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INSTITUTIONAL DETERMINANTS OF POVERTY IN SUB-SAHARAN AFRICA

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ABSTRACT
This study investigates the macroeconomic determinants of poverty in Sub-Saharan Africa using a panel data set drawn from 45 countries for the period 2011 to 2020. We employed the Systems Generalized Method of Moments (GMM) models as tools of analysis. The results obtained indicate that factors such as exchange rate volatility, Government effectiveness, political stability, previous level of poverty and control of corruption influence increase in the rate of poverty in the sub-region. Given these results, measures such as stable macroeconomic policies to curb exchange rate volatility, good and effective governance, stable political environment and proper control of corruption are suggested as part of recommendations as well as possible solutions to wide spread poverty in Sub-Saharan Africa.

Keywords: Determinants of poverty, Sub-Saharan Africa, acroeconomic, System-Generalized Method of moments (GMM).

1.0 Introduction
Poverty has always been the greatest enemy to mankind and is at the center of human livelihoods. Again as one of the most undesirable socio-economic problems of an economy, it has always attracted the interest of researcher/development economist, social scientists and policymakers. This global problem has its own dynamics and changing the face with time and space and found to be more severe in developing nations. In recent years, international concern over extreme poverty has moved near the top of the world agenda for the first time since 1970s and this has focused attention on the plight of Africa. Although most of the developing world has registered significant development after 1990, the sad exception is sub-Saharan Africa. In this region the "lost decade of the 1990s" has been added to the preceding "lost decade of the 1980s," which has also afflicted most of Latin America and many other developing countries (Sahn & Stifel, 2003).

At the heart of the Africa dilemma is a long economic decline, a drop in per capita income, rapid increase in population, the loss of export revenues, the curtailment of foreign investment, the destruction of fragile ecosystems, war and civil strife, and the inability of many countries to feed their people and meet other basic human needs (Todaro & Smith, 2003).

These and other factors have made the sub-region one of the poorest in the world with more than 50% percent of its people living on less than $1.90 a day in 2019 (World Bank, 2020).

The consequences of this situation include among others: low life expectancy at birth, increase in mortality rate (infant and maternal), increase in malnutrition and high incidence of HIV/AIDS. For instance, the average life expectancy at birth in Sub-Saharan Africa was 45 years in 2019, far below the rates in South Asia and Europe that had 63 years and 79 years respectively in the same year (UNDP, 2019; World Bank, 2019).

Governments and donor agencies in Africa therefore need to evolve policy that is geared towards tackling poverty from its roots. In other words, a step-by-step account of factors that lead to poverty in the region must be obtained so as to provide direction for such reforms, otherwise policies will be targeted randomly without a thought of which factors(s) is/are stronger at causing or aggravating levels and severity of poverty among the people of the Sub-Saharan African region. Various studies have been carried out in relation to poverty and its determinants such as Adeyemi, Ijaya and Raheem (2009), Olofin, Akintoye & Kazeem (2015), Akanbi (2015), Rosa, Yulhar & Prasade (2020), Eyasu (2020), Madzimure& Mbedzi (2021), Alam, Israr & Abusaad (2021), Deyhappriya and Minuwanti (2020) and Atak and Sevic (2020). However none of these studies included socio-cultural factors such as control of corruption and voice of accountability in their study . This study addresses this shortcoming and other gaps such as political factors which include political stability and absence of violence/terrorism and government effectiveness in the literature on the determinants of poverty in Sub-Saharan Africa by using system generalized method moments (GMM). Accordingly, data drawn from 45 countries spanning the period 2011 to 2020 was used for analysis.

The remaining sections of this paper consist of the literature review (conceptual, theoretical and empirical literature review), this is followed by methodology which is the third section of the paper, results and discussion is section four, conclusion and recommendations is the last section of the paper.

2.0 Literature Review

This section of the paper consists of both the conceptual, theoretical and empirical literature reviews.

2.1 Conceptual Literature

A universally accepted definition of poverty may be elusive largely because it involves many aspects of the human conditions including physical, moral and psychological. Various criteria have, therefore, been used to conceptualize poverty. Most of the concepts follow the conventional view of poverty as a result of insufficient income for securing basic goods and services. Others viewed poverty, in part, as a function of education, health, life expectancy, child mortality etc. Identifying the poor, using the criteria of the levels of consumption and expenditure was done by Blackwood and Lynch (1994). Sen (1983) further relates poverty to entitlements which are taken to be the various bundles of goods and services over which one has command, taking into cognizance the means by which such goods are acquired (for example, money and coupons etc) and the availability of the needed goods. Yet, other experts such as Ravallion (1997), Aghion (1999), World Bank (1996) see poverty in very broad terms, such as being unable to meet "basic needs" – (physical: such as food, health care, education, shelter and non-physical: such as participation and identity) requirements for a meaningful life.

This study therefore adopt the concept of poverty as defined by world bank.

2.2 Theoretical Literature Review.

Adolph Wagner (one of the best German economists of his time) proposed an interesting development thesis in 1883, which basically said that as a nation grows, its public sector (and thus public spending) will expand in importance. He was concerned about the public sector's share of GNP, as stated in Brown and Jackson (2004): "The law of increasing growth of public and specifically state operations becomes the law of increasing expansion of fiscal requirements for the fiscal economy." When administration is decentralized and local government is properly organized, both the state's and, often much more so, local authorities' needs expand. In Germany, the fiscal obligations of towns, particularly metropolitan municipalities, have recently increased dramatically. That law is the result of empirical observation in progressive countries, at least in our Western European civilizations; its explanation, justification, and cause is the pressure for social progress and the resulting shift in the relative spheres of private and public economy, particularly compulsory public economy.

Financial constraints may stifle the expansion of government activities, leading their scope to be determined by revenue rather than the other way around, as is usually the case. However, in the long term, a progressive people's ambition for advancement will always triumph over financial constraints. During the nineteenth century, he watched the expansion of the public sectors in a number of European countries, as well as the United States and Japan. Political and economic forces, he believed, were at work in shaping those shifts in the ratio of public expenditure to GDP. Wagner saw three factors which would cause state activity to grow proportionately faster than other sectors of the economy.

As the economy got more specialized in social and economic, life became more atomized as a result of growing division of labor; he predicted an expansion of the government's traditional role in providing administration, law, and order. Second, he predicted an increase in "culture and welfare" spending, particularly in education. His grounds for this anticipation were not quite clear, but it would be fair to say that he believed they behaved like superior goods with a demand elasticity of income greater than unity. Third, he saw that the increasing scale of technologically efficient production would cause the government to undertake certain economic services of which the private sector would be no longer capable.

2.3 Empirical Literature Review.

In their study on the determinants of poverty in India, Alam, Israr, and Abusaad (2021) discovered that variables such as net national income, gross capital formation, gross domestic savings, and population growth have a positive and significant relationship with poverty growth rate in India, using data from 1974 to 2018, and applying ARDL.

Madzimure and Mbedzi (2021) used panel data from 1991 to 2018 to compare the influence of macroeconomic factors on poverty within African regional economic groups. The results of a fixed effects model show that all variables affect poverty throughout the entire sample. Individualistic regional economic community traits, on the other hand, have a varied impact on poverty. While all factors are essential when countries are viewed as a single total sample, the effects of specific elements differ from one regional economic community to the next, highlighting the relevance of regional economic community heterogeneity. This implies different policies should be implemented to reduce poverty based on each country's regional belonging.

Using the FGT index and quantile regression model, Eyasu, (2020), conducted a study on the determinants of poverty in rural households: evidence from North-Western Ethiopia, and discovered that factors such as total family size, total land ownership, distance to

market, non-off-farm income, and the household head's poor health status. It was discovered that the overall family size and the household head's poor health can raise rural household poverty, lowering the standard of life of rural families.

Rosa, Yulhar, and Prasada (2020) used secondary data and OLS and investigate the drivers of poverty rate in JAVA Island. Inflation rates, the human development index, regional minimum wages, and open unemployment rates were found to be predictors of poverty levels in Java, indicating that all factors must be taken into account when formulating policy suggestions to alleviate poverty in Java.

Atak and Sevic (2020). Investigates the determinants of poverty were examined in selected developing countries using the System Generalized Moments Method (GMM) for the period 1995-2015, the findings, reveal that poverty rate's lagged value, population, unemployment rate, and improvements in life expectancy all contribute to poverty. Increases in per capita income, foreign trade ratio, industry's GDP share, obligatory education year, and individual internet use, on the other hand, were found to have a poverty-reducing effect.

Deyhappriya and Minuwanti (2020) used probit regression analysis to achieve the study's aims, using data from the household income and expenditure survey (HIES) (2016) from the Department of Census and Statistics of Sri Lanka. The findings show that there is a non-linear link between the age of the household's head of household and the likelihood of being poor on multiple levels in Sri Lanka. Furthermore, the study finds that the chances of being poor in terms of income and multidimensional poor drop with age until 69.23 and 68.18 years, respectively, and then increase. Moreover, other households factors such as size of household, education, ethnicity, employment status, marital status, sector of living, disability nature of the head of household, having agricultural lands and receiving remittances were also recognized as crucial drivers of both income and multidimensional poverty in Sri Lanka.

Teka, Woldu and Fre (2019) investigate poverty and its determinants and income inequality in pastoral and agro-pastoral communities in Ethiopia. 2295 households from zone 1 and zone 2 of the Afar region were surveyed and examined using the Foster Greer and Thorbecke (FGT) index, the Gini coefficient, and logistic regression. 47.6 percent of the households are poor, with poverty gap index of 0.178 and poverty severity index of 0.092. Food poverty accounts for 33.7 percent with an income gap of Birr 33 per month. Food poverty is highest in pastoral (35.6%) than the agro-pastoral communities (29.8%). 35.6 percent of PSNP non-participants and 32 percent of the participant households are poor.

Gender of the household head, family size, access to credit, mobility, participating in safety net programs and local institutions, distance to market and remittances were the determinants of poverty in the area.

Buba, Abdu, Adamu, and Jibir (2018) investigate the socio-demographic determinants of poverty and gender differentials in Nigeria, using data from the demographic health survey (DHS) and binary probit regression analysis of poverty as well as Oaxaca-Blinder decomposition to look into factors that cause inequality in socio-economic fortunes among Nigerian households. The findings of the study demonstrated that socio-demographic variables as well as work characteristics are important drivers of poverty in the country, confirming theoretical hypotheses about poverty causes. However, empirical results from the Oaxaca-Blinder decomposition show that female headed households are more disadvantaged in terms of socioeconomic deprivation than the male headed households.

Siyan, Adegoriola, and Adolphus (2017) applied vector auto-regression (VAR) and granger causality (GC) tests to examine poverty level, unemployment rate, and inflation rate to determine the direction of causality between poverty and inflation. The findings reveal that inflation and poverty, as well as unemployment and poverty, have bidirectional causality. Between unemployment and inflation, a unidirectional causality is identified, with the causality running from unemployment to inflation. The study utilized a GC test of causality, which is only valid and applicable if the variables are integrated in the same order after the unit root test. If the unit root test result shows that the variables are of different level of integration, then the GC test of causality is not valid.

Rehman (2017) affirms that food-inflation decreases poverty in the agricultural sector, i.e., the food- producers' poverty while increases the poverty in the non-agricultural sector, i.e., the food-consumers' poverty. Thus, the overall effect of food-inflation on poverty is that; inflation aggravates and increases poverty having shown that food-consumers are more than food-producers in numbers.

Borko (2017) uses cross-sectional household survey data obtained from 235 sample houses to investigate the determinants of poverty in a rural household case study in Damot Gale District Ethiopia. The data was evaluated and discussed using the FGT poverty measures, such as the poverty head count index, the poverty gap, and the severity of poverty. The study indicated that the total poverty line in the study area was around 3612.151 birr per year per adult equivalent consumption, using the cost of basic necessities approach. The survey found that 56.17 percent of households were poor when using this poverty criterion as a benchmark. The result of the logistic regression model revealed that out of 18 variables

included in the model, 13 explanatory variables were found to be significant at 1%, 5% and 10% level. Accordingly, family size, household head sex, household age, dependency ratio and marital status were found to have positive association with poverty of the household and statistically significant. Meanwhile Age square, cultivated land size, oxen, access to credit, off farm activity, household health, remittance, and market access were found to have strong negative association with the households poverty status and statistically significant up to less than 10% level of significance.

3.0 Sources of Data and Methodology

Data for this study spanning the period 2011-2020 were obtained from the websites of international organizations such as United Nations Conference on Trade and Development (UNCTAD), World Bank Database, and African Development Bank (ADB) for the year (2011 -2020) for all Sub-Saharan African countries which include Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Democratic Republic, Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia and Zimbabwe

Following the discussions in section two, the model specification is modified from the works of Atak and Sevic (2020) who used GMM to estimate the impact of macro economic variables on poverty, we adopt there model with little modification by including institutional variables, this is because it has ability to estimate a model were the group are more the observations. To estimate the determinants of poverty, the following model was set up.

$$POV_{it} = \Phi pov_{it-1} + \beta Y'_{it} + \gamma Z'_{it} + \varphi X'_{it} + \mu_i + \partial_t + \varepsilon_{it} \quad (3.1)$$

Where POV_{it} = poverty; pov_{it-1} is lag value of poverty, Y' is the vector of macroeconomic variable i.e population (popn), exchange rate (exch), Z' is the vector of political factors i.e political stability and absence of violence/terrorism (polsta), government effectiveness (goveff); X' is the vector of socio-cultural factors i.e control of corruption (concor); μ_i is the unobserved country-specific fixed effect; ∂_t is the time trend; Φ, β, γ and φ are parameters; i is number of cross-sections (= 1,……N); t is the number of time series (=1,…….T), and ε' is the error term.

Since a static model will not capture the short and long-run impacts of the regressors on the dependent variable, we used a dynamic model and the system- GMM estimator to capture the persistent nature of income inequality, address the problems of omitted variables, measurement error, endogeneity, and country-specific heterogeneity. The consistency of the system-GMM estimator is assessed by two specification tests. The Hansen test of over-identifying restrictions tests for the overall validity of the instruments and the second test examines the null hypothesis that the error term is not serially correlated. Failure to reject both null hypotheses gives support to the model (Arellano and Bond, 1991; Arellano and Bover, 1995; Blundell and Bond, 1998; Osabuohien, Efobi and Gitau, 2015). This study reports p-values of Arellano-Bond AR(2) tests as contained in the preceding section .

3.1 Variable Measurement.

Poverty (POV): It is measured by household per capita consumption expenditure and calculated by the World Bank, in line with the study of Atak and Sevic (2020).

Population (Popn): This is measured as the total population growth rate in each country. This is in line with Adeyemi et. al. (2009).

Control of Corruption (concor): measures the exercise of public power for private gain, including both petty and grand corruption. (Chan et. al*,* 2008).

Government Effectiveness (goveff): It measures the extent to which competency of the bureaucracy and quality of public service is delivered. (Shaziaet. al*,* 2015).

Political Stability and Absence of Violence/Terrorism (polsta): This measures the likelihood of violent threats to unconstitutional changes in government, including terrorism. (Eicher &Leukert, 2009).

Exchange Rate (Exch): This is measured as the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar) and this is calculated by the World Bank in line with Shahidur (2012).

4.0 Results and Discussion

The results of system generalized method of moment GMM is presented on the table 1 below. The dependent variable is poverty rate and various independent variables such as lag value of poverty, exchange rate, population rate, government effectiveness, political stability and control of corruption.

Table 1: Two-step system GMM Dynamic Panel Data Estimation Results

Independent Variables	System GMM
Pov_{t-1}	0.2615281
	(1.10)**
EXCH	0.00225
	(0.39)***
POPN	1.45362
	(0.65)
GOVEFF	-9.278909
	(1.54)***
POLSTA	-5.243515
	(1.34)**
CONCOR	4.661736
	(0.67)
Diagnostics Test	
Number of observations	423
Number of Countries	45
Sargan Test	16.61 [0.155]
Arrelano-Bond AR(2) Test	-2.40 [0.333]

Source: Authors computation using STATA Version 9
Note: Value in () are t- ratios while the values in [ ] are p-values.
Variable are significant at (* 1%) (** 5%) (* 10%) [( )not significant]**

The result of system- generalized method of moment (GMM) is reported in Table 1 shows that sargan test fails to reject the null hypothesis of over identifying restrictions even at 10% level percentage level. In addition, the Arellano-Bond serial correlation test cannot reject the null hypothesis of serial correlation at order two.
The result showed that the lagged dependent variable is positive and significant at 5% level. This suggests that this year's poverty level is positively influence by the poverty level in the previous year. The coefficient of exchange rate is positive and significantly related to poverty rate, which means an increase in the exchange rate would lead to increase in poverty rate in the sub-Saharan African countries.

Again, form the table 1 above, variables such as political stability and government effectiveness, have negative and significant relationship with the dependent variable. This

implies that a more stable political environment leads to a decrease in the rate of poverty in the sub-region furthermore, government effectiveness also showed the same behaviour which means that, a more effective government would lead to decrease in poverty rate in the sub-Saharan African countries.

The negative signs of these variables are indications that their existence has led to decrease in the rate of poverty in Sub-Saharan African region. Situations that can be linked to a number of factors that is political, economic and social in nature. Politically, most of the countries in this sub-region have since independence known no peace and witness the largest number of military coups and dictatorial rules that end up breeding corruption. Economically, this is also a sub-region that has witnessed more macroeconomic instability and poor economic performance than any other region in the world due to high rate of corruption, political patronage, political instability and nepotism. For instance, since the mid-1980s countries like Democratic Republic of Congo, Somalia have been at war, while countries like Serria Leone, Liberia, Rwanda, Burundi, Sudan and Cote d'Ivore are either recovering from years of war or making efforts to resolve their conflicts even Nigeria have recently been characterized by the activities of insurgency, which had led to people losing their properties, businesses assets and even in some cases their lives. This lead to increases the level of unemployment.

The Population rate does not matter much to us in the studies as it falls short of our apriori expectations. Several factors can be linked to this. For instance, the most countries in this sub-region have a large pull of human capital and this is also a function of the population. Therefore the higher the human capital the more tendencies a country have to harness more resources.

A broad examination of the findings appears to conform with the works of Deyhappriya and Minuwati, 2020, Alam, Israr and Abusaad, 2021, Borko (2017) and Madzimure and Mbedzi,
2021
which have identified volatile exchange rates, political instability and government effectiveness as causes of poverty in their various studies.

5.0 Conclusion and Recommendations

An empirical study on the macroeconomic determinants of poverty in Sub-Sahara Africa was undertaken and employed a panel data and system-generalized method of moment (GMM). Some of the determinants of poverty considered include lagged value of poverty, exchange rate, population rate, government effectiveness, political stability and control of

corruption. Of these variables only population rate and control of corruption ran contrary to our a-priori expectations while other variables fulfilled our expectations. Therefore government should be more deliberate in their policies, again, they security of these countries is very important in reduction of poverty rate .

It is based on the above finding that this study makes the following recommendations

i. Good governance and effective governance should be top most in the sub-region.
ii. Deliberate effort should be made to control exchange rate volatility by making domestic currency to be valuable and stable.
iii. Poverty reduction should be the major agenda of every government and should be pursue with every rigor since from the study, previous level of poverty affect the current level of poverty.

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