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Economic Vulnerability, Land Use Planning and Human Capital in the West African Economic and Monetary Union (WAEMU): Analysis based on PASEC Data

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ABSTRACT

This article examines the factors that influence the human capital of primary school students in six WAEMU countries, considering both the economic vulnerability of households and land use planning. Drawing on theories of human capital, intergenerational poverty, and educational resilience, it uses PASEC 2019 data and adopts a three-level multilevel model supplemented by a binary logit model to analyze factors of educational resilience. The results show that economic vulnerability significantly reduces human capital, while better spatial planning and favorable educational practices (preschool education, interest in reading, urban or private schooling) strengthen it. The study highlights the importance of an integrated approach combining social, educational, and territorial policies to reduce educational inequalities and strengthen human capital in the WAEMU region.

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Introduction

The accumulation of human capital has long been a fundamental pillar of inclusive growth and sustainable development. According to the human capital theory of Becker (1975) and Mincer (1974), education represents an investment whose returns are manifested through increased productivity and greater social mobility [1,2]. However, in middle- and low-income economies, these returns are often compromised by structural economic, institutional, and territorial constraints that limit equitable access to quality education [3].

From the perspective of theories of intergenerational poverty and multidimensional vulnerability poor households are particularly exposed to risks that reduce their ability to invest in education [4,5]. This vulnerability, when combined with spatial disparities in infrastructure and resources, leads to persistent gaps in human capital [6]. In West Africa, the geography of education remains marked by significant territorial inequalities: rural and peri-urban areas, which are less well equipped with school infrastructure, perform significantly worse than urban centers [7-9]. This interaction between economic vulnerability and spatial planning is particularly crucial in WAEMU countries, where education policies still struggle to compensate for regional imbalances. Recent literature emphasizes the need to adopt an integrated approach to educational development, linking social inclusion, territorial equity, and the effectiveness of school systems [10].

In this context, this article makes a twofold contribution. Empirically, it uses PASEC 2019 data to simultaneously examine the effects of household economic vulnerability and spatial planning on the human capital of primary school students in six WAEMU countries. Methodologically, it adopts a three-level multilevel approach (student, school, country), making it possible to distinguish between individual, institutional, and territorial effects while correcting for intra- group correlation, which is often ignored in standard models. The study is complemented by a binary logit model of educational resilience, which identifies the factors that enable students from disadvantaged backgrounds to exceed performance expectations. This dual empirical approach provides an integrated understanding of the dynamics of human capital production in a regional space marked by socio-economic and institutional heterogeneity. By combining the contributions of human capital, spatial inequality, and educational resilience theories, this research contributes to the literature on the structural determinants of education in developing countries, while providing useful diagnostic elements for public policies aimed at reducing educational inequalities in the WAEMU.

The results show that economic vulnerability has a significant negative effect on human capital, while better spatial planning substantially improves educational performance. Furthermore, educational resilience is promoted by preschool education, an interest in reading, and urban or private schooling, while grade repetition and multigrade classes hinder it. These results confirm the need for an integrated approach combining social, educational,

and territorial policies to strengthen human capital in the WAEMU region.

The rest of the article is structured as follows: Section 2 presents the literature review, Section 3 presents the methodology, Section 4 describes the empirical results and their interpretation, and finally, Section 5 concludes by discussing the implications for public policy and future research directions.

Literature Review

- **Human Capital and Educational Inequalities**

The theory of human capital, developed by establishes that education is a productive investment whose returns translate into increased individual and collective productivity. The work of subsequently extended this approach to endogenous growth, emphasizing that the accumulation of human capital stimulates innovation, total factor productivity, and economic convergence between countries [11,12]. However, this relationship is conditioned by inequalities in access to education, often linked to individuals' socioeconomic and territorial characteristics. In low- and middle-income contexts, the most vulnerable households face liquidity constraints and recurrent economic shocks that hamper educational investment [13,14]. This dynamic leads to intergenerational reproduction of poverty through insufficient human capital, reinforcing long-term income and welfare gaps [15]. Furthermore, theories of multidimensional poverty Win, (2022) and Amartya's capability theory emphasize the role of institutional and territorial factors in the formation of educational inequalities, beyond income differences alone [16].

Economic Vulnerability and Academic Performance

Numerous empirical studies have highlighted the negative link between economic insecurity and educational performance. Children from poor households generally achieve lower levels of academic success due to material constraints (limited access to textbooks, inadequate nutrition, limited study time) and psychosocial constraints (stress, family instability) [17]. In sub-Saharan Africa, this relationship is amplified by the indirect costs of schooling and the poor quality of education provision in disadvantaged areas. In WAEMU countries, recent studies show that household vulnerability remains a major obstacle to human capital formation. According to performance gaps between students in the highest and lowest income quintiles sometimes reach 150 points on PASEC scores. These disparities reflect not only income inequalities but also differences in living conditions and access to educational resources. However, some studies highlight the existence of educational resilience: even in disadvantaged contexts, some students manage to exceed performance expectations, thanks in particular to family support, intrinsic motivation, or the quality of the school environment [18].

Land Use Planning and Spatial Inequalities in Education

Inequalities in access to and quality of education also reflect disparities in spatial planning. The work of has shown that the spatial concentration of infrastructure, public services, and economic opportunities reinforces gaps in productivity and human capital [19]. In West African countries, rapid urbanization has often accentuated the polarization between well- equipped urban centers and marginalized rural areas. Educational infrastructure, access to transportation, digital connectivity, and the availability of qualified teachers are essential dimensions of spatial planning that directly influence educational outcomes. According to the quality of local institutions and the spatial distribution of public investment strongly determine human capital formation and social mobility. Thus, spatial planning becomes a lever for education policy, capable of reducing spatial divides and improving the internal efficiency of the school system [20].

Educational Resilience and Equity in African School Systems

The concept of educational resilience, introduced by and developed in recent work by refers to the ability of students to maintain or improve their performance despite adverse socioeconomic conditions [21,22]. This approach emphasizes individual protective factors (motivation, commitment, self-esteem), family factors (parental support, emotional stability), and institutional factors (school climate, educational leadership). In the African context, school resilience is often associated with the quality of educational leadership, teacher training, and the ability of schools to create inclusive learning environments. PASEC analyses show that some rural schools manage to produce good results despite a difficult socioeconomic environment, illustrating the decisive role of pedagogical practices and school leadership.

Gaps in the Literature and Contribution of the Study

Despite the wealth of research on human capital and educational inequalities, few studies have examined in an integrated manner the relationship between economic vulnerability, spatial distribution, and educational resilience in the West African context. Most existing research analyzes socio-economic or territorial effects separately, without explicitly modeling the hierarchical structure of education systems (student, school, country). In addition, standard econometric approaches (OLS, simple Probit) often neglect intra-school dependence and contextual effects, leading to bias in the estimation of coefficients. By using PASEC 2019 data and a three-level multilevel model supplemented by a logit resilience model, this study fills this gap. It offers a simultaneous reading of the individual, institutional, and territorial determinants of human capital in the WAEMU region, while identifying the levers of educational resilience. This integrated approach provides a better understanding of how economic and spatial inequalities interact to shape human capital production in West Africa.

Methodology

Theoretical Framework of the Multilevel Model

Ordinary least squares (OLS) models do not take into account the hierarchical structure of the data and assume that errors are independent, which is often unrealistic when students are grouped within schools and countries. Multilevel (or hierarchical linear) models allow for the simultaneous modeling of individual and contextual effects and have been widely developed in educational research to isolate the effects of teachers and schools while taking into account the individual characteristics of students. In the context of the WAEMU, these models make it possible to simultaneously quantify the individual effects related to the economic vulnerability of households and the personal characteristics of students, the contextual effects specific to schools, and the effects of territorial characteristics at the regional or national level.

Specification of the Three-Level Multilevel Model

Level 1: Student

$$Yijp=\beta 0jp+\beta 1jpXijp+\varepsilon ijp \qquad (1)$$

$Yijp$: human capital of student i in school j in country p; $Xijp$: $v$variables related to the individual characteristics of the student and εijp is the individual error

Level 2: School

$$\beta ojp = \gamma 00p + \gamma 01pWJp + u0jp$$
$$\{ \beta 1jp = \gamma 1op + \gamma 11pWJp + u1jp \quad (2)$$

With W_{jp} the characteristics of the school and u_{0jp}, u_{1jp}, represent the random effects of the school for intercept and slope.

Level 3: Country

$$\gamma 00p = \delta\ 000 + \delta\ 001Zp + \text{v}00p$$
$$\{\gamma 10p = \delta\ 100 + \delta\ 101\ Zp + \text{v}10p \quad (3)$$

Complete Model:

$$Yijp = \delta 000 + \delta\ 001Zp + \delta\ 000Xijp + \delta 101(Xijp.Zp) + \gamma 01p\ WJp + \gamma 11p\ (Xijp.WJp) + (\text{v}00p + \text{v}10pXijp + u0jp + u1jpXijp + \mathcal{E}ijp) \quad (4)$$

δ101 : measures the differential effect of economic vulnerability according to the level of spatial planning and v+ u + Ɛ captures the unobserved variance at the country, school, and student levels.

Student Resilience Analysis (Binary Logit)

Student resilience is defined as the ability to achieve human capital above expectations given their economic vulnerability. Drawing on recent approaches in education we use a binary logit model to identify the factors associated with resilience:

$$\text{Resilient} = \begin{cases} 1 \text{ if } Y_i > Y_t \\ 0 \quad \text{if not} \end{cases} \quad (5)$$

Y_t: is the expected human capital for student i based on their level of vulnerability The binary logit model is:

$$\Pr(y = 1) = \exp(\alpha + \beta xi + \delta Zi)\ /(1 + \exp(\alpha + \beta xi + \delta Zi) \quad (6)$$

Or in Logarithmic (Logit) Form:

$$logit|\pi = (Y_i - 1|| - in| \frac{\pi(Y_i = 1)}{[1 - \pi(Y_i = 1)]}| - \beta_0 + \beta_1 x_1 + \cdots + \beta_m x_m \quad (7)$$

Along with Xi, which covers individual and school characteristics of students, Zi includes the land use index and other contextual characteristics. Errors are clustered at the school level to account for intra-school correlation.

Data Source

The data used in this study come from the 2019 PASEC surveys conducted by CONFEMEN's Program for the Analysis of Education Systems, covering six WAEMU countries: Benin, Burkina Faso, Côte d'Ivoire, Niger, Senegal, and Togo. The sample includes 26 522 students from several hundred schools, providing a representative sample of the primary education systems in these countries. The PASEC database provides detailed information on student performance, including plausible scores in reading and mathematics, test components, and variables related to the individual characteristics of students and their families. It also contains indicators on teachers (personal characteristics and teaching conditions), school principals, learning conditions, and composite indices derived from various questions, as well as sampling weights and replicated weights for each student and school.

Choice of Variables

The variables used were selected on the basis of the literature and cover both the individual characteristics of students and school conditions. At the individual level, we consider gender, age, access to preschool education, grade repetition, interest in reading and mathematics, and parents' level of education. Human capital is approximated by the average plausible scores in reading and mathematics (PASEC 2019). Household economic conditions are measured using a socio- economic vulnerability index constructed from information on ownership of durable goods, the type of material used for housing walls, and access to basic infrastructure (electricity, latrines, drinking water). The variables were coded in binary form (1 = present, 0 = absent) and then aggregated using principal component analysis (PCA), with the first factor explaining the largest share of variance being retained as a synthetic vulnerability score. At the contextual level, we also incorporate the spatial development index to measure the effects of local development on students' human capital. The land use index used in this study was provided by the PASEC database. It is constructed on the basis of the availability of goods and services in the area, such as the presence of a paved road, electricity, a middle school, a high school, a health or medical center, a gendarmerie or police station, a bank, a savings bank, a post office, and a cultural center or library (PASEC, 2019). School characteristics include teachers (gender, age, training, experience), class size, the presence of multigrade classes, and location (urban/rural).

Table 1: Descriptive Statistics

Variables	Mean	Standard Deviation	N
Human capital (PASEC score)	516.06	94.94	26239
Vulnerability index	-0.59	1.87	26239
Land use planning index	50.07	10.47	25759
Gender (Girls = 1)	0.496	0.500	26,238
Age >11 years	0.777	0.417	26239
Preschool (Yes = 1)	0.294	0.456	26239
Interest in reading (Yes = 1)	0.950	0.218	26239
Interest in Math (Yes = 1)	0.900	0.299	26239
Repeating a year (Yes = 1)	0.519	0.500	26239
Teacher gender (Female = 1)	0.184	0.387	26239
Teacher Level > High School Diploma (Yes = 1)	0.362	0.492	24510
Teaching Experience ≥10 years	0.642	0.480	26239
Class size >40 (Yes = 1)	0.388	0.487	26239
Urban environment (Yes = 1)	0.350	0.477	26239
Multigrade (Yes = 1)	0.225	0.418	25683
School type (composite)	1.189	0.392	25,800

Notes: The table shows the means, standard deviations, and number of students observed for each variable for the 26,239 students included in the analysis sample. Human capital: average scores (reading and mathematics). Vulnerability index is standardized by PCA.

Source: PASEC 2019 data, author's calculations.

Disparities in Human Capital Across WAEMU Countries

Average scores in reading and mathematics vary greatly between countries, illustrating the combined influence of socio-economic conditions and the national educational context.

Table 2: Average Student Scores in Reading and Mathematics and Proportion Reaching the Minimum PASEC Level, by WAEMU Country (2019)

Country	Average reading	Standard deviation	Average Mathematic	Standard deviation	N	% ≥ 517 reading	% ≥ 520 Mathematic
Benin	575,9	91,5	527,1	81,2	3590	72,2	49.7
B.F	552,2	87,6	547,7	87,3	5560	68,1	63.2
C.I	498,3	105,2	453,1	66,4	3762	39,4	16.3
Niger	479,6	100,4	466,4	86,4	5084	33,4	23.9
Senegal	570	81,8	555,3	84,8	3507	74,6	65.7
Togo	494,6	101,9	494,2	101,0	5019	38,5	36.4
UEMOA	525,3	102,6	506,8	94,3	26522	53,4	42.5

Source: Authors based on estimation data B.F: Burkina Faso; C.I: Ivory Coast

Multicollinearity Analysis

The VIF test indicates no significant multicollinearity (average VIF = 1.29), ensuring the robustness of the estimates.

Table 3: Multicollinearity Analysis

Variable	VIF	1/VIF
Vulnerability index	1.03	0.97
Land use planning index	2.31	0.43
Student age	1.14	0.88
Access to preschool	1.15	0.86
Repetition	1.07	0.93
Interest in reading	1.06	0.94
Interest in mathematics	1.06	0.94
Class size	1.04	0.96
Multigrade school	1.11	0.90
School status	1.32	0.75
Teacher gender	1.16	0.86
Teacher's age	1.27	0.78
Teacher's level of education	1.09	0.92
Teacher experience	1.34	0.74
School location	2.29	0.43
Average VIF	1.29	

Source: Authors based on estimates

Results and Discussions

Multilevel Models

Empty Model

Before adding the explanatory variables, we estimated an empty model (Table 4) to quantify the distribution of human capital variance across different hierarchical levels (students, schools, countries). Approximately 11% of the variance in human capital is attributable to differences between countries and 40% to differences between schools. This hierarchical structure justifies the use of a multilevel model rather than a conventional OLS regression.

This hierarchical structure justifies the use of a multilevel model rather than a traditional OLS regression.

Table 4: Results of the Empty Model

Level	Approximate	Approximate ICC
Country	1,344.86	11
Schools	4,814.93	40
Students (residual)	2,953.28	49

*** p<0.001; ** p<0.01; * p<0.05

Complete Multilevel Model

We then estimated the multilevel model at three levels: students (level 1), schools (level 2), and countries (level 3), incorporating individual, school, and contextual variables (economic vulnerability and land use planning).

The results of the complete model (Table 5) reveal that the human capital of students in the WAEMU is strongly influenced by economic vulnerability and land use planning. The results show that students from more vulnerable households score significantly lower, while better spatial planning is associated with substantial gains in human capital, confirming the importance of local infrastructure and the socio-educational context. Individual and school characteristics also influence performance: preschool education and interest in reading and mathematics increase human capital, while grade repetition, multigrade classes, and overcrowding reduce learning outcomes. Private school status and urban environments translate into significant advantages, while the effects of teacher age, experience, and education level appear to be less decisive in this context. Random components confirm substantial variations between schools and between countries, fully justifying the multilevel approach. Robustness estimates using a fixed-effects model per school confirm the direction and magnitude of the key effects, reinforcing the credibility of the results. These findings underscore that policies integrating support for vulnerable households and improvements in school and regional infrastructure are essential to reducing educational inequalities and maximizing human capital in the region.

Table 5: Results of the Full Model

Variables	Multilevel Model
Vulnerability index	-2.248***
Land use planning index	0.916***
Student age (>11 years)	-9.971***
Pre schooled (Yes)	6.940***
Repeating a grade (Yes)	-24.531***
Interest in reading (Yes)	26.113***
Interest in mathematics (Yes)	9.944***
Class size (>40 students)	-5.840
Multigrade class (Yes)	-18.744***
School status (Private)	21.280***
Teacher's gender (Female)	10.358*
Teacher's age (over 40)	-3.477
Teacher's level of education (> high school diploma)	2.425
Professional experience (> 10 years)	7.800
School environment (urban)	30.892***
Constant	439.843***
$\ln\sigma_1$ (lns1_1_1)	3.632***
$\ln\sigma_2$ (lns2_1_1)	4.063***
$\ln\sigma_e$ (lnsig_e)	3.953***

*** p<0.001; ** p<0.01; * p<0.05

Robustness Analysis

To verify the robustness of our results, we applied the Hausman test to compare fixed effects (FE) and random effects (RE) models at the school level. The statistic (χ^2 (16) = 74.29, p < 0.001) shows that the RE coefficients systematically differ from the FE coefficients, justifying the choice of the FE model for consistent and unbiased estimates. The estimation of an FE model confirms that the coefficients of the key variable-, particularly economic vulnerability and land use planning, are consistent in sign and significance with those of the multilevel model, reinforcing the credibility of our results.

Table 6: Robustness Analysis

Variables	Coefficient	Error Std.
Vulnerability index	-2.996***	0.275
Land use index	1.416***	0.101
Age >11 years	-7.464***	1.201
Preschool (Yes)	7.155***	1.138
Repetition (Yes)	-23.063***	0.974
Interest in reading (Yes)	34.860***	2.197
Interest in math (Yes)	-2.543	1.633
Class size >40 students	-6.492***	1.546
Multigrade (Yes)	-23.825***	1.686
Private school	46.242***	2.037
Teacher gender (female)	17.813***	2.033
Teacher age >40 years old	6.446***	1.562
Teacher level > high school diploma	18.716***	1.539
Experience ≥10 years	-1.879	1.641
Urban environment	-3.736	2.247
Constante	415.970***	

*** p<0.001; ** p<0.01; * p<0.05. Standard errors are robust and clustered at the school level. The Hausman test (χ^2 = 74.29, p < 0.001) confirms that the FE model is more appropriate than the RE model.

Educational Resilience (Logit Model)

To complete the analysis of human capital determinants, we examine students' resilience to economic vulnerability using a binary logit model. This approach identifies the individual, academic, and regional factors associated with students' ability to exceed expected performance given their socioeconomic context. The results indicate that, although the direct effect of the vulnerability score is not significant at the 5% threshold, the probability of being resilient tends to decrease as economic vulnerability increases, suggesting an underlying negative influence of precariousness. Counterintuitively, access to better-equipped school facilities seems to slightly reduce the probability of resilience, which could be explained by the fact that students from better-equipped schools are already reaching their expected potential. In terms of individual characteristics, students who have benefited from preschool education, those who show amarked interest in reading, and those who attend private or urban schools are significantly more likely to be resilient. Conversely, repeating a year, multigrade classes, and overcrowded classrooms significantly reduce this probability. These results confirm the central role of educational and environmental factors in the development of human capital, regardless of the initial level of vulnerability. Finally, notable differences between countries highlight the influence of national contexts, with some nations such as Niger and Côte d'Ivoire showing lower probabilities of resilience compared to Benin, indicating structural disparities in the effectiveness of education policies.

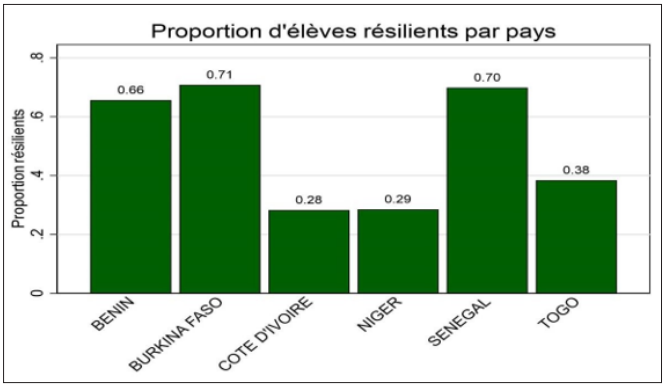
Table 7 : Logit Model Results

Variables	Coefficient	Std. error
Vulnerability index	-0.020	0.014
Land use index	-0.041***	0.006
Age >11 years	-0.275***	0.056
Preschool (Yes)	0.260	0.059
Repeating a grade (Yes)	-0.619	0.047
Interest in reading (Yes)	0.994	0.110
Interest in math (Yes)	-0.013	0.077
Class size >40 students	-0.134	0.093
Multigrade (Yes)	-0.420	0.108
Private school	0.546	0.129
Teacher gender (female)	0.294	0.122
Teacher age >40 years	-0.055	0.091
Teacher's level > high school diploma	0.075	0.091
Teaching level (category 3)	1.275	0.535
Experience ≥10 years	0.155	0.095
Urban environment	0.681	0.132
BF	0.186	0.138
CI	-1.716***	0.147
NIG	-1.886***	0.156
SEN	0.285	0.156

TOG	-1.192***	0.138
Constant	1.942	0.313

*** p<0.001; ** p<0.01; * p< 0.05; BF: Burkina Faso; CI: Côte d'Ivoire; NIG: Niger; SEN: Senegal; TOG: Togo

The graph illustrates the proportion of resilient students in six West African countries. There are marked differences between countries: the highest rates are observed in Burkina Faso (0.71), Senegal (0.70), and Benin (0.66), while Côte d'Ivoire (0.28), Niger (0.29), and Togo (0.38) have much lower proportions. These disparities suggest that educational resilience, defined as the ability of students from disadvantaged backgrounds to maintain good academic performance, is strongly influenced by the national context. Countries with high rates could benefit from inclusive educational systems, a favorable socio-emotional environment, or public policies targeting educational inequalities. Conversely, the low rates observed in Côte d'Ivoire and Niger may reflect more pronounced structural constraints, such as limited access to education, regional disparities, insufficient teaching quality, or reduced institutional support.



Limitations of the Study

Despite the robustness of the econometric approach adopted, several limitations should be noted. First, the PASEC 2019 data used are cross-sectional, which limits the possibility of establishing strict causal relationships between household economic vulnerability, land use planning, and human capital. Second, the analysis covers only six WAEMU countries, due to a lack of data for Guinea and Mali, which slightly limits the generalizability of the results to the entire region. Finally, although the study is based on a large sample covering thousands of students, the heterogeneity of educational contexts within the countries studied may introduce biases related to unobserved institutional or territorial factors.

Conclusion

This study highlights the decisive role of household economic vulnerability and territorial development in the human capital development of primary school students in the WAEMU region. The results show that economic constraints significantly limit school performance, while better access to infrastructure and favorable educational practices, such as preschool education and an interest in reading, strengthen educational resilience. These findings underscore the importance of adopting an integrated approach combining social, educational, territorial, and economic policies to reduce educational inequalities and stimulate human capital. Beyond its empirical scope, the study provides useful diagnostic information for policymakers and opens up avenues for future research, including longitudinal analysis of the effects of economic vulnerability and regional development on educational achievement, as well as exploration of specific resilience mechanisms in different regional contexts. By strengthening understanding of the structural determinants of education, this research helps guide public policies aimed at promoting inclusive and sustainable growth in WAEMU countries.

References

1. Becker GS (1975) Human capital: A theoretical and empirical analysis. National Bureau of Economic Research https://www.nber.org/system/files/chapters/c3730/c3730.pdf.
2. Mincer J (1974) Schooling, experience and earnings Columbia University Press. New York https://www.nber.org/system/files/chapters/c1765/c1765.pdf.
3. Hanushek EA, Woessmann L (2020) The economic impacts of learning losses. https://hanushek.stanford.edu/sites/default/files/publications/The%20Economic%20Impacts%20of%20Learning%20Losses_final_v1.pdf.
4. Galor O, Zeira J (1993) Income Distribution and Macroeconomics. The Review of Economic studies 60: 35-52.
5. Win WSC (2022) Stefan Dercon Gambling on Development. Why Some Countries Win and Others Lose. Revista de economía mundial 62: 199-204.
6. Combes PP, Duranton G, Gobillon L (2012) The Costs of Agglomeration: Land Prices in French Cities. https://www.econstor.eu/bitstream/10419/69380/1/731592964.pdf.
7. Sanfo JBM (2023) Factors Explaining Rural-Urban Learning Achievement Inequalities in Primary Education in Benin, Burkina Faso, Togo, and Cameroon. International Journal of Educational Research Open 4: 100230-100234.
8. Agyei EA, Annim SK, Acquah BYS, Sebu J, Agyei SK (2024) Education Infrastructure Inequality and Academic Performance in Ghana. Heliyon 10: 34040-34041
9. Sever C (2025) Education in the WAEMU: Current Situation and the Way Forward. https://www.imf.org/en/-/media/files/publications/selected-issues-papers/2025/english/sipea2025074.pdf.
10. Oketch M (2014) Human Capital Theory and Educational Policy Strategies in Sub-Saharan Africa: A Retrospective Overview. International Journal of Educational Development in Africa 1: 96-107.
11. Lucas Jr RE (1988) On the Mechanics of Economic Development. Journal of Monetary Economics 22: 3-42.
12. Barro RJ (1991) Economic Growth in a Cross Section of Countries. The Quarterly Journal of Economics 106: 407-443.
13. Galor O, Zeira J (1993) Income Distribution and Macroeconomics. The Review of Economic Studies 60: 35-52.
14. Glewwe P, Kremer M (2006) Schools, Teachers, and Education Outcomes in Developing Countries. Handbook of the Economics of Education 2: 945-1017.
15. Banerjee A, Duflo E (2013) Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty. Society and Economy 35: 573-587.
16. Sen A (1999) Development as Freedom. https://kuangaliablog.wordpress.com/wp-content/uploads/2017/07/amartya_kumar_sen_development_as_freedombookfi.pdf.
17. Engle PL, Black MM (2008) The Effect of Poverty on Child Development and Educational Outcomes. Annals of the New York Academy of Sciences 1136: 243-256.
18. Luthar SS, Cicchetti D, Becker B (2000) The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work. Child Development 71: 543-562.
19. Combes PP, Duranton G, Gobillon, L (2012b) The costs of agglomeration: Land prices in French cities. https://www.econstor.eu/bitstream/10419/69380/1/731592964.pdf.

20. Ndulu BJ (2008) The Political Economy of Economic Growth in Africa 1960-2000. Cambridge University Press https://assets.cambridge.org/97811074/96262/frontmatter/9781107496262_frontmatter.pdf.
21. Luthar SS, Cicchetti D, Becker B (2000) The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work. Child Development 71: 543-562.
22. Fergus S, Zimmerman MA (2005) ADOLESCENT RESILIENCE: A Framework for Understanding Healthy Development in the Face of Risk. Annual Review of Public Health 26: 399-419.