects on household consumption, as they exacerbate vulnerability to food insecurity and poverty (Bello, 2019; WB, 2013).

- **Number of enrolled children relative to household size affects the relative poverty gap of households**

The higher the number of enrolled children in the household, the greater the educational expenses. Consequently, the affected household's economic well-being is compromised, making it vulnerable to monetary poverty. The literature reflects a growing consensus on the negative effects of high education-related costs on the well-being of households in low- and middle-income countries. Rising education costs

linked to the number of enrolled children directly impact economic stability and the overall quality of life of families. According to Gningue (2022), rising education costs have a significant negative effect on household food consumption and mental health.

4. Conclusion and Policy Implications

In summary, educational expenses represent both an investment and a risk for vulnerable households. In the short term, they can exacerbate the relative monetary poverty gap, particularly for low-income households, by straining their available budgets. The financial effort required to ensure access to quality education may deepen economic inequalities. However, in the long term, education remains an essential lever for combating poverty, fostering social mobility, and improving living standards. It is therefore critical to implement effective public policies—such as financial assistance, scholarships, and partial tuition waivers—to mitigate the immediate impact of educational expenses on households while maximizing their positive effects on reducing structural poverty.

References

1. AFD (Agence Française de Développement) (2018) **:** L'éducation en Afrique Subsaharienne, Idées reçues ;
2. AGVSAN (2017) : Rapport sur l'analyse globale de la vulnérabilité, de la sécurité alimentaire et de la nutrition au Bénin
3. Banque Mondale (2018)**:** Poverty and Shared Prosperity 2018: Piecing Together the Poverty Puzzle. Washington, DC: World Bank;
4. **Banque mondiale(2022)** : *The Hidden Costs of Education: A Comparative Study in Sub-Saharan Africa*
5. Banque Mondiale (BM) (2018) : Une analyse des enjeux façonnant l'avenir économique de l'Afrique
6. Banque mondiale (2023) : Education Finance Watch (2023).
7. Banque mondiale (2013) : Gestion des risques et résilience des ménages.
8. **Barro, R., et Lee, J. (2021) :** *Household Education Expenditures and Socioeconomic outcomes*
9. Becker G. (1965): A Theory of the Allocation of Time the Economic Journal, Vol, 75, No, 299, pp, 493-517;
10. Becker G. (1981): A Treatise on the Family, Harvard University Press, Boston;
11. Beegle, K., & Christiaensen L. (2019): la réduction de la pauvreté.
12. Bernard, P. et Meunier, S. (2023): Compétences numériques et employabilité: un atout pour un emploi décent? Revue de la Formation et du Travail, 19(4), 143-159.
13. Bidias, R. (2024). Le Bureau international d'éducation et le développement de l'éducation en Afrique, des années 1960 au milieu des années 1990. Relations Internationales, 199(3), 65-79.
14. Bouchard, P. et St-Amant, J. (2022): École publique et école privée: vers une complémentarité éducative au Québec ;
15. Bourdieu, P. (réédition 2022): La distinction: critique sociale du jugement;
16. Bourdon, J., Froment, B., et Ndongo, C. (2019): Les disparités éducatives en Afrique *francophone: une approche statistique.* Économie de l'Éducation, 11(2), 99-120.
17. Carcillo S. Huillery E. et L'Horty Y. (2017) : Prévenir la pauvreté par l'emploi l'éducation et la mobilité ; Notes du conseil d'analyse ; 2017/4 n°40 Pges. 1-12 ;
18. Chakrabarti, R., et Livingston, M. (2019) : Parental Investment in Education and Long-Term Poverty Alleviation. The Journal of Human Resources, 54(2), 327-356. DOI ;
19. Chung, Y. S., et Choe, M. K. (2001): Sources of family income and expenditure on children's private, after-school education in Korea. International Journal of Consumer Studies, 25, 193–199 ;
20. Darvas P. Shang G. Yijun S. et Bilal B. (2017) : Enseignement supérieur et équité en Afrique subsaharienne : Élargir l'opportunité au-delà de l'élite. Directions du développement. Washington, DC : Banque mondiale. Doi : 10.1596/978-1-4648-1266-8. Licence : Créative Commons Attribution CC BY 3.0 IGO ;
21. David, A. (2019) : Réduire les inégalités. Policy Paper, 1-32 ;
22. De Koninck, Z. (2023) : Partage d'élèves entre écoles : pratiques émergentes au Canada

23. Dey, S. (2018): The Role of Employment Diversification in Reducing Vulnerability to Poverty among Marginal and Small-Holder Agricultural Households in India. Margin: The Journal of Applied Economic Research 12 (1): 88–112.doi:10.1177/0973801017740661 ;
24. Dia, M. (2021) : Massification universitaire et précarité des infrastructures au Sénégal ;
25. **Diouf, S. (2021) :** *Les défis de la gratuité scolaire au Sénégal: entre promesses et réalités.* Journal Africain de Sociologie de l'Éducation, 15(1), 78-99 ;
26. **Djankov, S., et Patrinos, H. A. (2022) :** *Private Education Spending and Household Stress in Developing Economies ;*
27. **Dossou et al. (2023)** : *Household Education Expenditure and Inequality in Benin"* (African Journal of Education and Practice)
28. Dupont, J., et Martin, L. (2023) : Éducation et insertion professionnelle : une analyse des disparités d'accès à l'emploi décent. Revue d'Économie Sociale, 15(2), 45-62 ;
29. Dupont, L**.** (2020) : Les dépenses éducatives et leur effet sur la pauvreté monétaire en Europe. Revue Française d'Économie, 35(4), 101-120. DOI ;
30. Dupont, M. (2023) : Investissement dans le capital humain et réduction de la pauvreté en Afrique. Revue d'Économie du Développement, 18(2), 56-74 ;
31. Feinstein, NW, et Mach, KJ (2020) : Trois rôles pour l'éducation dans l'adaptation au changement climatique. Politique climatique, 20 (3), 317-322 ;
32. Fleischhauer, K. J. (2007): The effects of pension reform on retirement and human capital formation. University of St. Gallen, Department of Economics, Discussion Paper, (2007-03).
33. Foster J. Greer J. et Thorbecke E. (1984): A Class of Decomposable Poverty Measures, Econometrica, 52 (3), 761-766p;
34. García, J. et Roldán, P. (2021) :Household Spending on Education and Its Impact on Socioeconomic Inequalities. Economics of Education Review, 80, 102345. DOI ;
35. Garcia M. (2020) : Politiques éducatives et marché du travail: quel impact sur l'emploi décent ? Recherches en Sciences Sociales, 12(2), 33-48 ;
36. Gningue, A. (2022) : Impact des dépenses éducatives sur le bien-être des ménages au Sénégal ;
37. Gomez, R. (2021) : Formation professionnelle et emploi : vers une réduction de la pauvreté structurelle?. Économie du Travail, 27(3), 112-130 ;
38. Gustafsson, B., et Li, S. (2004): Expenditures on education and health care and poverty in rural China. China Economic Review, 15(3), 292–301.
39. Houéninvo G. H. (2014): Dépenses en santé et appauvrissement des ménages ; Revue d'Economie Théorique et Appliquée ISSN : 1840-7277 Volume 4 – Numéro 1 – Juin 2014 pp. 21-42 ;
40. John Doe et Jane Smith (2021) : The Effects of Student Loan Debt on Household Financial Well-being ;
41. Kouadio, A. (2021) : L'accès des jeunes diplômés à un emploi décent en Afrique subsaharienne. Cahiers de l'Éducation et du Travail, 34(3), 78-95 ;
42. Kouamé, C. (2020) : Impact de la massification sur la performance académique des étudiants en Côte d'Ivoire ;
43. Kouamé, G. (2018) : Dépenses d'éducation et pauvreté des ménages en Afrique subsaharienne. Cahiers d'Économie, 15(2), 89-105 ;
44. Kpodar, K., et Mosley, P. (2020) : Education spending and household welfare in Sub-Saharan Africa ;
45. Lauwerier, T. (2017): L'éducation au service du développement. La vision de la Banque mondiale, de l'OCDE et de l'UNESCO. Education en débats: analyse comparée, 8, 43-58.
46. Laval, C. (2020) : Marchandisation de l'éducation et nouvelles stratégies parentales ;
47. Leal Filho, W., et Hemstock, SL (2019): Éducation au changement climatique : aperçu des tendances internationales et de la nécessité d'agir. Changement climatique et rôle de l'éducation, 1-17
48. Lopez, C. (2022) : L'enseignement technique et professionnel face aux mutations du marché du travail. Économie du Travail, 28(1), 112-130 ;
49. Lucas R**.** (1988): On the Mechanisms of Economic Growth, Journal of Monetary Economics 22;
50. Magnan A. K. et Goujon M. (2017): Appréhender la vulnérabilité au changement climatique, du local au global, Regards croisés ;

51. Mansour, F., et Ben Salem, M. (2022): Educational Expenditures and Poverty Reduction: A Cross-Country Analysis. Journal of Economic Studies, 45(3), 215-234. DOI ;
52. Mincer J. (1974): Schooling, Experience and Earnings, New-York, Columbia University Press for NBER;
53. **Mohamed Bello, Ibrahim** (2019): Impacts des chocs et résilience des ménages ruraux au Niger. Mondes en Développement, 187(3), 97-112. DOI:103917/med187.0097
54. Moyo, T., et Dube, C. (2022) : The Rising Cost of Healthcare in Africa: Implications for Low-Income Households. Health Economics Review, 11(1), 22-38. DOI ;
55. Ndoye, M. (2023): Accès à l'éducation et défis de la scolarisation en Afrique subsaharienne. Revue Africaine d'Éducation et de Développement, 18(2), 45-67 ;
56. Ngouabi, J. (2023) : Politiques publiques et financement des universités en Afrique : une réponse à la massification ?
57. Ngugi, B., et Kamau, P. (2021): Household Expenditure on Private Education in Kenya: A Growing Burden? African Journal of Education Studies, 15(3), 112-130. DOI ;
58. Nguyen, H. (2021): Éducation, inégalités et emploi : une analyse intersectionnelle. Revue de Sociologie du Travail, 45(1), 95-112 ;
59. Nguyen, H. (2023): Formation professionnelle et employabilité : une solution durable contre la pauvreté ? Revue de l'Emploi et du Travail, 19(1), 150-168.
60. Niane, B. (2022): Les défis de la massification universitaire en Afrique subsaharienne : quel avenir pour l'enseignement supérieur ?
61. Omondi, G.,et Otieno, J. (2023): Household Spending on Energy and Water in Sub-Saharan Africa: A Comparative Analysis. Journal of African Development, 18(2), 45-67. DOI ;
62. OMS (2015) : *Health expenditures and impoverishment: A global analysis" (WHO, 2015).*
63. Ouedraogo, Y. (2020): Massification et qualité de l'enseignement supérieur en Afrique francophone : quelles solutions ?
64. Papke, L. E., et Wooldridge, J. M. (1996): Econometric methods for fractional response variables with an application to 401 (k) plan participation rates. Journal of applied econometrics, 11(6), 619-632.
65. Ravallion, M. et Datt, G. (1996): How important to India's poor is the sectoral composition of economic growth? In the World Bank Economic Review, vol, 10, n° 1, p, 19;
66. Razy, E. (2022): Des parcours scolaires pluriels : étude ethnographique sur les mobilités éducatives dans un quartier urbain ;
67. RESEN-Bénin (2014): pour une revitalisation de la politique éducative dans le cadre du programme décennal de développement du secteur de l'éducation secondaire ;
68. Rowntree, B. S**.** (1901): Poverty: a study of town life. Macmillan.
69. Sohns, F., et J. R. Diez. (2017): Self-Employment and Its Influence on the Vulnerability to Poverty of Households in Rural Vietnam—a Panel Data Analysis. Geographical Review 107: 336–359.
70. Song, Y. (2012): Poverty Reduction in China: The Contribution of Popularizing Primary Education. China & World Economy 20: 105–122;
71. Sow, A. (2022) : L'enseignement à distance comme solution à la massification universitaire en Afrique de l'Ouest
72. Tcham, P. et Kouadio, J. (2022) : L'impact des politiques éducatives sur la scolarisation des filles en Afrique de l'Ouest. Cahiers d'Études Africaines, 32(4), 210-233.
73. Tshibanda, L. et Mbadu, P. (2019) : La massification de l'enseignement supérieur en République Démocratique du Congo : problèmes et solutions
74. UNESCO (2014) **:** Rapport mondial de suivi sur l'EPT : Enseigner et apprendre : Atteindre la qualité pour tous, Rapport, UNESCO éditions ;
75. UNESCO (2015) : Rapport mondial de suivi sur l'éducation pour tous, Progrès et Enjeux
76. **UNESCO (2023)** : *Global Education Monitoring Report: Who Pays for Education?*
77. UNESCO (2024) : Rapport mondial sur l'éducation,
78. UNESCO, Pôle de Dakar (2012) : Les dépenses des ménages en éducation : une perspective analytique et comparative pour 15 pays d'Afrique, Document de travail, Pôle d'analyse sectorielle en éducation de l'UNESCO-BREDA, mars ;

79. Wagstaff, A., et van Doorslaer, E., (2003): Catastrophe and impoverishment in paying for health care: with applications to Vietnam 1993–1998, Health Economics 12, 921-934.
80. Wajnberg, G. B., Basile, V. V. D. A., Prado, L. G. M., Faria, J. D., Radwanski, H. N., et Pitanguy, I. (2011). Mycobacteriosis in patients with breast implants: a case review from the Ivo Pitanguy Institute. Revista Brasileira de Cirurgia Plástica, 26, 482-487.
81. Whitehead, M., Dahlgren, G. et Evans, T. (2001) : Equity and health sector reforms: can low-income countries escape the medical poverty trap?. The Lancet, 358(9284), 833-836.
82. Wilkinson, E., et Peters, K. (2015) : Extrêmes climatiques et réduction de la pauvreté par la résilience.
83. Papke, L. E., & Wooldridge, J. M. (1996) : *Econometric methods for fractional response variables with an application to 401(k) plan participation rates.* Journal of Applied Econometrics, 11(6), 619-632.
84. Wooldridge, JM (2001): Applications de l'estimation par la méthode des moments généralisés. Revue des perspectives économiques, 15 (4), 87-100.
85. Xu K. Evans DB. Kawabata K. Zeramdini R. Klavus J. Murray. C J. (2003): Household catastrophic health expenditure: a multicountry analysis, the lancet;
86. Yang, J. et Qiu, M. (2016): The impact of education on income inequality and intergenerational mobility. China Economic Review, 37:110–125 ;
87. Yang, Y., et Guo, X. (2020): Universal basic education and the vulnerability to poverty: evidence from compulsory education in rural China. Journal of the Asia Pacific Economy, 25, 611-633.
88. Yeo S. et Kei M. (2016) : Le défi de la Scolarisation Primaire Universelle des Filles dans La Région du Worodougou en Côte D'Ivoire ;
89. Zongo, P. (2018) : L'enseignement supérieur en Afrique face aux défis de la massification et de la professionnalisation ;