

In Investigating the Impact of Public Debt on Poverty Alleviation in Sub-Saharan Africa: Are institutions friend or foe?

Lawal Wasiu Omotayo¹, Zainab Said Suwaid^{2*}

¹Department of Economics and Development Studies Federal University Dutsin-ma katsina state

²Department of Economics Bayero University Kano.

*Corresponding Author

Zainab Said Suwaid

Department of Economics Bayero University Kano.

Article History

Received: 24.12.2023

Accepted: 03.01.2023

Published: 20.01.2024

Abstract: The study investigates whether institutional environment play any role on the impact of public debt on poverty level in sub-Sahara region from 2000 to 2022. The study uses cross-sectional data of 43 Sub-Saharan Africa countries. System GMM estimator was employed, the result shows a positive impact of health and education expenditure respectively on poverty level in the Sub-Sahara African region. Institutional environment appears to be a friend and a significant mediating variable explaining how increasing public debt affect poverty in Sub-Saharan African countries. The coefficients are statistically significant for education and health expenditure respectively, implying that human capital development through spending on education and health have not aided the attainment of the required threshold for drastically reducing poverty rate in the sub-Saharan African region contrary to theoretical expectation. The positive coefficient and 5% statistically significant of the GDP is not by any means amazing, an increase in the gross domestic product is a curse or a blessing. The evidence from the empirical result further shows that a trivial and indirect drag of GDP on poverty rate in the region. The study therefore recommends that if institutional environment can be enhanced, then public debt should align with a corresponding development level that can reduce the level of poverty in the African sub-Sahara region specifically since education expenditure appears to be one of the main dominant contents of public debt, government can continue in this area.

Keywords: Public Debt, Corruption, Poverty and System GMM.

Jel Classification: J24, H51, D74 and I31

1. Introduction

One of the most disturbing phenomena in the world is poverty, wherein almost every summit world leaders discuss more often. As such reducing the rate of poverty has for decades been a cornerstone of international economic development as evidenced in one of its main objectives and also at the forefront of Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs). There have been several summits and conferences on how to reduce the rate of poverty in the world. The International Association of Research Income and Wealth (IARIW) hosted a special conference on the measurement of poverty and well-being in 2019. They reported that poverty is an indicator of paramount importance for gauging the socio-economic well-being of a population, especially during or after a shock. Therefore, poverty estimates should be invaluable in assessing the impact of poverty and which parts of the population is most affected (Pape, 2019). Burchi, Malerba, Montenegro and Rippin (2020) noted that the 2030 agenda has provided two new impulses in the struggle for poverty alleviation. The first impulse was that poverty is not viewed as a monetary term but rather as a multidimensional phenomenon and the second is that, they need to undoubtedly,

reduce poverty for different social groups and not just at an aggregate national level. The poverty rate in the world fragile and conflict area have increased between 2010 and 2021, with Yemen having highest number of people with extreme poverty, while Venezuela and Syria having 10 million and 6.7 million respectively (Suckling, Christensen, & Walton, 2021).

Africa with 1.25 billion inhabitants, 593 million (47%) are said to be Multi-dimensional Poor using Multi-Dimensional Poverty Index (MPI). The country with highest population of poverty is Niger and South Sudan with 90% and 92% of their population said to be extreme poor. Nigeria home to 16% of the total population in Africa account for 15% of the poor with Congo at 9%, Tanzania 5% and Uganda 4% of Africa poor population. While Tunisia and the Seychelles with 1% have the lowest poverty rate in the continents. (Jennings and Oldiges, 2020). In 2021, 66% of the global population living in extreme poverty are in sub-Saharan Africa countries. The region has seen an increase in people living in extreme poverty with 26 countries having the largest number between 2010 and 2020. Angola having the highest with 9.4 million, Democratic Republic of the Congo with 8.8 million and South Sudan 7 million. (Suckling et al 2021). In 2020, the region

was plunged into recession for the first in 25 years, erasing at least years of progress in fighting poverty. Again, the recent COVID-19 pandemic that has hit the world, has increased the poverty rate and debt profile of most countries in the world. (Gopalakrishnan, Wadhwa, Haddad & Blake, 2021). They stated that the pandemic increased the rate of extreme poverty in 2020 for the first time in 20 years and around 100 million more people are living on less than \$1.90 a day. Also, Heitzig, Ordu and Senbet (2021) observed that debt levels have risen substantially in Sub-Saharan African (SSA), prior to the Covid-19 pandemic and as such, the sub-Saharan region has experienced a 4.5% increase in pandemic debt whereby the debt is above projections due to the COVID-19 crisis. Therefore, public debt and poverty have been a global issue, especially due to globalization and the continuous interaction of institutions, society, economy, polity, and environment. Most countries in the world have been indebted at one time or the other with some levels of poverty that preclude them at a time of their existence or still affects them.

In addition, Global debt increased to an extend of \$281 trillion in 2020, due to a reduction in governance and revenue accustom to pandemic drive. The gross debt for 61 countries increased in 2019. Total world debt reduced by 10 percentage points of GDP in 2021, to 247 percent of GDP (US\$ 235 trillion). Implying the largest in 2020, when it rose by 29% points of GDP (IMF, 2022). The global debt increase to about \$300 trillion in the second quarter of 2021, but the debt to GDP ratio reduced since the start of COVID-19 as economic growth rebounded (Ranasinghe, 2021). The African countries debt risk tipping into debt distress due to diminishing resources and increasing costs, resulting from global coronavirus pandemic (Chandler 2020). This trap is advocating a new dimension for poor people around the world, because governments are unable to afford their debts and provide basic services (Aid, 2019).

Ncube and Brixiová (2015) asserted, Africa's government depth to ratio has reduced significantly which has broadened fiscal stimulus and defrayed by factors such as negative real interest rates, and in some low-income countries.

The public debt in African countries are not getting the required attention needed unlike that of the middle-income countries in part due to its existential threat to the international communities. The region has a debt to GNI ratio of nearly 20% in a decade to 43.7 % in 2020 from 23.4% in 2011 and 75% of the guaranteed external debt of the countries has been owned to bilateral or multilateral institutions compared with well under half the debt of most Latin American countries. The average public debt increased by half from 40 to 59% of GDP making sub-Saharan Africa, the fast-growing debt accumulation continent far beyond other developing region. Public debt has been found to relate negatively to poverty reduction, especially given the proportion of government spending on social services and income per capita, because the bulk of most public debt in sub-Saharan Africa (SSA), has not be utilized for the purpose which it was targeted therefore the question as to where the borrowed funds are diverted to has opened a new debate on the use for public funds. A major point of departure from other studies is the debt trap lacuna, this paper will provide a springboard how to avoid debt trap and highlight appropriate debt management practices that will enhance growth. According to Statista (2021), most sub-Saharan countries are indebted with South African external debt reaching nearly 188 billion dollars in 2019 and it can

be said to be the highest foreign debt stock in sub-Saharan Africa with Nigeria and Angola following. Nigeria's debt is at 54.8 billion dollars and Angola at 52 billion dollars. External debt in sub-Saharan Africa has been increasing since 2019 and the global pandemic has increased the rate of poverty in the sub-region with the foreign debt burden accumulating to 625 billion dollars (Statista, 2021). It is as a result of the upsurge in the public debt of the sub-Saharan countries that motivated this research work to look at the impact of public debt on poverty in sub-Saharan Africa.

2. Review of Literature

Poverty does not necessary means the inability to get income and be more productive by ensuring a reasonable livelihood, it includes inability to get sustainability, little means to the basis necessity of life, and lack participation where necessary. Country wide poverty is typically measured in such a way that it determines the percentage of people whose means of livelihood falls below specific baseline amounts and this is same for every country enabling a slightly different perspective on country-to-country comparisons but the mostly used baseline amount is \$1.90 per day measured in 2011.

As at 2019, most people on the planet live in poverty in purchasing power parity dollars, 85% live on less than \$30 per day, two thirds live on less than \$10 per day and 10 % live on less than \$1.90 per day extreme poverty (Roser & Ortiz-Ospina, 2013). This study considers variables of poverty as GDP growth, board money, domestic, education, manufacture, tax, unemployment and population. which will help in determining the poverty rate of different countries, the chosen countries for this study are Pakistan, Brazil, India, Morocco and Indonesia. For this study, poverty can be seen as an economic situation so downgrading that prevents an individual from the basic necessities of life.

The Poverty Situation in Sub-Saharan Africa

The high rate of poverty Africa can be nearly tailored between 1990 and 2018, it does not mean that progress has not been made by reduction in the rate of poverty as it can be said that the regional poverty has reduced significantly by 1.6% between 2015 and 2018 implying that 40% of the general population living below US\$1.90 a day poverty line, sub-Saharan Africa account for two third of the entirety and the region has poverty rate above the world average. The poverty rate in Sub-Saharan Africa is yet to reduce to the extent that it can keep up the growth in the region (Schoch & Lakner, 2020). The shared poverty prosperity report 2020 emphasis that the high rate poverty in African can exposed poor people to threats of conflict and climate change, the countries with highest share of global population living below the extreme poverty line in 2021 are Nigeria with 12.6%, Democratic Republic of Congo 9.4, Tanzania 4.1%, Ethiopia 3.8% and Madagascar 3.1% (Statista 2021). which shows that all are from Sub-Saharan Africa.

Concept of Public Debt

According to world development index (2022), public debt entails the totality of government fixed-term contractual obligations to others outstanding on a particular date. This involve both the national and international liabilities such as currency and money deposits, securities other than shares, and loans. It is seen as the total amount of liabilities reduced by the amount of equity and financial derivatives held by the government. This is due to the fact that debt is not just a stock but a flow. According to the IMF (2012) in Kui-Wai Li (2017), International Monetary Fund opined

that public debt is the entire spending of the government measured as the percentage of growth. Public debt is said to be amount of debt borrowed from both internal and external sources to fund its deficit. The area of total debt that incorporate a direct charge on government revenues is taken as public debt. Public debt is a measure of government indebtedness. It is often used to refer to overall liabilities of central and state government.

Theoretical Literature

The theoretical underpinning of this study is rooted from the Neoclassical theories which view poverty ahead of a single control, which should incorporate the absence of private assets; market failures that doesn't prevent the poor from credit markets that will result in choices to be rational; barriers to education; immigrant status and barriers to employment for lone-parent families. Neoclassical theory stresses the role of the unequal initial endowments of talents, skills and capital which determine productivity of an individual in generating poverty, within a market-based competitive economic system. Poverty can be considered as a resultant effect of market failure, if recession hits the poverty rate will increase because unemployment will increase especially if they are uneven distribution of wealth in the society. Uncertainty may play a major role in increasing poverty because the poor are weaker to shocks to their well-being. The neo classical just like the classical economics, where uncertain about the role of government in the economy, although good policies to correct market failures may be required in some cases. For example, small loan is viewed as valuable from a purely economic view. Implying that this can outweigh the risk of moral hazard in lending to vulnerable when they are faced with shocks in their income or wish to start a small business.

Empirical Review

There are several empirical studies on the nexus between public debt, economic growth and poverty in sub-Saharan Africa. Most recently, increased attention has been focused on public debt due to the decline in economic growth and increase in poverty in most countries of the world especially Sub-Saharan Africa

Adeve and Karabou (2022) employed dynamic panel generalized methods of moments (GMM) to explain the relationship between public debt and sustainability, public debt was measured by the genuine savings indicator from the period of 2004-2018. They found out a negative and significant impact of public debt to West African Economic and Monetary Union countries. Appiah-Kubi, Malec, Phiri, Krivko, Maitah Maitah and Smutka (2022) used system GMM and fixed effects two-stage least squares (IV-FE) to investigate the impact of increasing public debt in Africa using a panel of 47 African nations for the period 2000–2018. The result shows that rise in corruption level has significantly led to rise public debt in Africa. In a similar study by Sani and Yahaya (2021) who employs Generalized Method of Moment (GMM) technique to examine the nexus between public debt and household final consumption expenditure per capita the result shows a negative relationship and that public debt accumulation is one of the leading causes of poverty in SSA. The study spans a sample of 42 SSA Countries for a period of 2011 to 2019. The study further revealed that the term of public debt and institutional quality reaffirms that the negative relationship can be avoided if the quality of the institutions improves in the region. Such an appalling trend can be controlled if accumulation of public debt does not aggravate the incidence of poverty.

In another study by Geleta (2021) which used two-step system Generalized Method of Moment (2SSYS-GMM) method to investigate the relationship between public debt and economic growth (real per-capita GDP) using panel data of 13 years (2005 to 2018) in 18 Africa countries (SSA) countries. it was discovered that a negative and statistically significant bidirectional relationship exist between public debt and economic growth in sub-Saharan Africa (SSA) countries. Also, Dawood, Biadoo and Raza Shah (2021) studied the some of the factors responsible for external debt in 32 Asian developing and transition economies for the period 1995–2019. The result shows that both the short- and long-run, economic growth and investment decrease foreign debt while exchange rate and government expenditure promote external debt.

Bataka (2021) investigated the effect of economic globalization on public debt in sub-Saharan Africa from a period of 1980 to 2017. Using second-generation panel data, the study found out that economic globalization and trade globalization increases public debt in the short-run while reduces it in the long run and financial globalization enhance the public debt both the short and long-run. Benayed and Gabsi (2020) utilizes a panel of 20 low-income sub-Saharan countries to assess the non-linear effect of domestic public debt on financial development over a period of 2000 to 2010 his work was an extension of Lind and Mehlum (2010) their findings confirms the existence of an inverted relationship between domestic public debt and bank credit to private sector with about 52% of GDP. From the empirical literature, what is clear is that there are scanty assessments on the public debt and poverty nexus and the role played by institutions especially in in sub-Saharan Africa given the rate of high debt in the sub-region. This is paper is aimed at contributing to existing literature and by extension using the system GMM.

Institutional environment proxied as corruption in the literature stress the negative consequence on how it grossly affect poverty level in sub-Saharan African countries. Gupta, Davoodi and Tiongson (2000) argued that corruption as an institutional indicator had unwanted association with public spending, Although the correlation between corruption and public debt reduced after controlling for institution and government expenditure, it was still significant. Similarly, Rajkumar and Swaroop (2002) found that the effectiveness of public debt in reducing poverty in sub-Saharan African countries is dependent on the integrity rating (1-5 range based on corruption perception level), with high integrity associated with lower poverty reduction, even after controlling for several factors including GDP per capita, population growth, and human capital index. However, Filmer and Pritchett (1999) conducted a similar study using country-level cross sectional data to examine the role of public debt on poverty alleviation and reported that public spending on healthcare did not necessarily improve poverty rate across countries, as 95% of the variation in poverty level were due to factors other than extraneously determine. What is clear from the empirical literature is that, even though rigorous analysis were presented in the previous studies, the role of institutional environment as a cardinal interaction variable was not given proper attention. Hence the motivation for this study.

3. Methodology

This paper utilizes panel data estimation technique for the period 2000 to 2021 using secondary data to investigate the role of

institutional environment as an interaction variable on the impact of public debt and poverty alleviation in sub-Saharan countries. A cross-sectional data of 43 Sub-Saharan Africa countries were drawn from World Development Indicators Database (WDI) 2021, World Governance Indicators Database (WDI) 2021 and Central Bank of Individual Countries 2021. The sample size of the data is 903, the data will have a maximum ten (21) years.

Model Specification

The specification of the economic model was stated based on the theoretical underpinning and the availability of data relating to public debt and poverty alleviation in line with the mediating variable in sub-Saharan Africa. Following the work of Sani and Yahaya (2021), Public debt, poverty alleviation and institutional environment have no clear-cut macroeconomic theory that link the three concept concepts together. Due to these deficiency, the neo classical poverty model was utilized as it consists of foreign exchange rate, interest rate, trade openness, employment rate, inflation and gross domestic product to test for the effect of public debt on poverty while institution is proxied as control of corruption this is specified below:

$$Pov_{it} = \phi_0 + \lambda_1 Pov_{it-1} + \phi_2 PD_{it} + \phi_3 GDP_{it} + \phi_4 UNEMP_{it} + \phi_5 INFL_{it} + \phi_6 EDU_{it} + \phi_7 HEA_{it} + \phi_8 COC_{it} + \varepsilon_{it}$$

Where;

POV is Poverty, proxied by Households and NPISHs Final consumption expenditure per capita, PD Public debt measured by General Government gross debt percent of GDP, GDP represents the real income per capita in an economy, UNEMP is the is the rate of unemployment, INFL is the rate of inflation, EDU represent Education, HEA represent the health and Coc represents Corruption and e represent the error term.

Basically, the study uses panel data estimation techniques due to its advantages over cross-section and time-series data sets. The

techniques have a greater degree of freedom and less multi-collinearity leading to more efficient estimates and give greater flexibility in modelling differences in behavior across countries which enables us to control for unobserved heterogeneity. Due to the relatively short time period investigated (2010-2020), the dynamics of the panel series might not be explored. Consequently, system GMM will be implemented. Aside from dealing the problem of endogeneity, this method of analysis can also eliminate country and time-specific effect as suggested by Arellano and Bond, (1991). While it was suggested that this estimation technique is capable of addressing the above-mentioned problems, Blundell and Bond, (1998) have also identified some deficiencies associated with it. They opined that lagged levels as an instrument seems ineffective for first difference variables, particularly when close to a random walk. It is for this reason they suggested certain improvement on difference estimator and included the lagged levels and lagged differences. While “Two-step” asymptotically significantly seems robust than estimating with a one-step technique, standard errors were likewise labeled of biasedness when estimating with two-step. Consequently, to address this deficiency, the “Xtabond2” was introduced by Roodman, (2009) which enhanced the two step covariance matrix. Therefore, a two-step system GMM technique is a more robust technique than the one step. It is based on this that a two-step system GMM approach was used to examine the effect of public debt, poverty alleviation and the role played by institutional environment in Sub-Saharan Africa. Hence, to determine the reliability of the GMM estimator, the strength of the lagged values was used to ascertain all the poverty regression models.

4. Results and Discussion of Findings

The summary statistics detailed in Table 4.1 relates to those variables included in the empirical model to examine the role of institutions play on the impact of public debt on poverty alleviation in the sub-Sahara African countries.

Table 4.1

Variable	Obs	Mean	Std. Dev.	Min	Max
Pov	730	1123.102	1158.916	200.374	7789.956
Pd	755	10.705	12.605	.494	134.803
Gdp	792	1707.687	2068.622	110.461	11645.982
Infl	746	10.485	38.206	-9.616	557.202
Unemp	792	7.81	6.704	.32	28.77
Edu	655	100.321	21.294	32.356	156.445
Hea	746	84.422	114.35	4.488	694.101
Coc	756	-.62	.607	-1.581	1.245

Source: Author's computation using Stata 17

The result of the descriptive statistics is detailed in table 4.1 The table shows that POV has an average value of 1123.102 with minimum and maximum value of 200.374 and 7789.956 respectively. This implies that on the average, poverty level in sub-Sahara Africa is still very high given the level of public debt in the region. The average value of public debt is 10 with minimum value of 0.494 and maximum value of 134.803 this imply that the level of public debt invested in alleviating the level of poverty is still relatively low in sub-Saharan Africa as indicated above. These results show the similar direction between unemployment and health care expenditure proxied as HEA and UNEMP. The health expenditure with an average of value of 84.422 and a minimum and maximum value of 4.488 and 694.101 respectively. While unemployment rate is with a mean value of 7.81 and minimum and maximum value of 0.32 and 28.77 respectively. These figures clearly indicate the rate at which the level of unemployment and health expenditure has affected the level of poverty in the sub-Sahara African region. A high rate of

unemployment has significantly led to a high level of poverty in the sub-Sahara Africa region. The same is true for health care expenditure as this also increases the level of poverty in the sub-Saharan African region. It is also interesting to note that the descriptive statistics indicate significant variability in the key variables across the countries in the data set as depicted by the standard deviation values.

Table 4.2

Variables	POV	PD	GDP	INFL	UNEMP	EDU	HEA	COC
POV	1.000							
PD	0.132	1.000						
GDP	0.728	0.055	1.000					
INFL	-0.020	0.042	-0.026	1.000				
UNEMP	0.392	-0.134	0.516	0.018	1.000			
EDU	0.028	-0.163	0.060	-0.015	0.138	1.000		
HEA	0.862	0.041	0.831	-0.033	0.579	0.088	1.000	
COC	0.436	-0.007	0.470	-0.116	0.392	0.158	0.506	1.000

Source: Author's computation using Stata 17

The correlation matrix in Table 4.2 details the correlation coefficients among the variables. The principal diagonal elements are the correlation coefficients of the variable on itself. These coefficients are unity. The triangular matrix is indicating both the direct and indirect relationship among the variables. The correlation coefficients indicate that there is no problem of either multi-collinearity in the series. Although, the correlation coefficient between health (HEA) and the gross domestic product (GDP) is 0.73 and 0.87, this is still marginally less than the threshold. All these indicate that the correlation between these two respective variables are positively strong but could not warrant the problem of collinearity since these coefficients are lesser than the 0.90 threshold value.

Table 4.3: System GMM Regression

Lpov	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
L.lpov	.889	.04	22.33	0	.808	.97	***
Lpd	.007	.007	0.99	.031	-.007	.021	
Lgdp	.058	.024	2.42	.021	.009	.106	**
Lunemp	-.005	.006	-0.95	.347	-.017	.006	***
Linfl	-.003	.003	-1.06	.295	-.01	.003	
Ledu	-.001	.022	0.04	.965	-.044	.045	
Lhea	.038	.018	2.16	.037	.002	.074	**
Coc	.002	.006	0.29	.773	-.011	.015	
Constant	6.694	1.413	4.74	0	3.826	9.563	***
Mean dependent var		6.707	SD dependent var			0.783	
Number of obs		484	F-test			441534.194	
Instrument		29				(0.0000)	
Group		36					
AR 2		0.332					
Hansen test		0.298					
Sargan test		0.223					

Note that: Standard error were stated in parentheses * ** * ** * $p < .01$, ** $p < .05$, * $p < .1$ respectively.

Notes: All variable used in the model were converted to log form except corruption, POV = Household M Final Consumption Expenditure measure the rate of poverty, PD= ratio of public debt related to Export, GDP = Per Capita income, UNEMP = Unemployment rate, INFL = Inflation rate, HEA = Health expenditure and COC= Corruption.

Source: Author's computation using Stata 17

The empirical results of the system GMM regression is presented on the table 4.3 of the succeeding effect of public debt on poverty in the sub-Saharan African countries in Africa. The focus is on the direct effect of public debt on poverty in sub-Saharan African region. From the result public debt which is measured by EDU and HEA, the result generally shows a positive and negative effect of health and education expenditure respectively on poverty level in the sub-Saharan African region. The coefficients are statistically significant for education and health expenditure respectively. These results show that human capital development through spending on education and health have not aided the attainment of the required threshold for drastically reducing poverty rate in the sub-Saharan African region contrary to theoretical expectation. It further suggests that unemployment rate is high because significant part of public debt is not channeled to where necessary through significant investment in the key areas of health and education, such as infrastructure and development, quality research etc, this evidence shows that meaningful and remarkable milestone can be achieved if public debt in the African sub-Saharan African is directed to a more meaningful areas that can drastically enhance skilled labour, will provide the required springboard that can reduce the level of poverty in the sub-Saharan African region. This finding aligns with the work of Adenike, 2014; Aiyedogbon & Ohwofasa, 2012. This evidence further shows that poverty rate can be reduced only when the government of the sub-Saharan African countries can take a proactive step by investing in human capital development as one of the key drivers to reduce poverty rate in the region.

The positive coefficient and 5% statistically significant of the GDP is not by any means surprising. This is in line with the argument in literature as to whether an increase in the gross domestic product is curse or a blessing. The evidence from the empirical result shows that a trivial and indirect drag of GDP on poverty rate in the region. Interestingly, an increase in gross domestic product does not economically transcend to reducing poverty level in the sub-Saharan African countries. In fact, some economist propelled that increasing growth rate consequently increases poverty level. Hence, growth over the years have not been inclusive thereby not making any significant impact in the direct life of the people. This result conforms with the findings of Geleta (2021), Sani, Said, Ismail and Mazlan (2019). Again the institutional environment proxied by the control of corruption appears to be a significant variable explaining how increasing public debt can affect poverty level in sub-Saharan African countries. Findings of this study shows that it is significant at 5% level with coefficient of 0.02 and t-value of 0.29 this result is theoretically plausible implying that When there is control of corruption in the public debt there by channelling the available resources to where necessary, poverty can be drastically reduces as this has been supported by plattorail of literature such as (chandker, 2020).

More so, the validity of the statistical inference of the estimated coefficient of the model through the diagnostic tests of the overall model specification. was examined, the Sargan tests statistics for over identification restriction and instrument validity indicates that they cannot be rejected at 5% level of the significance. Also, the z-statistics for the Arellano-Bond AR (2) test for second order auto-correlation in the residuals reveals that there is no second –order auto-correlation with just the non-inclusion or more lags of the dependent variable as regressor. The level of significance of AR

(1) suggests the rejection of the null hypothesis of no first order auto-correlation.

5. Conclusion and Policy Implication

The paper examined weather institutions play any role on the impact of public debt on poverty alleviation in the sub-Saharan African. The study employed the system GMM and adopts panel data estimation technique for the period 2000 to 2021 using secondary data. A cross-sectional data of 43 Sub-Saharan Africa countries were drawn from World Development Indicators data Base (WDI) 2021, World Governance Indicators Data Base (WDI) 2021 and central bank statistical bulletin of individual country (2021). Empirical evidence show that increasing public debt is not achieving the desired goals probably due to weak institutional framework, changes in policies and unstructured objectives thereby leading to increasing poverty level in the sub-Saharan region.

The result generally shows a positive and negative effect of health and education expenditure respectively on poverty level in the sub-Saharan African region. The result also revealed that human capital development through spending on education and health have not aided the attainment of the required threshold for drastically reducing poverty rate in the sub-Saharan African region contrary to theoretical expectation. Similarly, the result further suggest that unemployment rate is high because significant part of public debt is not tailored to appropriate areas through important investment in key areas, such as infrastructure and development, quality research etc. This result is a further revealed that significant and remarkable milestone can be achieved if public debt in the African sub-Saharan African can be directed to a more meaningful area that can drastically enhance skilled labour, provide the required springboard that can reduce the level of poverty in the sub-Saharan African region. Again, the positive relationship between GDP and poverty level is not by any means surprising. This align with the argument in literature as to whether an increase in the gross domestic product is curse or a blessing. The evidence from the empirical result shows that a trivial and indirect drag of GDP on poverty rate in the region. What is clear is that, an increase in gross domestic product does not economically transcend to reducing poverty level in the sub-Saharan African countries. In fact, some economist propelled that increasing growth rate increases poverty level. The result indicates that Institutional environment appears to be a friend as it plays a significant variable in explaining how increasing public debt can affect poverty level in sub-Saharan African countries. Institutional environment ensures sanity in the area of public spending their preventing diversion of fund and unnecessary wastages such that purposeful borrowing can be judiciously utilized. The empirical findings of this study necessitate actionable recommendation that if institutional environment can be enhanced, then public debt should align with a corresponding development level that can reduce the level of poverty in the African sub-Saharan region specifically since education expenditure appears to be one of the main dominant contents of public debt, government can continue in this area.

References

1. Adeve, K. A., & Karabou , E . F. (2022). Public debt and development sustainability issues in the West African Economic and Monetary Union (WAEMU). *Cogent*

- Economics & Finance*, 10(1). doi:10.1080/23322039.2022.2079177.
2. Aid, C. (2019). The new global debt crisis- May 2019.
3. Appiah-Kubi, S. N., Malec, K., Phiri, J., Krivko, M., Maitah, K., Maitah, M., & Smutka, L. (2022). Key drivers of public debt levels: Empirical evidence from Africa. *Sustainability*, 1-15. doi:doi.org/10.3390/su14031220.
4. Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277-297.
5. Bataka, H. (2021). Economic globalization and public debt in sub-Saharan Africa. *International Journal of Financial Economics*, 1-16. doi:DOI: 10.1002/ijfe.2506.
6. Benayed, W., & Gabsi, F. B. (2020). Domestic public debt and financial development in sub-Saharan Africa: Is there an inverted-U relationship? *Economics Bulletin*, 40(1), 846-854.
7. Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions Initial conditions and moment restrictions. *Journal of Econometrics* 87, 115—143.
8. Chandler, B. (2020). Covid-19 and African debt: Further distress or the beginning of a new paradigm. *The Mo Ibrahim Foundation*.
9. Dawood, M., Biadoo, S. T., & Raza Shah, S. M. (2021). An empirical investigation into the determinants of external debt in Asian developing and transitioning economies. *Development Studies Research*, 8(1), 253-263. doi:10.1080/21665095.2021.1976658.
10. Fadil W., & Rana F. (2021). Determinants of poverty In different countries, *Palarch's Journal Of Archaeology Of Egypt/Egyptology* 18(13), 184-193. ISSN 1567-214x.
11. Filmer, D. & Pritchett, L. (1997). *Child Mortality and Public Spending on Health: How Much Does Money Matter?* I, World Bank Policy Research Working Paper No. 1864 (Washington:World Bank).
12. Geleta, M. W. (2021). Public debt and economic growth in sub-saharan African countries: A panel data analysis. *Economics*, 10(3), 68-78. doi:10.11648/j.econ.20211003.11
13. Gupta, S., Davoodi, H., & Tiongson, E. (2000). Corruption and the Provision of Health Care and Education Services. *IMF Working Paper*. Washington D.C.: International Monetary Fund
14. Gopalakrishnan, V., Wadhwa, D., Haddad, S., & Blake, P. (2021). Year in Review in 11 Charts: The Inequality Pandemic. *The World Bank News*. Retrieved April, 22, 2022.
15. Heitzig, C., Ordu, A. U., & Senbet, L. (2021). Sub-Saharan Africa's mapping the pandemic's effect and the way forward. *Africa Growth Initiative at Brookings*.
16. Ncube, M., & Brixiová, Z. (2015). Public debt sustainability in Africa: Building resilience and challenges ahead . *Working Paper Series N° 227 African Development Bank Abidjan, Côte d'Ivoire*.
17. Kui-Wai, L. (2017). Redefining capitalism in global economic development. *The Kui-Wai Consultancy for Economic Development, Inc.*, Toronto, Canada.
18. Oldiges, C. and Jennings, R. (2020). Understanding Poverty in Africa, Oxford Poverty and Human Development Initiative (OPHI), University of Oxford, OPHI BRIEFING 56.
19. Pape, U. (2019). Measuring poverty rapidly using statistical imputations. *Special IARIW-World Bank Conference*. Washington, DC: IARIW-World Bank. Retrieved 2 10, 2021
20. Rajkumar, A.S., & Swaroop, V. (2002). Public Spending and Outcomes: Does Governance Matter? Policy Research Working Paper Series 2840. Washington D.C.: World Bank.
21. Ranasinghe, D. (2021). Global debt is fast approaching record \$300Trillion, *Institute of International Finance (IIF)*.
22. Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, 9(1), 86–136.
23. Roser, M., & Ortiz-Ospina, E. (2013). *Global Extreme Poverty*. Retrieved from Our world In Data: <http://ourworldindata.org/extreme-poverty>.
24. Sani, A., & Yahaya, A. (2021). Public debt and incidence of poverty in sub-Saharan Africa: The role of institutional quality. *Global Scientific Journal*, 9(2), 1076- 1103.
25. Sani, A., Said, R., Ismail, N. W., & Mazlan, N. (2019). Public debt, institutional quality and economic growth in sub-Saharan Africa. *Institutions and Economies*, 11(3), 39-64.
26. Schoch, M., & Lakner, C. (2020). The number of poor people continues to rise in Sub-Saharan Africa, despite a slow decline on the poverty rate. *World Bank Blogs*.
27. Suckling, E., Christensen, Z., and Walton, D. (2021). Poverty trends: Global, regional and national. Development Initiatives 11.
28. World Bank, (2021). International Debt Statistics 2021, World Bank Publications-Books, The World Bank Group, ISBN (paper): 978-1-4648-1610-9 DOI: 10.1596/978-1-4648-1610-9.
29. WWW. Statista.com (statistics) on National debt in relation to GDP sub-Saharan Africa 2021.