**Effect of multidimensional household poverty on the school performance of girls and boys in Burkina Faso**

**GUIRA1 Asmo et COMPAORE D. Eugène2**

1 Center for Economic and Social Studies, Documentation and Research (CEDRES), Thomas SANKARA University, Ouagadougou, Burkina Faso. Email: asmoguira@gmail.com ORCID****<https://orcid.org/0009-0005-9558-7573>

2 Center for Economic and Social Studies, Documentation and Research (CEDRES), Thomas SANKARA University, Ouagadougou, Burkina Faso. Email : cdimaviyae@gmail.com

**Abstract**

*The objective of this research was to analyze the effect of the multidimensional poverty (MP) of households on the academic performance of girls and boys in Burkina Faso. The ordered probit method is used on 1721 households, including 765 girls and 656 boys, from the Harmonized Survey on Household Living Conditions. The results indicate that MP reduced the academic performance of students by 25.23%. The analysis by gender shows that MP initially has a positive effect (13.22%) on the academic level of girls in primary school, but its negative effect becomes at the postprimary level (8.26%) and secondary level (4.49%) for girls. However, no significant effect on the academic performance of boys or girls was reported. These results indicate that in achieving SDG4 for quality education for all, the effective fight against household poverty in all its forms is an effective policy tool.*

**Keywords:** multidimensional poverty, ordered probit, school performance, Burkina Faso.

**JEL code:** I3; C31; O55

# **1. Introduction**

Access to education is one of the most fundamental and important human rights of every society Khurshid et al., (2023). Indeed, education is a factor in improving productivity through the acquisition of new skills (Becker, 1964). According to the Universal Declaration of Human Rights, "Everyone has the right to education". All children must attend school to ensure the future of nations through the acquisition of knowledge and skills. West Africa is a region with a young and rapidly expanding population. Indeed, between 2000 and 2020, the number of people under 25 rose by 68% and is expected to increase by an additional 25% over the next ten years (UNICEF and African Union, 2021). This rapid growth represents both a risk and a pressure on education systems, as the region already has some of the lowest school attendance rates and learning outcomes in the world. In fact, more than a quarter (27%) of primary school-age children, more than a third (37%) of lower secondary school-age children, and more than half (56%) of upper secondary school-age children were not enrolled in any school in 2019. As a result, a large proportion of those who are enrolled are at risk of repeating or dropping out. In 2021, the average elementary school repetition rate in African countries, all levels combined, was four times higher than the average rate recorded by non-African countries (UNICEF Innocenti, 2024). This leads to low completion rates, estimated at 53% at all school levels (UNCIEF and African Union, 2021).

This poor school performance can be explained not only by internal factors specific to each student (Aizer & Currie, 2014) but also by external factors (Zimbardo & Boyd, 2014). These external factors include the student's environment and the socioeconomic situation of his or her family (Naoi et al., 2021). Children's level of vulnerability and well-being is threatened by growing up in low-income families (Broaded & Liu, 1996; Frijters et al., 2012; Loken et al., 2012; Jerrim et al., 2020). Indeed, economic status can affect access to and success in school through limited access to educational resources, increased stress levels, poor nutrition and reduced access to healthcare (Evans and Schamberg, 2009; Thompson, 2014). Poverty is not only a factor in school dropout but also encourages repetition (Hunt, 2008). When poor households have limited resources for children's education and development, poverty can be perpetuated from generation to generation, creating a vicious cycle (Nong et al., 2021).

Noneconomic factors such as low parental education also increase the likelihood of dropping out of school (Randrianarisoa, 2016). Parental illiteracy, whose average rate is estimated at 52% in West Africa, is one of the obstacles hindering children's school attendance, particularly among the most marginalized groups (UNICEF and African Union, 2021). Indeed, parents' level of education modifies their behavior by increasing their level of support and monitoring of their children's schooling. Educated parents have more skills to guide their children in their studies and have greater academic and professional ambitions than do those who are illiterate (Nganawara, 2016). This increases student motivation and commitment to school while reducing the risk of dropping out and repeating grades (Zah Marie, 2013; Mahamat, 2014).

The empirical literature linking multidimensional poverty and school performance is underdeveloped. Indeed, Soglo (2022) shows that poverty reduces schooling gains in Togo by 58% and 37%, respectively. In Uganda, Amanya (2021) reported that the psychosocial effects of poverty have a negative effect on students' academic performance. Khurshid, Khan and Noreen (2023) reported a significant negative correlation between poverty and academic performance in Pakistan. However, Naoi et al. (2021) in Japan used two different methods and concluded that there was no significant impact of family income poverty on children's cognitive performance. Although these studies provide an overview of multidimensional poverty, the approaches and indicators used to measure it differ from one approach to another. Indeed, poverty must be understood in relative terms (monetary aspects) and in absolute terms on the basis of the theory of fuzzy sets, which takes several aspects into account (Ambapour, 2009). It must take into account the multiple deprivations suffered by parents, such as financial exclusion, health exclusion, energy exclusion, water exclusion, education exclusion (Alkire et al., 2017) and nonholding of assets. These studies therefore did not specifically consider all these aspects when analyzing the effects of poverty on school performance.

This research contributes to filling the gap in the literature, and few studies exist in developing countries in this multidimensional framework. This can provide guidance on appropriate strategies for reducing poverty while improving children's education. Indeed, income poverty omits certain aspects that poor households lack, but this may explain why children's school enrollment levels are so low (Djahini-Afawoubo et al., 2023). The multidimensional aspect makes it possible to eradicate poverty in all its aspects, which is the basis for development for all (Djahini-Afawoubo et al., 2023). In addition, the gender analysis adopted by this research enables us to better understand the disparities that may exist between the education of girls and boys, depending on their parents' level of poverty. In addition, the results of this research can be used to help achieve the Sustainable Development Goals (SDGs) of quality education and equality for all. Given the importance of the fourth Sustainable Development Goal (SDG 4) and the importance of improving children's school performance, as well as the disadvantages associated with poverty, it is vital to investigate its capacity to worsen school performance.

The aim of this research is to analyze the effect of multidimensional poverty on children's school performance in Burkina Faso, where the level of school education remains a matter of some concern. Indeed, the gross enrollment rate for children is 40.9% at the postprimary level and 20.7% at the secondary level (MEN, 2023). Analysis by gender reveals disparities. In fact, the gross enrollment rate for girls is 19.9%, and for boys, it is 21.6% at the secondary level, whereas the completion rate for girls is 18.9% versus 19.7% for boys (MEN, 2023). Additionally, the pass rates for solar exams are alarmingly low, at 38.3% for the first-cycle brevet and 39.3% for the baccalauréat. This poor performance could be explained by the population's low literacy rate, which is below average at 34% of the population in 2022, and the poverty level, which represents over 40% of the population (WB, 2023).

The rest of the document is organized as follows. Section 2 reviews the literature. Section 3 presents the methodology used to measure PM, the empirical strategy employed and the description of the data used. Section 4 presents the empirical results. The final section is devoted to conclusions and policy implications.

# **2. Review of the theoretical and empirical literature**

The literature shows that children's education is affected by several aspects of their parents; for some children, the schooling decision is a function of parents' income (Keshavarz and Haddad, 2017), and for others, it is linked to parents' socioeconomic characteristics (Necşoi et al., 2013; Farooq et al., 2011; Tong et al., 2021; Steinmayr et al., 2010).

Income poverty is a determining factor in children's success and school attendance (Keshavarz and Haddad, 2017; Engle and Black, 2008; Brown and Park, 2002). These studies argue that the lack of income that characterizes most poor households explains their choice of whether to send their children to school. Even if school fees are partly free at the primary level in developing countries, parents have to bear considerable indirect costs to keep their children in school. Travel, food and supplies must be paid for by parents, which in turn represents a cost to them. Lacour and Tissington (2011) conclude that poverty directly affects school success due to the lack of resources available in the United States. In Ghana, Adonteng-Kissi (2021) noted that in households where parents are unable to provide for the family, sending children to school is a loss of income for the household.

Children's schooling decisions are also affected by parents' socioeconomic characteristics (Necşoi et al., 2013). We're talking about parents' level of education. Indeed, parents with a high level of education have a high probability of enrolling and recording better school results and high retention rates for their children (Tong et al., 2021; Unicef and African Union, 2022). According to these authors, parents who attend school have greater access to a wide variety of economic, social and cognitive resources that can facilitate child follow-up. They also argued that children's learning strategies are linked to their parents' level of education, which reduces the risk of children dropping out of school.

The empirical literature analyzes the effect of poverty on school performance via a multidimensional framework. Soglo (2022) uses the Regime Change Probit (RCP) method on data from the National Child Labor Survey in Benin. The results reveal that female-headed households are less exposed to poverty. Moreover, poverty reduces the schooling gain of a child from a poor female- and male-headed household by 58% and 37%, respectively. Amanya (2021) used a cross-sectional approach and concluded that the psychosocial effects of poverty are negative on students' academic performance. According to the author, this result can be explained by a negative perception, reduced confidence and fear, mental instability in the form of depression, anxiety and stress, and an environment of low socioeconomic status.

Khurshid et al. (2023) also pointed in the same direction, indicating, through Pearson correlation and simple linear regression, a robust and statistically significant negative correlation between poverty and school performance. These results suggest that an increase in poverty levels corresponds to a decrease in students' school performance, and conversely, a reduction in poverty levels is associated with an improvement in school performance. However, an analysis of these studies reveals that they did not explicitly examine the effects of multidimensional poverty in the sense of Alkire and Foster (2011) on school performance. Moreover, its impact on students' gender-specific school performance has not been sufficiently studied in developing countries.

# **3. Methodology and data sources**

## **3.1 Measuring multidimensional poverty (MP)**

The United Nations' Sustainable Development Goal (SDG1) is to end all forms of poverty by 2030 (Barbier and Burgess, 2019; Nihinlola, 2020). Poverty has been measured and analyzed in past studies in its monetary form in terms of income and expenditure levels (Permanyer and Hussain, 2018). However, in recent studies and the new definition of poverty by the United Nations, in addition to income, nonmonetary dimensions such as lack of access to education, healthcare, drinking water and electricity have been taken into account (Alkire, al., 2017). implies that poverty integrates several dimensions in the same logic as Amartya Sen's capability development approach and goes beyond income or expenditures incurred for consumption. Poverty is therefore a multidimensional phenomenon (Alkire and Foster, 2011; Djahini-Afawoubo and Couchoro, 2020). The multidimensional poverty index in this case refers to the Alkire and Foster (2011) method because of its clarity and simplicity compared with other methods (Silber, 2011). Additionally, this index facilitates the targeting of the most deprived, thus making it possible to assess progress linked to the commitment of the Sustainable Development Goals (SDGs) to leave no one behind (Atchi, 2022).

This index comprises a first stage identifying poor households on the basis of a series of deprivations suffered by households and a second stage aggregating the information to reflect MP globally. This index is calculated at the household level and comprises three dimensions, each with an indicator representing access to and use of basic services. Each indicator is coded 1 if the household is deprived of the indicator and 0 otherwise. An unequal weighting is assigned to each indicator according to its importance in measuring the MP. The weighted deprivations are added together to obtain a deprivation score for each household so that the deprivation score is between 0 and 1. As the number of deprivations suffered by the household increases, so does the deprivation score. The maximum score is equal to 1 if the individual is deprived of all the indicators, as indicated by equation (1):

 (1)

With deprivation scores, if the household is deprived of the indicator and otherwise, and is the weight associated with the indicator with .

* **Dimensions, indicators and deprivation thresholds**

Table 1 shows the dimensions, indicators and deprivation thresholds used in the measurement of PM. Weights are applied unevenly to reflect the relative importance of the PM (Nussbaumer et al., 2012).

**Table 1: Dimension indicator weights for measuring PM**

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimensions** | **Indicators** | **Weight** | **Poverty line** |
| Educatio | years of schooling | (1/3) | 1 if the head of household has no education and 0 otherwise the |
| Health | healthcare use | (1/3) | 1 if the head of household is unable to seek health care in a public or private hospital and 0 otherwise |
| Living conditions | electricity | (1/9) | 1 if the household has no access to electricity and 0 otherwise |
| water | (1/9) | 1 if the household has no access to drinking water and 0 otherwise in |
| toilet | (1/9) | 1 if the household uses other than flush toilets and improved latrines and 0 otherwise |

Source: Authors based on Alkire and Santos (2011).

## **3.2. Empirical specification of the ordered probit model**

**3.2.1. Theoretical basis**

The economist Becker was among the first to develop the theory of the rational decision-making power of individuals (Pollak, 2003). This rationality is based on microeconomic theory, and in the context of education, schooling is seen as a capital investment for parents, and a return on investment is expected (Becker, 1981). The aim is for parents to assess the benefits of investing in their children's educational capital by measuring the rate of return associated with further education (Bertrand, 1994). Depending on the return on this investment, they are free to decide whether to send their children to school.

According to Brown and Park (2002), parents who decide to send their children to school integrate direct costs (schooling expenses, book purchases, clothing expenses, transportation costs and costs related to feeding the child at school) and indirect costs (reduced labor in the fields, increased burden of housework, etc.) into their utility function.

 (2)

where Y is the household income at the time of the investment decision, the number of years the child will be in school, and the cost to parents. Let be the return on investment in the child's education and the share of this return to parents through future transfers. is the share devoted to the child himself. where is a parameter reflecting the degree of altruism of parents toward their child and where indicates that parents treat the child as they treat themselves. The total expenditure on the child's education may not exceed the sum of the household income𝑌 and credit amount; it is understood that, in addition to expenditure on the child's education, the household faces other expenses. Parental utility maximization is therefore of the form:

 (3)

Assuming rationality, parents are rational agents and make the choice to send their children to school if and only if doing so results in a greater expected gain in terms of maximizing their utility. Considering a parent who chooses from a finite set of alternatives, we have:

 (4)

Equation (4) is the sum of two terms. The first is the principal or expected value of perceived utility. The second is the random residual, corresponding to the deviation of the average utility from the actual value. On the basis of random utility theory, the principal utility of the household associated with the choice of whether or not to send the child to school can be expressed as a function of its income (Y) at the time of the choice of whether or not to send the child to school, the number of years the child has been in school, the cost borne by the parents and (𝑅) the return on investment:

 (5)

A household will choose𝑖 between k alternatives if and only if:

**3.2.2. Estimation method**

In this research, our dependent variable used as a proxy for children's school performance is a categorical variable ordered as follows: 1=primary level, 2=postprimary level, 3=secondary level and 4=higher level. Ordered logit and ordered probit models have been widely used in the literature to analyze these types of ordinal data. The ordered probit model is applied in this work because of its wide applicability for assessing the ordinal nature of a dependent variable. The model is specified as follows:

 (6)

where represents children's school performance; = multidimensional poverty; = a vector of explanatory variables; and follows a normal distribution. The observed variable y is related to y\*, as specified in equation (7).

 (7)

τ denotes the thresholds or cutoff points to be projected for each level. Consequently, the formulas for probabilities with four observed outcomes for the ordered probit model are as follows:

 (8)

**where**  + and where is the distribution function of a standard normal distribution. The parameters are estimated via the maximum likelihood method. The effect of a variable on the probability of belonging to an extreme category (category 1 or category 4 in our case) is clearly indicated by the sign of. If is positive, an increase in the value of reduces the probability of being in the first category while increasing that of being in the last category.

**3.3. Data sources**

The data used come from the Enquête Harmonisée sur les Conditions de Vie des Ménages (EHCVM) of Burkina Faso carried out in 2021. The survey is based on a stratified two-stage household survey. The survey is nationally representative, as it covers all regions of the country, both urban and rural. The sample size after data processing results in 1421 observations, including 765 girls and 656 boys, which are used for estimates.

Figure 1 shows that in 2021, school performance in terms of access to education deteriorated. The rate is 69% at the primary level but decreases to 0.27% at the tertiary level. However, Table 2 shows that school performance differs by gender. Overall, the performance of boys is greater than that of girls at all levels except post primary.

**Figure 1.**Distribution of different levels of school performance among children in the household

Source: Author, based on EHCVM data, 2021

Table 2. Percentage distribution of education level by gender

|  |  |  |
| --- | --- | --- |
| Current level | Girls | Boys |
| Primary | 67.98 | 70.05 |
| Postprimary | 25.54 | 22.02 |
| Secondary | 6.24 | 7.63 |
| Superior | 0.24 | 0.31 |
| Total | 100 | 100 |

Source: Author, based on EHCVM data, 2021

# **4. Results**

## **4.1. Descriptive statistics**

Table 3 presents the statistics for the variables used in the analyses and shows that PM affects 56.2% of the sample. The average household size is 3.245 ha. Only 16.1% of the sample were female heads of household, and approximately 21.8% held assets such as televisions. The average household size is 6 individuals, the majority of whom (61.4%) live with a woman.

Table 3. Description of the variables used in the estimates

|  |  |  |
| --- | --- | --- |
| Variable | Average | Std. Dev |
| Multidimensional poverty | 0.562 | 0.244 |
| Major disability | 0.058 | 0.233 |
| Area of farmland | 3.245 | 3.573 |
| Gender of head of household (1= female) | 0.161 | 0.368 |
| Television ownership | 0.218 | 0.413 |
| Household size | 6.262 | 3.964 |
| Widowed, divorced or separated head of household | 0.099 | 0.298 |
| Monogamous household | 0.614 | 0.487 |
| households | 0.213 | 0.41 |
| Hours worked by the head of household | 63.344 | 295.6 |

Source: Author, based on EHCVM data, 2021

## **4.2. Analysis of the effect of MP on school performance**

The results of the ordered probit model are shown in Table 4. These results show the direction of contribution of each variable, i.e., whether it contributes to increasing (positive sign of the coefficient) or decreasing (negative sign of the coefficient) children's school performance. Tables 5 and 6 present estimates of the calculation of marginal effects by gender and complement the information in Table 4 by providing more detailed and quantified estimates (in terms of probability variation) for each of the four education categories.

Table 4 shows the relationship between MP and children's school performance. The results indicate that MP has a negative and significant effect on children's school performance at the 10% confidence interval. However, when the probability of MP increases by 1%, children's school performance decreases by 25.23%. In other words, the child's chance of continuing his or her education at a high level is reduced by 25.23%. This result can be explained by the fact that the MP directly affects parents' decisions due to the lack of available resources, as there are direct costs involved in sending children to school. This reflects the fact that children's schooling is inversely correlated with their parents' level of poverty. Income is therefore a good indicator of performance (Claro et al., 2016; Naoi et al., 2021). These results are in line with those of Khurshid et al. (2023), who reported a negative correlation between poverty and academic performance at two universities in Pakistan.

However, control variables such as single parenthood, i.e., whether the head of household is divorced, widowed or separated, are positively correlated with the school performance of children at the 10% level. This variable increases children's school performance by 37.40%. This can be explained by the support systems received by single-parent households from other family members for the upkeep of children (Wayack Pambè and Pilon, 2011). These results are in symbiosis with those reported by Madiega (2020) in Burkina Faso.

Additionally, the monogamous and polygamous household variables are positive and significant at the 10% level. This implies that children from married parents, whether monogamous or polygamous, see their school performance levels improve by 24.18% and 27.11%, respectively. The results show that most students, whether from monogamous or polygamous families, live in harmony with their parents, which improves their level of schooling. Khasawneh et al., (2011) suggested that polygamy does not have a negative effect on children but rather a positive effect. He argues that when all children's needs are met in a polygamous household, they are emotionally stable. Children from polygamous households can help each other with their schoolwork. Household chores are shared between the children, enabling them to devote sufficient time to their schoolwork at home. These results corroborate those of Oni and Junaid (2023) in Nigeria but contradict those of Wilson et al. (2023) in Kenya.

The results also show that parents' working time improves their children's school performance. This result can be explained by the fact that an increase in working time is synonymous with an increase in income. This encourages parents to spend more on their children's education. These results are in line with those reported by Compaore et al. (2024) in Burkina Faso.

Table 4. Relationship between MP and children's school performance

|  |  |  |
| --- | --- | --- |
| Variable | Coefficients | Standard error |
| Multidimensional poverty | -0.2523\*  | (0.1398) |
| Major household disability | -0.0222  | (0.1428) |
| Area of farmland (in hectares) | 0.0130  | (0.0090) |
| Gender of head of household (1=female) | -0.0991  | (0.1184) |
| Television ownership | -0.0342  | (0.0806) |
| Household size | -0.0095  | (0.0099) |
|  Widowed, divorced or separated head of household | 0.3740\*\*  | (0.1833) |
| Monogamous household | 0.2418\*  | (0.1344) |
| Polygamous households | 0.2711\*  | (0.1581) |
|  Hours worked by the head of household | 0.0004\*\*\*  | (0.0001) |
| Cut 1 | 0.4939 | 0.1501 |
| Cut2 | 1.5282 | 0.1545 |
| Cut3 | 2.7494 | 0.2028 |
| Number of observations | 1,421 |

Standard deviations are in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Source: Author, based on EHCVM data, 2021

## **4.3. Analysis of the effect of PM on school performance by gender**

The aim of this study is to analyze the effect of multidimensional poverty on school performance by gender. To determine the effects of MP on school performance for both sexes, the girls' and boys' samples were extracted separately before the effects of MP on school performance were estimated. Tables 5 and 6 show the marginal effects of the probit model for both sexes. Analysis by gender yields some interesting results. The results in Table 5 show that PM has no significant effect on boys' school performance at any level of education.

Table 6 shows, however, that the MP is positive and significant at the 10% level for the primary school enrollment rate for girls. This result could be attributed to the Burkinabe government's policy of free primary education, coupled with the introduction of free school canteens. These support schemes provide incentives for economically vulnerable families, easing the financial constraints associated with sending their children to school. This, in turn, encourages mass enrollment. In the Congo, Mwenzi and Kitumba (2022) have shown that free school fees help increase primary school enrollment. Similarly, Alladatin et al. (2022) reported that school canteens in Benin increase child retention at the primary level.

The results also show that PM negatively and significantly affects girls' school performance at the 10% threshold by 8.26% and 4.49% for the post primary and secondary levels, respectively. Given that the variable of interest is categorical, these results show that the higher the parents' MP level is, the less likely the girl is to continue her studies at a higher level because of the costs resulting from these levels. The results indicate, however, that PM has no significant effect on boys' academic performance. This is explained by the fact that in Burkina Faso, girls' education is generally considered less important than boys' education is. Save Children (2022) reported that families often prefer to invest in boys' education, considering girls' education a lower priority. These findings are in perfect harmony with those of Nong et al. (2021) in China. Chyi and Zhou (2014) find that girls' schooling is particularly vulnerable to household financial constraints in rural China.

The total agricultural area of the household has a negative and significant effect at the 10% level on girls' primary school enrollment. The reason for this result may lie in the link between the size of the cultivable area and the consequent need for labor. In the context of agricultural activities, this requirement could lead parents to favor the education of boys over that of girls. The involvement of rural children in family economic activities such as farming encroaches on the time devoted to education, thus limiting learning opportunities (Kumar et al., 2023).

However, from the postprimary and secondary levels onward, the results show that total surface area has a positive and significant effect at the 5% threshold on girls' school performance. This can be explained by the fact that these levels of education require greater financial contributions than primary levels do. An increase in surface area implies an increase in household income, which encourages them to invest more in girls' education. These results are in line with those reported by Compaoré et al. (2024) in Burkina Faso.

Polygamy has a 5% negative impact on girls' performance in primary school. This is because, in addition to the poverty that prevails in polygamous families, men often find it difficult to provide for all family members. As a result, children are usually the responsibility of women, who face financial difficulties in sending their children to school. Dalton and Leung (2013) also asserted that some children from polygamous families suffer negative consequences for their schooling because of a lack of support from their families.

The academic performance of primary school pupils, both girls and boys, is significantly affected downward (5% threshold) by the number of household working hours. This could be explained by parents' professional constraints preventing them from ensuring adequate school follow-up for their children, thus encouraging failure and dropping out from the very start of their schooling. Yaoutchi and Zourkaleini (2022) reported that parents' lack of school supervision led to children dropping out of school in Niger.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Level 1= Primary | Level 2= Postprimary | Level 3= secondary | Level 4= university |
| Variable | dy/dx | Err. type | dy/dx | Err. type | dy/dx | Err. type | dy/dx | Err. |
| Multidimensional poverty | 0.0401 | 0.0745 | -0.0246 | 0.0457 | -0.0146 | 0.0271 | -0.0009 | 0.0018 |
| Major household disability | 0.0348 | 0.0739 | -0.0219 | 0.0477 | -0.0122 | 0.0248 | -0.0007 | 0.0015 |
| Area of farmland (in hectares) | 0.0016 | 0.0048 | -0.0010 | 0.0029 | -0.0006 | 0.0017 | 0.0000 | 0.0001 |
| Gender of head of household (1=female) | 0.0167 | 0.0637 | -0.0104 | 0.0398 | -0.0060 | 0.0225 | -0.0004 | 0.0014 |
| Television ownership | -0.0322 | 0.0448 | 0.0194 | 0.0266 | 0.0120 | 0.0171 | 0.0008 | 0.0013 |
| Household size | 0.0054 | 0.0057 | -0.0033 | 0.0035 | -0.0019 | 0.0021 | -0.0001 | 0.0002 |
| Widowed, divorced or separated head of household | -0.1379 | 0.1014 | 0.0755 | 0.0487 | 0.0577 | 0.0486 | 0.0047 | 0.0056 |
| Monogamous household | -0.0729 | 0.0667 | 0.0453 | 0.0420 | 0.0260 | 0.0235 | 0.0016 | 0.0018 |
| Polygamous households | -0.0640 | 0.0863 | 0.0379 | 0.0492 | 0.0244 | 0.0346 | 0.0017 | 0.0028 |
| Hours worked by the head of household | -0.0001\*\* | 0.0001 | 0.0001\*\* | 0.0000 | 0.0001\*\* | 0.0000 | 0.0001\*\* | 0.0000 |

Table 5. Analysis of the effect of MP on boys' school performance

Standard deviations are in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Source: Author, based on EHCVM data, 2021

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Level 1= Primary | Level 2= Postprimary | Level 3= secondary | Level 4= University |
| Variable | dy/dx | Err. type | dy/dx | Err. type | dy/dx | Err. type | dy/dx | Err. type |
| Multidimensional poverty | 0.1322\* | 0.0712 | -0.0826\* | 0.0449 | -0.0448\* | 0.0245 | -0.0048 | 0.0033 |
| Major household disability | -0.0249 | 0.0743 | 0.0153 | 0.0447 | 0.0087 | 0.0266 | 0.0010 | 0.0031 |
| Area of farmland (in hectares) | -0.0112\* | 0.0047 | 0.0070\*\* | 0.0030 | 0.0038\*\* | 0.0016 | 0.0004 | 0.0003 |
| Gender of head of household (1=female) | 0.0468 | 0.0567 | -0.0300 | 0.0373 | -0.0152 | 0.0178 | -0.0015 | 0.0019 |
| Television ownership | 0.0506 | 0.0387 | -0.0324 | 0.0254 | -0.0166 | 0.0123 | -0.0016 | 0.0014 |
| Household size | 0.0028 | 0.0047 | -0.0018 | 0.0029 | 0.0010 | 0.0016 | -0.0001 | 0.0002 |
| Widowed, divorced or separated head of household | -0.1450 | 0.1043 | 0.0806 | 0.0505 | 0.0567 | 0.0468 | 0.0076 | 0.0082 |
| Monogamous household | -0.1137 | 0.0693 | 0.0723 | 0.0449 | 0.0375 | 0.0227 | 0.0039 | 0.0029 |
| Polygamous households | -0.1499\* | 0.0870 | 0.0861\* | 0.0456 | 0.0566\*\* | 0.0368 | 0.0072 | 0.0062 |
| Hours worked by the head of household | -0.0002\*\*\* | 0.0001 | 0.0001\*\*\* | 0.0000 | 0.0001\*\*\* | 0.0000 | 0.0000\* | 0.0000 |

Table 6. Analysis of the effect of MP on girls' school performance

Standard deviations are in parentheses. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Source: Author, based on EHCVM data, 2021

# **5. Conclusions and policy implications**

The aim of this research was to analyze the effect of PM on the school performance of girls and boys in Burkina Faso. Using the ordered probit model on data from

With respect to the Harmonized Survey of Household Living Conditions, the present research produced convincing results. The analyses concluded that MP reduces students' school performance by 25.23%. Analysis by gender reveals that MP initially has a positive effect (13.22%) on girls' academic performance at the primary level. This effect then became negative at the postprimary level (8.26%) and secondary level (4.49%) for girls. However, there was no significant effect on boys' academic performance or on girls' higher grades. These results indicate that, to achieve MDG4 for quality education for all, the effective fight against household poverty in all its forms is an effective policy tool.

In terms of economic policies, it is recommended that measures be taken to reduce the cost of educating children, particularly girls, through the following three points. First, free school fees should be reinforced and made permanent, and school canteens should be set up. Second, scholarship programs for girls need to be extended and made easier to encourage low-income households to send their children to school. These programs encourage children's enrollment and academic success, as found in Morocco (El Mekki and Zidane, 2022). Finally, to address educational problems of all their complexity, a cross-sectoral approach is imperative. This involves close coordination between the Ministries of Education, Health and Social Affairs, recognizing that the well-being of students and their families is influenced by several facets of poverty, such as health, nutrition and housing, which need to be taken into consideration (Berrada and Haddadi, 2023).

# **References**

Adonteng-Kissi, O. (2021). Parental perceptions of the nature of child labour in rural and urban Ghana: cultural versus economic necessity. *Child care in practice, 1-21*.

Aizer, A., & Currie, J. (2014). The intergenerational transmission of inequality: Maternal disadvantage and health at birth. *science, 344(6186), 856-861*.

Alkire, S., & Foster, J. E. (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics, 95(7), 476–487*.

Alkire, S., Apablaza, M., Chakravarty, S., & Yalonetzky, G. (2017). Measuring chronic multidimensional poverty. *Journal of Policy Modeling, 39(1), 983–1006*.

Amanya, A. (2021). Psycho Social Effects of Poverty on Academic Performance of Students in Sheema District of Western Uganda. *(Doctoral dissertation, Kampala International University, College of Humanities and Social Sciences)*.

Ambapour, S. (2009). Théorie des ensembles flous: application à la mesure de la pauvreté au Congo. DT, 16.

Atchi, K. F. (2022). Effet de l'inclusion financière sur la pauvreté multidimensionnelle au Togo. *La Revue Internationale des Économistes de Langue Française, 7(1), 197-214*.

Barbier, E. B., & Burgess, J. C. (2019). Sustainable development goal indicators: Analyzing trade-offs and complementarities. *World Development, 122(1), 295‒305*.

Becker, G. S. (1964). The Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education. *New York : Columbia University Press*.

Becker, G. S. (1981). A Treatise on the Family. *Cambridge : Harvard University Press*.

Berrada, N., & Haddadi, K. (2023). Intersectoral strategies for improving child health and education outcomes. *Moroccan Journal of Public Policy, 22(1), 135-152*.

Bertrand , O. (1994). Éducation et travail, CEREQ France. Commission internationale sur l’education pour le XXIe siecle.

BM. (2023). Burkina Faso vue d'ensemble. *https://www.banquemondiale.org/fr/country/burkinafaso/overview*.

Broaded, C. M., & Liu, C. (1996). Family Background, Gender and Educational Attainment in Urban China. *The China Quarterly, 145, 53–86*.

Brown, P. H., & Park, A. (2002). Education and poverty in rural China. *Economics of education review, 21(6), 523-541*.

Claro, S., Paunesku, D., & Dweck, C. S. (2016). Growth mindset tempers the effects of poverty on academic achievement. *Proceedings of the National Academy of Sciences, 113(31), 8664-8668*.

Compaoré, N., Yanogo, P. I., & Gorou, A. K. (2024). Contribution du maraichage à la scolarisation des enfants de la commune de Sourgou dans la zone périurbaine de Koudougou au Burkina Faso. *Lettres, Sciences Sociales Et Humaines, 37(2), 231–247*.

Dalton, J., & Leung, T. (2013). why is Polygyny more prevalent in Western Africa? An African slave trade perspective. *forthcoming in Economic Development and Cultural Change*.

Djahini-Afawoubo, D. M., & Couchoro, M. K. (2020). What happen to multidimensional poverty between 2006 and 2015 in Togo? *Economics Bulletin, 40(2), 1201‒1215*.

Djahini-Afawoubo, D. M., Couchoro, M. K., & Atchi, F. K. (2023). Does mobile money contribute to reducing multidimensional poverty? *Technological Forecasting and Social Change, 187, 122194. https://doi.org/10.1016/j.techfore*.

El Mekki, Y., & Zidane, F. (2022). Conditional cash transfers and school retention in Morocco. *African Journal of Social Policy and Education, 26(4), 210-225*.

Engle, P. L., & Black, M. M. (2008). The effect of poverty on child development and educational outcomes. *Annals of the New York Academy of Sciences, 1136(1), 243-256*.

Evans, G. W., & Schamberg, M. A. (2009). Childhood poverty, chronic stress, and adult working memory. *Proc Natl Acad Sci USA 106(16):6545–6549*.

Farooq, M. S., Chaudhry, A. H., Shafiq, M., & Berhanu, G. (2011). Factors affecting students’ quality of academic performance: a case of secondary school level. *Journal of quality and technology management, 7(2), 1-14*.

Frijters, p., Luo, C., & Meng, , X. (2012). “Child Education and the Family Income Gradient in China. *Working Paper. University of Queensland*.

Hunt, F. (2008). Dropping out from school: A cross-country review of literature ». Create Pathways to Access, no 16. *Consortium for Research on Educational Access, Transitions and Equity, University of Sussex.*

Jerrim, J., Lopez-Agudo, L. A., & Marcenaro-Gutierrez, O. D. (2020). Posh but Poor. The Association between Relative Socio-Economic Status and Children’s Academic Performance. *Review of Income and Wealth, forthcoming*.

Keshavarz Haddad, G. (2017). Parents’ decision on child labour and school attendance: evidence from Iranian households. *Journal of Education and Work, 30(6), 612-631*.

Khasawneh, O. M., Hijazi, A. H., & Salman, N. H. (2011). Polygamy and its impact on the upbringing of children: A Jordanian perspective. *Journal of Comparative Family Studies, 42(4), 563-577*.

Khurshid, U., Khan, S., & Noreen, F. (2023). Effect of Poverty on the Academic Performance of Students at the University Level in Azad Jammu and Kashmir. *Journal of Asian Development Studies, 12(4), 178-184.*

Lacour, M., & Tissington, L. D. (2011). The effects of poverty on academic achievement. *Educational Research and Reviews, 6(7), 522-527*.

Loken, K. V., Mogstad, M., & Wiswall, M. (2012). What Linear Estimators Miss: the Effects of Family Income on Child Outcomes. *American Economic Journal: Applied Economics, 4, 1–35*.

Madiega, Y. (2020). La monoparentalité au Burkina Faso . *Doctoral dissertation, Aix-Marseille Université*.

Mahamat, A. (2014). Facteurs personnels, familiaux et scolaires et échec scolaire Chez les élèves des établissements publics d’enseignement moyen au Tchad. *Service Diffusion et Valorisation des Résultats de la Recherche Scientifique et Technique duCNAR 1;64-133*.

MEN. (2023). Tableau de bord des enseignements poste primaire et secondaire. *http://cns.bf/IMG/pdf/mena\_tbe\_pps\_2023\_final.pdf*.

Mwenzi, J. E., & Kitumba, R. N. (2022). Efficacité et enjeux de la réforme de la gratuité de l’enseignement primaire en République démocratique du Congo. *Revue internationale d’éducation de Sèvres, (91), 19-23*.

Naoi, M., Akabayashi, H., Nakamura, R., Nozaki, K., Sano, S., Senoh, W., & Shikishima, C. (2021). Causal effects of family income on educational investment and child outcomes: Evidence from a policy reform in Japan. *Journal of the Japanese and International Economies, 60, 101122*.

Necşoi, D. V., Porumbu, D., & Beldianu, I. F. (2013). The relationship between parental style and educational outcomes of children in primary school in Romania. *Procedia-Social and Behavioral Sciences, 82, 203-208*.

Nganawara, D. (2016). Famille et scolarisation des enfants en âge obligatoire scolaire au Cameroun : Une analyse à partir du recensement de 2005. *Observatoire démographique et statistique de l’espace francophone/Université Laval, Québec*.

Nganawara, D. (2016). Famille et scolarisation des enfants en âge obligatoire scolaire au Cameroun: Une analyse à partir du recensement de 2005. *Québec Observatoire démographique et statistique de l'espace francophone/Université Laval, Québec*.

Nihinlola, R. M. (2020). Evaluating the relationship between financial inclusion, social in-clusion and multidimensional poverty reduction. *(Walden Dissertations and Doctoral Studies). Walden University*.

Nong, H., Zhang, Q., Zhu, H., & Zhu, R. (2022). Targeted poverty alleviation and children’s academic performance in China. *Review of Income and Wealth, 68(4), 951-969*.

Nussbaumer, P., Bazilian, M., & Modi, V. (2012). Measuring energy poverty: Focusing on what matters. *Renewable and Sustainable Energy Reviews, 16(1), 231–243. https://doi.org/10.1016/j.rser.2011.07.150*.

Oni, A. A., & Junaid, I. O. (2023). Effects of Polygamy on the Academic Performance of Secondary School Students in Nigeria.

Permanyer, I., & Hussain, M. A. (2018). First order dominance techniques and multidimensional poverty indices: An empirical comparison of different approaches. *Social Indicators Research, 137, 867–893*.

Pollak, R. (2003). Gary Becker’s contributions to family and household economics. *Review of Economics of the Household, vol. 1, p. 111-141*.

Randrianarisoa, D. (2016). Etude sur la Déperdition Scolaire menée dans les CEG publics de la Commune rurale d’ambohimangakely. *Mémoire pour l’obtention du Certificat d’Aptitude Pédagogique de l’Ecole Normale(CAPEN). Université d’Antananarivo . Madagascar*.

Save the Children. (2022). Girls' education in Chad: Barriers and solutions. *Save the Children*.

Silber, J. (2011). A comment on the MPI Index. *The Journal of Economic Inequality, 9(1), 479–481*.

Soglo, M. A. (2023). Pauvreté et scolarisation des enfants au Bénin: une analyse suivant le genre. *International Journal of Strategic Management and Economic Studies (IJSMES), 2(1), 232-247*.

Steinmayr, R., Ziegler, M., & Träuble, B. (2010). Do intelligence and sustained attention interact in predicting academic achievement? *Learning and Individual Differences, 20(1), 14-18*.

Thompson, R. A. (2014). Stress and child development. *Future Child 24(1):41–5*.

Tong, F., Zhang, H., Zhen, F., Irby, B. J., & Lara-Alecio, R. (2021). Supporting home literacy practices in promoting Chinese parents’ engagement in their children's English education in low-SES families: an experimental study. *International Journal of Educational Research, 109, 101816*.

UNICEF, & Innocenti. (2024). Centre mondial de la recherche et de la prospective, Améliorer l’éducation en Afrique : Enseignements des travaux de recherche menés dans 33 pays. *UNICEF Innocenti, Florence, novembre*.

UNICEF, & Union Africaine. (2021). Tranformer l’éducation en Afrique : Un aperçu basé sur des données probantes et des recommandations pour des améliorations à long terme. *https://www.unicef.org/media/108921/file/%20Transforming%20Education%20in%20Africa%20-%20French.pdf*.

Wayack-Pambè, M., & Pilon, M. (2011). Sexe du chef de ménage et inégalités scolaires à Ouagadougou. *Autrepart, 59(3), 125. https://doi.org/10.3917/autr.059.0125*.

Wilson, E. K., Evans, O., & Kanus, E. (2023). effects of polygamy on academic performance of pupils in public primary schools in township ward, turkana central subcounty, kenya. *International Journal of Research in Education Humanities and Commerce Volume 04, Issue 03 "May - June 2023" ISSN 2583-0333*.

Yaoutchi, M., & Zourkaleini, Y. (2022). Les déterminants socio-économiques et familiaux de la déperdition scolaire au secondaire premier cycle de l’enseignement général dans la ville de Zinder (Niger). *LIENS, Nouvelle Série: Revue Francophone Internationale, 1(3), 183-194*.

Zah, M. S. (2013). Analyse des déterminants socio-économiques de la déperdition scolaire des filles issues des zones périphériques de la ville d’Ouagadougou. *Mémoire, Université de Koudougou Burkina Faso*.

Zimbardo, P. G., & Boyd, J. N. (2014). Putting time in perspective: A valid, reliable individual differences metric. *In Time perspective theory; review, research and application*.