

PERSPECTIVE PAPER

Analysis of funding for education and school outcomes in Africa

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ABSTRACT

Given its significance in developing human capital, education is one of the sectors which is globally prioritized. UNESCO requires governments to allocate 25 per cent of their budgets to education. Despite the growing budget allocation from the different stakeholders including governments, Official Development Aid (ODA), and households, many children in Africa fail to access education given the low enrolments and completion rates. The study sought to assess the use of education funding for education outcomes in Africa. It identified strategies and came up with policy recommendations to improve school outcomes. The study used a secondary research method by extracting data from World Bank and UNESCO data sets relating to the key study variables from 2010 – 2024 for 54 countries. A Fixed Effect Regression Model (FERM) was used to establish relationships. Thematic analysis was used to present the findings from the study. Findings indicate a growing budget allocation to education by governments though many countries missed out on the required UNESCO target of 25 per cent. Reduced funding by ODA, and increased funding by the private sector. Increased government spending significantly improves enrolment and completion rates. Completing primary education strongly influences secondary school enrolment. In conclusion, commitment to meeting UNESCO's 25% budget target for education, reducing regional inequalities, subsidizing private education, and improving transitional programs enhances school outcomes. African countries should engage in innovative approaches. This creates equitable, accessible, and high-quality education systems, unlocking transformative power of education for sustainable development across the continent.

KEYWORDS:

Education funding, school outcomes, Enrolments, Completion rates, and Africa Authors and their detailed information

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INTRODUCTION

Education is the key to growth and development^{1,2}. Education supports human capital development^{2,3}. Schooling is a mechanism for enhancing social cohesion and national building, producing different externalities, plus supporting innovations³. The global expenditure on education reached US\$5.4 trillion in 2021³. The sector receives priority in budget allocation from the different stakeholders. These include governments, Official Development Assistance (ODA) from organizations such as the World Bank, and households in the private sector^{1,2,3}. Funding for education helps to provide the required learning facilities, salary payment to attract and motivate staff into the sector, manage change, and overcome challenges such as the COVID-19 pandemic^{2,3}. Education addresses issues of inequity to promote social and economic inclusivity to foster growth and development. This paper presents funding for education by governments, ODA, and households in Africa. It discusses the school outcomes including; enrolments and completion rates. It recommends strategies and policies to governments to improve school outcomes in Africa.

The international benchmark for government spending on education is at 4 per cent of Gross Domestic Product (GDP)³. In low -and middle- income countries, government spending increased from 3.2 per cent in 2018 to 3.6 per cent in 2021 on average, as a response to manage Covid-19 impacts on the sector³. The increase in funding by governments for the different countries was followed by reduced funding by ODA in 2021. Much of the education costs were borne by the households². Funding for education in Africa rose from US\$ 147 billion in 2018 to 157 billion in 2019, 154 billion in 2020, and 159 billion in 2021³. South Africa Development Community (SADC) registered the largest increase in spending on education with 9 per cent, followed by the East African Community (EAC) with 8.5 per cent. There was marked stagnation in Central Africa over the period³.

In Africa, the total education expenditure by the different units including, governments, households, and development aid, increased by 2 percent in 2021 from 2020. While government spending accounted for 69 per cent of the total increase in expenditure, 27 per

cent was by households, and development aid accounted for 5 per cent. However, according to the Global Education Monitoring report⁴, the median annual education spending per capita stagnated throughout the past decade at around USD\$100.

Though there is an increase in government expenditure, the largest portion of the costs towards the education sector is borne by households. This deprives the private sector of funds for investments, given the high costs in terms of school fees and other scholastic materials. Privatization of education gives rise to hiking up of school fees with accompanying school requirements. This limits accessibility to many learners in a laissez-faire economy. It is followed by low enrolments, and high drop-out rates, which finally result in incomplete academic levels. As education is becoming very expensive with the growing privatization of the education sector, an increase in education funding by households deprives the private sector of funds for investments to grow other sectors to facilitate development. This limits the realization of positive education outcomes in the long run.

Despite its vital role in driving development, education in Africa continues to face significant challenges in ensuring equitable and quality access for all. While governments, households, and development aid have increased funding, the impact on outcomes such as enrolment, completion rates, and transitions between levels remains limited, particularly in low-income countries. Systemic issues like inadequate public spending, inefficient resource allocation, accountability for resources and socio-economic inequalities hinder progress.

Many donor aid funders are slowly withdrawing their support. This is based on issues of accountability by those who are entrusted with the much-needed scarce resources to grow the different sectors including education. Additionally, marginalized groups—such as rural students, girls, and individuals with disabilities—struggle with access and inclusivity. These challenges highlight the need to better understand how education funding affects outcomes and identify effective strategies to create a more equitable and impactful education system across Africa. Hence, the need to

investigate the relationship between government funding and educational outcomes in Africa. The study identifies effective strategies and provides policy recommendations on educational funding to improve school outcomes in Africa.

METHODS

The study used a secondary research method by extracting data from World Bank and UNESCO data sets relating to the key study variables from 2010 – 2024. A Fixed-Effect regression model analysis was used to establish relationships among the variables. This study analysed data from 54 countries, spanning two regions: North Africa (6 countries) and Sub-Saharan Africa (48 countries), with further classification into five sub-regions within Sub-Saharan Africa. An additional layer of classification was applied based on income levels: high income (1 country), low income (22 countries), lower middle income (23 countries), and upper middle income (8 countries).

RESULTS

The descriptive statistics revealed that the average primary school completion rate across Africa is 72.6% (± 19.3 SD), indicating moderate variability. Primary school enrolment averages at 100.2% (21.8 SD), reflecting high participation levels, while secondary school enrolment averages 52.7% (23.9 SD), showing moderate uptake with considerable regional disparities.

The general overview of education funding and trends in Africa has shown a gradual increase from various stakeholders, including governments, households, and non-governmental organizations (NGOs). However, after the outbreak of COVID-19, the sector continued to receive less funding from Official Development Aid (ODA). Despite the progress in funding by governments, many countries still do not meet the UNESCO-recommended allocation of 25%, which significantly hampers efforts to improve enrolment and completion rates across all educational levels.

Although primary school enrolment averages 100.2%, disparities are evident across regions and income levels. Findings indicated that government expenditure in Africa ranged from 3 to 24.8 % on average. With Somalia being in the bottom of the expenditure list and Ethiopia at the top (map1). Governmental expenditure was a statistically significant predictor of primary school enrolments ($P < .001$). Regional analysis revealed that primary school enrolment was significantly higher in Sub-Saharan Africa compared to the North Africa, with an increase of 1.20 units ($P = 0.02$). Notably, the income group classifications (low, lower middle, and upper middle income) did not yield statistically significant results, as all associated p-values exceeded 0.05. The overall model for primary school enrolment was statistically significant, as evidenced by an F-statistic of 6.67 ($P < .001$). The regression results show that government expenditure can account for 41% of the improvement in primary enrolments in Africa (Table 1).

Table 1. The Estimated effect of government education expenditure, region, and income level on primary school enrolment in Africa

Predictor Variable	Estimate	Standard Error (SE)	T-value	P-value	95% Confidence interval	
Intercept	-0.03	1.18	-0.03	0.98	-2.39	2.33
Government Expenditure	0.58	0.12	4.85	<0.001	0.34	0.81
Income Group: Low Income	-1.01	1.09	-0.93	0.36	-3.19	1.17
Income Group: Lower-Middle Income	-1.15	1.09	-1.05	0.29	-3.35	1.05
Income Group: Upper-Middle Income	-1.19	1.14	-1.05	0.30	-3.47	1.09
Factor (region) Sub-Saharan Africa	1.20	0.49	2.48	0.02	0.23	2.18

Multiple-R squared 0.41

Source: Secondary data from World Bank dataset ¹⁴.

The descriptive results indicate an average primary school completion rate of 72.6%, though considerable variability exists. In terms of primary school completion, the findings showed that both government expenditure and income level groups were influential. Specifically, a unit increase in government expenditure corresponded to a 0.51 unit increase in the primary completion z-score ($P < .001$) (Table 2). Low-income countries demonstrated a significantly lower primary completion rate compared to high-income countries, with a decrease of 3.63 units $P < .001$. Lower middle-

income and upper middle-income countries exhibited reductions in completion z-scores of 2.80 ($P < .001$) and 2.64 ($P = 0.02$), respectively. While primary school completion rates in Sub-Saharan Africa were 0.60 units higher than those in the North Africa, this result was not statistically significant ($P = 0.20$). A fixed effects regression analysis shows that government expenditure can account for 49% of the improvement in completion rates at the primary level education (Multiple R-Squared of 0.49 with a significant $P < .001$ value (Table 2).

Table 2. The Estimated effect of government education expenditure, region, and income level on primary school completion rate in Africa.

Predictor Variable	Estimate	Standard Error (SE)	T-value	P-value	95% Confidence interval	
Intercept	2.44	1.09	2.24	$P < 0.01$	0.25	4.63
Government Expenditure	0.51	0.11	4.65	< 0.001	0.29	0.73
Income Group: Low Income	-3.63	1.01	-3.60	0.001	-5.65	-1.60
Income Group: Lower-Middle Income	-2.80	1.01	-2.76	0.001	-4.84	-0.76
Income Group: Upper-Middle Income	-2.64	1.05	-2.51	0.01	-4.75	-0.52
Factor (region) Sub-Saharan Africa	0.59	0.45	1.31	0.20	-0.31	1.50

Multiple R-squared 0.49

Source: Secondary data World Bank data set¹⁴

Secondary school enrolment averages 52.7%, with noticeable disparities. For secondary school enrolment, primary school completion emerged as the predominant predictor. The data revealed that a 1-unit increase in the primary school completion z-score resulted in a 0.69-unit increase in the secondary school enrolment z-score ($P < .001$) (Table 3). In contrast, factors such as government expenditure, regional differences, and income levels did not yield statistically significant effects on secondary school enrolment, as all associated P -values were greater than 0.05. These findings underscore the vital role played by primary school completion in influencing secondary school enrolment outcomes, while also demonstrating the significant effects of government expenditure on both primary school enrolment and completion rates (Table 3).

Further findings of fixed effects model analysis of primary school completion on five sub-regions within Sub-Saharan Africa (Central Africa, Eastern Africa, Northern Africa, Southern Africa and Western Africa) holding other variables constant, revealed varied effects on primary school completion. Eastern Africa has as a lower primary completion (rate of = 0.34 with, $P = 0.209$) in contrast to Northern Africa with a higher primary completion (rate of 0.71, which is statistically significant with $P = 0.043$). Southern and western Africa have primary completion rates of 0.58, 0.54 and P -values 0.56, 0.50 respectively compared to the reference, Central Africa. However, these regional effects do not indicate statistically significant effects on primary school completion rates.

Table 3. The Estimated effect of government education expenditure, primary school completion rate, primary school enrolment, region, and income level on secondary school enrolment in Africa.

Predictor Variable	Estimate	Standard Error (SE)	T-value	P-value	95% Confidence interval	
Intercept	0.62	1.11	0.56	0.58	-1.62	2.85
Government Expenditure	-0.03	0.13	-0.22	0.83	-0.28	0.23
Primary school Enrolment	-0.07	0.18	-0.39	0.69	-0.43	0.29
Primary completion rate	0.69	0.19	3.59	<0.001	0.30	1.08
Income Group: Low Income	-0.07	1.09	-0.07	0.95	-2.28	2.13
Income Group: Lower-Middle Income	-0.21	1.02	-0.21	0.83	-2.27	1.84
Income Group: Upper-Middle Income	-0.03	1.04	-0.03	0.98	-2.12	2.07
Factor (region) Sub-Saharan Africa	-0.72	0.44	-1.64	0.11	-1.61	0.17

Multiple R-squared 0.49

Source: Secondary data World Bank data set ¹⁴.

DISCUSSION

Findings show that government expenditure is a pivotal factor influencing primary and secondary school outcomes. Findings also indicate a statistically significant positive relationship between government spending and both enrolment and completion rates. Increased public investment in educational infrastructure and resources can lead to substantial improvements in access and retention. Public investment in education has shown great potential in expanding access and keeping students in school, but the benefits are not evenly shared. Low-income countries and underserved regions continue to face challenges like inadequate infrastructure, accountability for resources, insufficient resources, and stark economic inequalities.

Findings further indicated that the completion rates in primary education serve as strong predictors for secondary school enrolment. However, structural barriers—including inadequate funding, insufficient infrastructure, and policy gaps—hinder smooth transitions to secondary education level. Comprehensive reforms are necessary to bridge these gaps.

The study is limited by use of secondary data without getting opinions and hearing from voices of

independent education stakeholders. However, the secondary data which was used for analysis was extracted from World Bank data set, which is one of the internationally credible institutions.

The relationship between the apportionment to education and the quality of education outputs in Africa is complex and multifaceted. Research evidence has demonstrated that increased public financing for education can, indeed, contribute to marked improvement in outcomes. However, such efficacy is partly dependent upon the stratum of education that such additional resources aim at and the modalities for managing these very resources. These are critical aspects for further discussion by independent researchers.

A study by Musah et al. showed that increased spending in public education improves the ratios of pupils to teachers at both secondary and tertiary levels of learning⁵. Similarly, Farayibi and Folarin noted that while government spending has recorded improvement in learning outcomes, the effectiveness of spending varies depending on the level of education a government decides to focus its spending on such as education infrastructure and teacher training⁶.

Effective use of finances toward educational infrastructure and training for teachers has been stated

to enhance learning outcomes. As highlighted in “The relationship between the use benefit of educational funds and education quality” (n.d.)⁷, a systematic review demonstrated that interventions directly affecting students, like improved teaching aids and performance incentives, result in better outcomes. Hassan et al. also pointed out that such interventions provide significant benefits in improving educational quality⁸.

Effective resource management helps to address institutional rigidities. Inadequate allocation of funds poses significant challenges to making the higher education system responsive to labour market demands⁶.

Additionally, Hassan et al. observed resource management is vital to improve education outcomes⁶. Findings show that more often most attention is accorded to primary and secondary levels at the expense of the tertiary level, where human capital is most critically developed. Funding to the lower education levels such as primary and secondary, can be affordable to most parents as compared to tertiary education expenditures. The tertiary education level prepares the learners for the world of work. It enhances the overall education quality at both the local and international levels which requires increased government funding to promote the overall education quality at all levels.

A balanced approach addressing all levels of education, coupled with an improvement in governance structures, is essential for realizing sustainable school outcomes in Africa. Regional disparities reveal the need for tailored solutions to address specific barriers. While primary school enrolments have improved in Sub-Saharan Africa, low completion rates in many countries indicate that funding alone is not enough without effective policies and better resource management. Transitions from primary to secondary education are also hampered by systemic gaps, including a lack of infrastructure and limited support for vulnerable students. This calls for inclusive funding growth strategies by the respective governments.

Inclusive funding growth strategies, such as cash transfer programs and Open Educational Resources (OER), have proven successful in improving access for marginalized groups, including girls, rural students, and those with disabilities. These targeted interventions demonstrate the power of innovative approaches by governments to promote equity in education by reducing regional and economic disparities.

Findings show that government expenditure has a statistically significant positive impact on primary school enrolment and completion rates. For every unit increase in government spending, primary enrolment improves by 0.575 units ($P < .001$), and completion rates rise by 0.361 units ($P < .001$). Some governments came up with interventions including Universal Primary Education (UPE) and Universal Secondary Education (USE). However, these programs have been challenged by the quality of education required to attract and retain learners in schools. The insufficient allocation of resources by many governments limits the potential for large-scale improvements like completion rates which challenge is exacerbated by social and economic disparities to achieve sustainable, inclusive development in Africa.

The study findings show that the failure to complete primary education by learners hampers secondary enrolment and ability to join tertiary education. This has greatly contributed to the low quality of the workforce in the labour market in Africa. This has resulted in the massive use of experts on various projects. The use of experts results in increased outflow of financial resources from the continent. This has negatively impacted growth and development given the low employment income and investments attributed to the low levels of education as many drop out at primary and secondary levels.

Completion of primary education strongly predicts secondary school enrolment, with a 69% increase in secondary enrolment z-scores for every unit increase in primary completion rates ($P < .001$). However, structural barriers such as inadequate infrastructure, insufficient funding, and policy gaps hinder smooth transitions from primary to secondary levels. These challenges disproportionately affect low- and middle-income

countries, limiting their ability to reap the full benefits of primary education investments.

Funding is a critical factor that enhances equity for marginalized groups in Africa, including girls, rural students, and individuals with disabilities. In addressing these various challenges, several funding strategies have been adopted, including small grants for open educational resources (OER) and cash transfer programs⁹.

Research by Calandro and Moyo shows that programs like Universal Access Funds (UAFs) aim to upgrade ICT infrastructure in rural areas, addressing the digital divide that disproportionately affects marginalized communities. Despite challenges in implementation, these funds play a vital role in improving access to information and communication technologies¹⁰.

While funding initiatives have made significant progress in supporting marginalized groups, challenges persist in ensuring equitable access and overcoming systemic barriers. Continued efforts are essential to refine these programs and maximize their impact on vulnerable populations. The funding initiatives to education are highly influenced by the political climate and economic environment.

Political stability and socio-economic factors, such as poverty and inequality, are critical determinants of the efficacy of education funding in Africa. Stable political environments allow for consistent policies and equitable resource allocation, while instability often leads to inefficiencies and unequal access to education¹¹. Poverty exacerbates barriers to education, as families prioritize immediate needs over schooling, while inequality favours wealthier populations, perpetuating disparities in educational opportunities^{12,13}. The intersection of political power and economic disparities often results in biased spending, benefiting privileged groups¹³. Redistributing power and resources is essential for fostering equity and improving outcomes.

To address educational challenges, it is recommended that African governments align their budget allocations with UNESCO's target of 25%. This financial

commitment should be paired with targeted actions to reduce regional and economic disparities in education. Key initiatives include strengthening transitions between educational levels and ensuring efficient resource utilization to convert funding into meaningful progress. Increased accountability in resource management will encourage local and international investment. Additionally, making education more relevant by equipping learners with essential skills will draw diverse funding sources. Financial incentives should be introduced to ease the financial burden on households, enhancing access to private education. Tailored investments in underserved regions and the provision of scholarships and bridging programs are crucial for equitable access. Finally, prioritizing funding for quality primary education will boost enrollment and retention rates, ensuring a smoother educational pathway into secondary and higher education. These recommendations focus on strategic interventions that promote equity and access in the educational landscape.

CONCLUSION

Between 2010 and 2024, Africa's education sector made notable progress but continued to face significant challenges. Government spending plays a key role in improving primary education outcomes to boost enrolment and completion rates. However, persistent funding gaps, regional inequalities, and systemic inefficiencies can hinder broader progress across the education system. These issues highlight the urgent need for strategic investments and policy reforms to address disparities, infrastructure deficits, and income-based inequalities. By adopting inclusive funding models and prioritizing equity and quality, African nations can unlock education's transformative potential, drive sustainable development and foster socioeconomic equity for all.

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CONFLICT OF INTEREST

All authors declare no conflict of interest related to this work.

AUTHOR'S CONTRIBUTIONS

Project idea conception. Jerita Mwambi; Abstract Nabulya Jesca Lubna Taha; Introduction, Nabulya Jesca; Data collection: Hiyam A.E.terfa, Tayba elias, Jerita Mwambi, Asmaa Khelifa.; Data Analysis:Jerita Mwambi, Linah Faza; Interpretation of result: Ebaa Yasir, Jerita Mwambi, Discussion: Ebaa Yasir, Tayba Elias, Nabulya Jesca. Editing and proof reading: Asmaa Khelifa, Mona Eltahir. Lubna Taha, Israa A. Omer, Linah Faza, Nabulya Jesca, Jerita Mwambi, Ebaa

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