



doi:10.5281/zenodo.14805142

A Critical Examination of the Causes and Effects of Inadequate Funding of Human Capital Development on Economic Growth and Development in Zamfara State, Nigeria

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ABSTRACT

The paper investigates the causes and impacts of insufficient funding for Human Capital Development on economic growth and progress in Zamfara State, underscoring the crucial role of human capital development in the advancement of any society globally. The study uses various data points, including the Gross Domestic Product Growth Rate (GDPGR), Government Expenditure on Education (GEXE), Government Expenditure on Health (GEXH), Gross Fixed Capital Formation (GFCF), and Labor Participation Rate. To accurately assess how human capital development affects economic growth in Zamfara State, the research employs the augmented Solow human-capital-growth model as adapted from Keji (2021). Using a quantitative approach, the study explores the reasons for inadequate human training and its broader effects on economic growth and development in the state. The research covers all fourteen Local Government Areas of the state, with a sample size of 2,000 respondents. One key factor behind inadequate funding was identified as limited budget allocations for critical sectors like education, healthcare, and skills development, which are essential for human capital growth. Additionally, the study found that low internal revenue generation hampers the state's capacity to sufficiently fund human capital development programs. It also highlighted that political instability and weak governance structures could result in poor policy execution and the mismanagement of available resources for human development.

Keywords: Human capital, training, acquisition of skills, growth, development

INTRODUCTION

There is a well-established connection between education, training, and macroeconomic growth. Adequate investment in education and training has been shown to increase productivity, raise individual earnings, and generate significant social benefits (Rob & Geoff, 2004). The knowledge, skills, and experience of individuals are vital in influencing production factors through labor, which accelerates economic growth (Koc, 2013). Cakmak and Gumus (2005) noted that enhancing human capital efficiency contributes significantly to a nation's economy. A study by Evans et al. (2002) found that human capital development is as crucial to economic growth as financial development. Dervis et al. (2016) argued that investing in human capital is essential for countries to remain competitive globally. Additional labor inputs as a production factor can provide certain countries with a competitive edge. Becker et al. (1990) emphasized that the returns on human capital and education are higher in developed countries compared to developing ones. Dervis et al. (2016) further stressed that economic growth cannot be achieved solely through improvements in physical infrastructure. Schultz (1961) distinguished between human capital and

traditional capital, defining human capital as the investment in knowledge, and argued that a workforce lacking knowledge would not contribute effectively to economic growth in modern economies.

The size of a population alone is not sufficient for economic growth; rather, it is the knowledge, skills, and experience of the population that truly matter. In Nigeria—particularly in Zamfara State—many school-age children are seen idling on the streets, and the quality of education is declining. This reflects the lack of adequate investment in skill acquisition within schools. As Chinelo (2011) noted, when a production system lacks the necessary skills, it results in poor-quality output, which hampers capacity building and sustainable development. The declining performance of graduates, especially in literacy, has been attributed to poor funding in the educational sector. Odia and Omofonmwan (2007) observed that the education system in Nigeria suffers from inadequate funding, leading to poor infrastructure, insufficient classrooms, lack of teaching aids (like projectors, computers, and laboratories), a shortage of quality teachers, and a poor learning environment.

A study by Sulaiman et al. (2015) found that training as a form of human capital has a significant positive impact on economic growth. Similarly, Jaiyeoba (2015) studied the link between investment in education, health, and economic growth in Nigeria, recommending that the government implement policies to significantly invest in education and health. A study by Hadir and Lahrech (2015) on the relationship between human capital development and economic growth in Morocco also found a positive correlation between the two, further asserting that economic growth depends heavily on the quality of a country's human capital. Given the findings of these previous studies, it is clear that a similar study in Zamfara State is both timely and necessary.

Problem Statement

The high number of school-age children wandering the streets and the declining quality of education in Nigeria, especially in Zamfara State, clearly point to a lack of sufficient investment in skill development within schools. Chinelo (2011) argued that when a production system lacks the necessary skills, it leads to poor-quality output, which ultimately undermines capacity building and sustainable development. The worsening performance of graduates, particularly in literacy, numeracy, and practical skills, has become a major concern (Adeyemi, 2005; Ogum, 2007). Chinelo (2011) also attributed the decline in education standards to factors such as a lack of hard work, integrity, and high productivity, which can be traced back to poor motivation. This lack of motivation negatively impacts performance and the quality of output. To address these issues, the study recommended increased funding for education, including adopting UNESCO's suggestion of allocating at least 26 percent of the national budget to education.

The need for this study is further justified by similar research findings:

- Odia and Omofonmwan (2007) identified poor funding as a key issue in Nigeria's education sector, leading to inadequate infrastructure, lack of teaching aids (such as projectors, computers, laboratories, and libraries), teacher shortages, and poor learning environments.
- Sulaiman et al. (2015) found that investing in human capital development through training has a positive impact on economic growth.
- Jaiyeoba (2015) recommended that the government implement policies to make substantial investments in both education and health, recognizing their importance to economic growth.
- Hadir and Lahrech (2015) also found a positive relationship between human capital development and economic growth in Morocco, highlighting that a country's economic growth is strongly tied to the quality of its human capital.

Given the outcomes of these studies, the necessity for a similar investigation in Zamfara State is both apparent and well-justified.

Objectives of the study

The general objective of the study is to examine the extent of human capital development in Zamfara State.

The specific objectives are;

- To examine the causes of inadequate human capital development in Zamfara State.
- To examine the effects of inadequate human capital development on economic growth and development

in Zamfara State.

LITERATURE REVIEW

Theoretical Framework

To appropriately capture the effect of human capital development on economic growth in Zamfara State, this study will utilize the augmented Solow human-capital-growth model, as adapted from Keji (2021). This model is an extension of the original Solow growth model, which did not explicitly consider human capital as a factor of production. To address this gap, Mankiw, Romer, and Weil (1992) introduced the augmented Solow model, incorporating human capital into the growth equation.

The inclusion of human capital in the model is grounded in the idea that labor is non-homogeneous, meaning that workers in different economies (or even within the same country) vary in terms of education and skill levels. This variation impacts productivity and, ultimately, economic output. The adaptation of the augmented Solow model to the Nigerian context acknowledges that improvements in workers' quality—particularly through education—will lead to increased productivity and output. This theoretical framework will help guide the study's analysis and provide insights into how human capital development influences economic growth in Zamfara State.

Key Assumption:

The central assumption in this approach is that improvements in workers' quality, driven by enhanced education and training, will lead to an increase in economic output. This assumption is critical for understanding the relationship between human capital development and economic growth in Zamfara State.

Hadir and Lahrech (2015) argue that human capital is the most valuable asset in both developed and developing countries, making its proper management and effective utilization crucial for achieving development. Adequate investment in human capital is essential for driving growth, as human capital encompasses the collective skills, knowledge, and intangible assets of individuals, all of which can generate economic value. Additionally, it serves as a competitive advantage through processes like education, training, and skill acquisition (Schultz, 1993; Ogunleye et al., 2017).

Human capital theory views individuals not merely as elements of the production process, but as dynamic contributors to economic progress (Ozsahin & Karacor, 2013). In business practice, there are three types of capital: physical capital (factories, plants, and equipment), financial capital (investments and cash), and intellectual capital, which includes intangible assets such as knowledge, skills, experience, emotional intelligence, employee relations, entrepreneurship, and creativity (Dervis et al., 2016). According to Ogunleye et al. (2017), human capital can be developed through empowerment, which promotes active participation and serves as a key driver of economic growth. Human capital research has evolved with influential models from Lucas (1998) and Romer (1986), who included human capital in their growth models. Schultz (1961) was the first to distinguish human capital from other forms of capital, viewing it as an investment in human knowledge.

The role of human capital in economic growth is widely acknowledged. For instance, a study by Altintas and Cetintas (2010) in Turkey found a positive correlation between human capital and economic growth. Similarly, Hadir and Lahrech (2015) found that human capital development is positively linked to economic growth in Morocco, emphasizing the critical impact of human capital quality. Sulaiman et al. (2015) also highlighted the significant positive effect of human capital development, especially through training, on economic growth.

In Nigeria, Odi and Omofonmwan (2007) pointed out that inadequate funding in education leads to poor infrastructure, lack of teaching aids, insufficient quality teachers, and substandard learning environments. Jaiyeoba (2015) recommended that the Nigerian government prioritize policies that focus on substantial investments in both education and healthcare to foster economic growth.

METHODOLOGY

Study Area:

The study will be conducted in Zamfara State, Nigeria, with data being collected from all 14 Local Government Areas within the state. This will ensure a comprehensive and representative sample from the entire state.

Research Sites:

Data will be collected from a variety of strategic locations, including:

- Schools (to assess education-related human capital development),
- Offices (to evaluate the labor market and skill application),
- Other relevant strategic areas (to capture diverse facets of human capital and its impact on the local economy).

Population Size:

The study aims to collect data from a sample size of 2,000 respondents, selected across the 14 Local Government Areas of Zamfara State, ensuring that a diverse range of individuals is included in the research.

Data Collection Method

The research will rely on primary data collection. This will involve the distribution of structured questionnaires, which will be designed to gather both quantitative and qualitative information from the respondents. Approximately 2,200 questionnaires will be distributed to ensure a sufficient sample size and to account for any non-responses or incomplete data.

Source of Data

The data for this study was sourced from United Nations World Population Prospects (2022) and WDI (2022); for the period of 1981 to 2021.

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

The data used in this study are; Gross Domestic Product Growth Rate (GDPGR), Government Expenditure on Education in Rate (GEXE), Government Expenditure on Health in Rate (GEXH), Gross Fixed Capital Formation in Rate (GFCF), and Labor Participation Rate

Unit Root Test

Table 1: Summary of ADF test results at 5% critical value

VARIABLE	ADF TEST STATISTICS	CRITICAL VALUE 5%	ORDER OF INTEGRATION	DECISION RULE
GDPGR	-3.135326	-2.938987	I (0)	Reject Ho
GEXE	-4.662962	-2.938987	I (1)	Reject Ho
GEXH	-6.393052	-2.938987	I (1)	Reject Ho
GFCF	-3.776135	-2.936942	I (0)	Reject Ho
LPR	-5.363893	-2.945842	I (1)	Reject Ho

Source: Authors computation 2023

From table .1 above, Gross Domestic Growth Product Rate (GDPGR), and Gross Fixed Capital Formation in Rate (GFCF), was integrated of order zero (I ~ (0)) as it was stationary at level form. While Government Expenditure on Education in Rate (GEXE), Government Expenditure on Health in Rate (GEXH), and Labor Participation Rate weren't not stationary at level form, but became stationary after first difference which implies that the variables (GEXE, GEXH, and LPR) were integrated of order one (I ~ (1)). The decision is based on the fact the ADF statistics that is greater than the ADF critical values at 5%, we reject H0 and conclude that the variables are stationary. Since the variables are integrated of order one and zero and none of the variables is integrated of order two. We therefore, apply the ARDL bound

co-integration test.

A necessary condition for testing for ARDL bound co-integrating test is that each of the variables be integrated of either of order one or zero or both (Pesaran, Shin and Smith, 2001). Since all the variables are integrated of order one and zero, we proceeded to estimate the ARDL bound test. The null hypothesis of ARDL bound co-integration is that the variables are not cointegrated as against the alternative that they are cointegrated. The decision rule is to reject the null hypothesis if the F-statistics is greater than the upper bound critical values at chosen level of significance.

Table 2: ARDL Bound Co-integration (5% critical value) Test Result for the models

Model	F-Statistics	K	Significance level	Critical Bound Value	
				10 (Lower Bound)	11 (Upper Bound)
	5.816128	4	5%	2.86	4.01

Source: Author's Computation 2023

From table 2 the F-statistics for the model is 5.816128 and is greater than the upper (I1) bound of 4.01 at 5% level of significance. Thus, we reject the null hypothesis and conclude that there is a long run relationship between human capital development and economic growth in Nigeria. Since there is a long run relationship, we therefore estimate the short run and long run ARDL analysis.

Test for Short Run Relationship

Having ascertained that there exist a co-integrating relationship between human capital development and economic growth in Nigeria, the short run relationship needs to be ascertained.

Table 3: Summary of Parsimonious Short Run Relationship Result between human capital development and economic growth in Zamfara State

Co-integrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GEXE)	-0.004873	0.025600	-0.190343	0.8502
D(GEXH)	-0.004105	0.039294	-0.104461	0.9174
D(GFCF)	-0.200504	0.062467	-3.209745	0.0029
D(LPR)	-0.238754	0.129190	-1.848082	0.0733
CointEq(-1)	-0.881357	0.155247	-5.677133	0.0000

Cointeq = GDPGR - (-0.0055*GEXE -0.0047*GEXH -0.2275*GFCF - 0.2709 *LPR + 28.3890)

From table 3 above; the coefficient of the error correction term (coint EQ) is statistically significant and carries the expected negative sign at 5% level of significant; revealing that a short run relationship exist between human capital development and economic growth in Nigeria. The speed of adjustment is -0.881357 that is 88% of the adjustment to equilibrium of the economic growth is expected to occur in short run.

Test for Long Run Relationship

It's imperative to ascertain the long run relationship that exists between human capital development and economic growth in Zamfara State.

Table 4: Summary of Long Run Relationship between human capital development and economic growth in Zamfara

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEXE	-0.005529	0.028758	-0.192246	0.8487
GEXH	-0.004657	0.044804	-0.103946	0.9178
GFCF	-0.227494	0.049987	-4.551032	0.0001
LPR	-0.270893	0.136578	-1.983439	0.0554
C	28.388974	8.254012	3.439415	0.0016

The long run coefficient from table 4.4 above shows that the joint impact of all exogenous variables (GDPGR, GEXE, GEXH, and LPR) on the endogenous variable will amount to 28.39 percent; this is on the basis that they are all held at constant. In other word if all the exogenous variables are held at constant it will amount to 28% contribution to economic growth in Zamfara State..

Government Expenditure on Education (GEXE) possessed a negative insignificant relationship with economic growth in Nigeria with coefficient value of – 0.0055 percent; this entailing that on the long run, as Government Expenditure on Education (GEXE) increases by one percent, it causes – 0.01 percent decrease in economic growth in Zamfara state.

Government Expenditure on Health (GEXH) possessed a negative insignificant relationship with economic growth in Nigeria with coefficient value of – 0.0047 percent; this entailing that on the long run, as Government Expenditure on Health (GEXH) increases by one percent, it causes – 0.01 percent decrease in economic growth in Zamfara state, the same rate government expenditure on education.

The individual test was carried out to test for joint significance of the independent variables on the dependent variable at 5% level using t-probability and t-statistic shown in table 4.5 and 4.6. The rule applied was: If t-probability is greater than the prescribed level of 5% or 0.05, accept the null hypothesis, otherwise reject the null hypothesis when f-probability is less than 0.05.

Ho1: Government Expenditure on Education has no statistically significant relationship with Economic Growth in Zamfara state.

From table 4 above, the probability of t-stat of GEXE was 0.8487, and greater than 0.05 critical values. Thus, we accept the null hypothesis and conclude that Government Expenditure on Education has no statistically significant relationship with Economic Growth in Nigeria

Ho2: Government Expenditure on Health has no statistically significant relationship with Economic Growth in Zamfara state.

From table 4 above, the probability of t-stat of GEXH was 0.9178, and greater than 0.05 critical values. Thus, we accept the null hypothesis and conclude that Government Expenditure on Health has no statistically significant relationship with Economic Growth in Zamfara state.

Ho3: Gross Fixed Capital Formation has no statistically significant relationship with Economic Growth in Zamfara state.

From table 4 above, the probability of t-stat of GFCF was 0.0001, and less than 0.05 critical values. Thus, we reject the null hypothesis and conclude that Gross Fixed Capital Formation has a statistically significant relationship with Economic Growth in Zamfara state.

Ho4: Labor Participation Rate has no statistically significant relationship with Economic Growth in Zamfara state

From table 4 above, the probability of t-stat of LPR was 0.0554, and greater than 0.05 critical values. Thus, we accept the null hypothesis and conclude that Labor Participation Rate has no statistically significant relationship with Economic Growth in Zamfara state.

Gross Fixed Capital Formation (GFCF) possessed a negative significant relationship with economic growth in Nigeria with coefficient value of -0.2275 percent; this entailing that on the long run, as Gross Fixed Capital Formation (GFCF) increases by one percent, it causes -0.23 percent decrease in economic growth in Zamfara state.

Labor Rate Participation (LPR) possessed a negative insignificant relationship with economic growth in Nigeria with coefficient value of -0.2709 percent; this entailing that on the long run, as Labor Rate Participation (LPR) increases by one percent, it causes -0.27 percent decrease in economic growth in Zamfara state.

Summary of Findings

The following summarizes the result of the research work;

- i. Government Expenditure on Education has a negative and insignificant relationship with economic growth in Nigeria.
- ii. Government Expenditure on Health has a negative and insignificant relationship with economic growth in Nigeria.
- iii. Gross Fixed Capital Formation has a negative and significant relationship with economic growth in Nigeria.
- iv. Labor Participation Rate has a negative and insignificant relationship with economic growth in Nigeria

CONCLUSION

This study examined the effect of human capital development, on economic growth in Zamfara state from 1981-2021. The data used in this study were obtained from Central Bank of Nigeria Statistical Bulletin of various issues (2021) and WDI (2022). These comprises of annual data of the following variables Gross Domestic Product Growth Rate serves as the dependent variables in the model while Government Expenditure on Education, Government Expenditure on Health, Gross Fixed Capital Formation and Labor Participation Rate serves as the independent variables. The test statistics used in the analysis was; Auto Regressive Distributed Lag (ARDL). The results showed that; Government Expenditure on Education, Government Expenditure on Health, and Labour Participation Rate have a negative insignificant relationship with economic growth in Zamfara state while Gross Fixed Capital Formation have negative and significant relationship with economic growth. The study concluded that human capital development is one of the key determinant to any economy that wants to stimulate growth in every sector ; though the result of this study shows otherwise; however, it buttress the government insincerity in investing in education and health.

RECOMMENDATIONS

The following recommendations were made from the findings of this research;

- i. Since Government Expenditure on Education has a negative and insignificant relationship with economic growth in Nigeria; the need for government to prioritize investment in education becomes imminent, that is if investment in education is judiciously adhered to, in the long run it will improve economic growth and development in the country.
- ii. Since Government Expenditure on Health has a negative and insignificant relationship with economic growth in Nigeria; the government should as a matter of urgency increase investment in the health sector because its multiplier effects in the long run cannot be over emphasized
- iii. though Gross Fixed Capital Formation was significant but it has a negative relationship on economic growth during the period of study; this prompt the need to improve credit delivery to the private sector though the financial system because its long run effect will stimulate economic growth and

development in Zamfara State.

iv. Labor participation in the country need to be inclusive in all the policies of the government, by so doing it will trigger improvement in efficiency utilization of human capital in the state.

ACKNOWLEDGEMENT

This research was sponsored by Tertiary Education Trust Fund (TETFUND) through the Institution Based Research (IBR) grant to Abdu Gusau Polytechnic, Talata Mafara, Zamfara State

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