# Estimating Inclusiveness of Growth in Sub-Sahara African Countries:An ARDL Approach

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## Abstract

Using the poverty-growth-inequality triangle (PGIT) hypothesis as the framework, the study examined the responsiveness of poverty to growth and inequality with a view of assessing the extent of inclusiveness of growth in the selected African countries. Using a dataset from World Development Indicators (WDI) and Standardized World Income Inequality Dataset (SWIID), and International Country Risk Guide (ICRG), the study adopted Panel Autoregressive Distributed Lag (ARDL) method in its econometric analysis. Its findings show that only "On Track" African countries exhibit traits of inclusiveness of growth, as there is a positive significant impact on poverty level due to increased growth. Thus, the study recommends the need for investment in public infrastructure which will reinvigorate growth and consequently create significant employment opportunities as well as the implementation of distributional and growth-oriented macroeconomic policies under a sound and people=oriented democratic government, to trickle-down the increased growth to all in African countries.

Keywords: Income Inequality, Economic Growth, Inclusive Growth, Poverty.

## Background to the Study

Driven by the wide divergence between the growth and development rate in African countries and other developing regions, when compared with that of emerging economies of the world (World Bank, 2012), the focus of the African Union's (AU) Agenda 2063 and Africa's common position on post-2015 documents was to achieve inclusive growth based prosperity, and peopledriven development. Building of shared prosperity via economic and social transformation and the eradication of extreme poverty in all senses in one generation is Agenda 2063 central aim and unified position. Prominent among the factors that are responsible for this gap is inherent inequality and poverty. Moving from Dudley Seers to Amartya Sen, these two factors are strong catalysts, which determine the state of development in an economy. According to Seers (1979), the reduction of poverty, inequality, and unemployment is the central purpose of development. In the view of Sen (1999), development entails a reduction of denial or expansion of choice. Deprivation connotes a complex perspective of poverty, which includes illiteracy, starvation, powerlessness, sickness, poor health, timidity, degradation, and a denial of the right to use essential infrastructure (Narayan, Saveedra and Tiwari, 2013). Poverty is characterized as "capability deprivation". A situation where a person lacks the "substantive freedoms" needed to lead "a valued desired lifestyle" (Sen, 1999). Overcoming deprivation is central to development. Thus, the total elimination or reduction of poverty has been one of the most highly ranked priorities of all major institutions that are concerned with human development.

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Many international organizations that are development-oriented, such as the International Monetary Fund (IMF), the United Nations (UN), and various groups of World Bank have mutually defined seven international development goals. First on the list is the "fifty percent reduction of people living with extreme poverty during the period between 1990 and 2015" as contained in Millennium Development Goals (MDGs), and later reviewed in Sustainable Development Goals (SDGs), launched in 2015, to "Reduction of global headcount ratio of extreme poverty to 3 percent by 2030". (World Bank: Global Monitoring Report, 2015/2016).

Nevertheless, the relationship among growth, income inequality as well as poverty remains a contending global issue in the world. Lately, the direction of the debate has been redirected to how the mix of growth and inequality can assist in reducing outright poverty. Various studies provided proof pointing out the fact that the mix of inequality and growth is essential in alleviating poverty (Dollar and Kraay, 2002; Kraay, 2004; Foster and Szekely 2008; Nguyen, 2017). In its uniqueness, Bourguignon (2004) did revolve our thoughtfulness in the debate from the evil-twin growth-inequality to the interface between economic growth and distribution in sinking absolute poverty. He advocated a development strategy strongly modeled to alleviate abject poverty with a poverty-growth-inequality triangle (PGIT) hypothesis, through the implementation of a country-specific mixture of growth and distribution policies.

Despite laudable Africa's macroeconomic achievement over the past three decades, the continent still falls behind in its drives towards poverty reduction. As of August 2018, about 430 million people in Africa live in extreme poverty, representing 67.5% of the population of the world living in abject poverty, with a current poverty escape rate of -11.8 per minute (World Poverty Clock, 2018). This indicates that more people are falling into extreme poverty than escaping it. This is a worse situation when compared with South America with 15 million people living in extreme poverty, and struggling with an escape rate of -1.9, and Asia with 175 million people in extreme poverty, with an escape rate of 775 people per minute. Thus, the attainment of SDGs in Africa is at risk. For many years, development planners and typical economic stability, economic liberalization, and encourage market-based policies that would arouse economic growth. With economic growth, they maintained that more resources would be available for everyone, making it much easier to reduce the instance of poverty. "A rising sea lifts all boats" is a common metaphor. However, their view ignored how the distribution of resources is being seriously skewed by inequality.

However, the influence of growth on poverty reduction in countries of the world is highly hampered by the existence of inequity in the distribution of resources among the people of diverse nations. This instance is best explained by the 'trickle-up theory', which emphasizes that economic growth fails to enhance the standard of living of the very poor; notwithstanding, the 'growth processes do 'trickle-up' to both the middle classes as well as the wealthy (Todaro 1997). This, consequently, results in deterioration of the income distribution (i. e., rise in income inequality), which then escalates poverty. In other words, the theory proclaims that there are underpinning factors that sustain poverty amidst the poor populace and inhibit them from contributing to growth.

Inequality has been identified as an integral factor arbitrating the growth-poverty nexus. This has been demonstrated by many scholars (Ravallion, 1997; Ravallion and Chen, 2003; Fosu, 2009; Odhiambo (2009; 2011); Sala-i-Martin and Pinhovskiy, 2009; Young, 2012 and McKay, 2013; Ogbeide and Agu 2015). Using the Gini coefficient as a standard proxy of withincountry inequality in income, Africa's average Gini coefficient is on average of 55% which is more than that of the rest of developing countries by 1.4%, making other developing world Gini coefficient stand at 39% (WDI, 2014). Besides, the upper limit of Africa's range of Gini coefficient is higher than that of the other developing countries, suggesting an instance of high inequality is also a distinct feature on this continent. Except for North Africa, the fraction of people living with extreme poverty instances is averaged at 39 – 46 percent (World Bank, 2014b) in Africa. When compared with the poverty rates in other developing provinces such as Latin America and the Caribbean (LAC), and South Asia., this is significantly higher.

Empirically, findings seem to propose that the initial income inequality within an economy

is vital in predicting the extent of the impact of economic growth on poverty reduction (Ravallion, 1997; Clarke, 1995; Adams, 2004). In specific terms, higher initial income inequality tends to lower the impact on poverty from economic growth, *ceteris paribus*. Similarly, Sala-i-Martin and Pinhovskiy (2009) analyzed income distributions, poverty rates, and inequality and welfare indices for African countries for the period 1970– 2006. Their study revealed that the recent boost of growth in African countries was complemented by asymmetrical and sustained poverty reduction, and subsequently, had a remarkable 'trickle-down' effect.

Taking inclusive growth as gross domestic product (GDP) growth which integrates both inequality and poverty reduction (Grinspun, 2004), various studies provided proof pointing out the fact that the mix of inequality and growth is essential in alleviating poverty. (e.g. Deininger and Squire 1996; Foster and Szekely 2001; Dollar and Kraay 2002; Kraay, 2004; Bourguignon, 2004). In particular, Bourguignon (2004) was able to establish that both growth and inequality elasticity of poverty are increasing functions of the level of development and a decreasing function of the degree of relative income inequality. Ali and Tahir (1999) estimated OLS regressions to assess the long-run nexus between these three variables using a pooled dataset on Pakistan. The first of the studies estimated the links from 1963/64 to 1993/94, employing 14 Household Income and Expenditure Survey (HIES) datasets comprising 28 observations. The second study estimated the same dataset from 1990/91 to 2001/02, including seven HIES datasets using 28 observations. The results indicated a positively significant linkage between inequality and poverty reduction in Pakistan.

Africa-specific studies on the poverty-growth-inequality linkage are sparse. Fosu (2009) found that, in line with previous studies, the initial stock of inequality variances may lead to considerable variances in the poverty-growth-elasticity, not only among Sub-Sahara Africa (SSA) countries and other continents in Africa but also among economies within Sub-Sahara Africa (SSA). Recently, Fosu (2016) presents recent global evidence on the transformation of economic growth to poverty reduction in developing countries, with emphasis on the role of income inequality. Using unbalanced panel data of 80 countries, his study found that on average income growth has been the major driving force behind both the declines and increases in poverty. There is therefore the need for its investigation in the African context.

Acknowledging the various concepts of inclusive growth in the literature, the focus of the study is to analyze the inclusiveness of growth in terms of the interaction among economic growth, income inequality as well as a reduction in poverty in Africa. This study covers 12 African countries chosen on a poverty rating basis (World Poverty Rating, 2018) over the period 1990 – 2019. The classifications include "Off Track" African Countries comprising Cameroon, Gambia, Malawi, Namibia, South Africa, and Uganda. In this case, extreme poverty is declining though at a slower rate. The case in which the declining of extreme poverty is at a high rate is termed "On Track" African Countries which include Ethiopia and Ghana; and "Poverty Rising" African Countries making up of Niger, Nigeria, Tanzania and Zambia have extreme poverty rising. The choice of the period 1990 – 2019 is significant because major restructuring and policies on poverty reduction such as Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) started between these periods, precisely in 2000 and 2015, creating the basis for evaluating the poverty-reduction effects of the policies within the chosen period.

## Method

Aligning more with the poverty-income-growth triangle hypothesis as the theoretical framework, and following Datt and Ravillion's approach of disintegrating changes in poverty into "pure growth" and "redistribution" constituents, we restrict attention to poverty indices which can be wholly characterized by the poverty line, average income of the distribution, as well as relative income inequalities. The poverty rate (P<sub>i</sub>) can be expressed as:

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[2]

 $P_t = f(z, \mu, L_t)$ Where:

*z* is the poverty line, which is taken in this study as the real consumption expenditure per capita pattern in the economy.

 $\mu$  is the mean income represented by real per capita income and L<sub>t</sub> is relative income inequalities at time *t*, represented by the Gini coefficient.

From equation 1, it is obvious that the rate of change in poverty may be affected by either fluctuation in relative inequality or mean income.

Therefore, the change of the poverty rate over time  $(Pt_{+n} - P_t)$  can be disintegrated into a growth effect and a distribution effect. The growth effect (G) connotes the changes in poverty as a result of changes in the average income of the distribution while assuming that the Gini coefficient *L*, which reflects relative income inequalities is constant. The distribution effect (D) is defined as the change in poverty due to change in relative income inequality while assuming the mean income remains constant at the reference level  $\mu_r$ , R is the residual (Datt and Ravillion, 1992).

Thus,

 $P_{t+n} - P_t = G(t, t+n; r) + D(t, t+n; r) + R(t, t+n; r)$ 

The equation states that poverty rate is a component of growth effect, distribution effect and residual. And each of the component is a function of initial (t) and terminal dates of the decomposition period (n), and residual (r).

From Equations 1 and 2, the growth and distribution effects can be defined. Growth effect is defined as:

$$G(t, t+n; r) \equiv P(z/\mu_{i+n}, L_r) - P(z/\mu_t, L_r)$$
[3]

Equation 3. defines growth effect as the rate of change in poverty, which is a function of the poverty line given per capita income in the later period and Gini coefficient, less the poverty rate in the initial period. From this equation, the only impacting factor on changes in poverty is the difference in per capita income between periods. Thus, changes in per capita income cause a "growth effect".

And the distribution effect is defined as:

$$D(t, t+n; r) \equiv P(z/\mu_r, L_{i+n}) - P(z/\mu_r, L_t)$$
[4]

Like Equation 3, equation 4, defines distribution effect as the rate of change in poverty caused by changes in income inequality. Thus, changes in the Gini coefficient cause a "distribution effect".

From equations 3 and 4, we can calculate the growth as well as distribution effects. Thus, we have:

$$\Delta P = P_2 - P_1 = G(t, t+n; r) + D(t, t+n; r) + \Delta R$$
[5]

$$\Delta \mathbf{P} = P_2 - P_1 = \left[ \mathbf{P} \left( z / \mu_{i+n}, L_r \right) - \mathbf{P} \left( z / \mu_t, L_r \right) \right] + \left[ \mathbf{P} \left( z / \mu_r, L_{i+n} \right) - \mathbf{P} \left( z / \mu_r, L_t \right) \right] + \Delta R \qquad [6]$$
Where:

R = 0 (i.e. the institutions of fundamentals of inclusive growth is constant) Equation 6 states that a change in poverty comprises of growth effect, distribution effect and residual value.

$$\Delta P = P_2 - P_1 = G + D$$
<sup>[7]</sup>

Where:

$$G = \left[ P(z / \mu_{i+n}, L_r) - P(z / \mu_t, L_r) \right]$$
$$D = \left[ P(z / \mu_r, L_{i+n}) - P(z / \mu_r, L_t) \right]$$

Conclusively, equation 7 categorically states that change in poverty of a country is the addictive function of both growth effect and distribution effect.

Thus, to estimate the responsiveness of poverty to each of inequality and growth in the selected African countries as contained in objective three of the study, we examine the responsiveness of poverty to each of inequality and growth, recognizing variance in income distribution, adopting the basic growth-poverty model suggested by Ravallion (1997, 2008), and Ravallion and Chen (1997) as well as the frameworks posted by Dollar and Kraay (2002), and empirical work of Anyanwu and Erhijakpor (2010), and Mthuli, John and Kjell (2013). Aligning with equation 6, we use the model of Mthuli et al. (2013), which is generally expressed as:

$$Pov_{it} = f(L_{it}, Y_{it}, X_{it})$$
[8]

Assuming a Cobb Douglass function of equation 3.18, we have

$$Pov_{it} = \alpha L_{it} \beta_1. Y_{it} \beta_2. X_{it} \beta_3 \xi_{it}$$
[9]

Where  $\beta_3 = 1 - \beta_1 - \beta_2$ In logarithm format, we have

$$Log Pov_{it} = \alpha + \beta_1 log L_{it} + \beta_2 log Y_{it} + \beta_3 log X_{it} + \zeta_{it}$$
[10]

However, in econometrics form, the equation is transformed into

$$\log Pov_{it} = \alpha_0 + \beta_1 Log L_{it} + \beta_2 Log Y_{it} + \beta_3 Log X_{it} + \xi_{it}$$
(i = 1, ..., N; t = 1, ...T)
[11]

Where:

 $pov_{it}$  is the measure of poverty in country i at time t.

 $\alpha_0$  is a fixed effect reflecting time differences between countries.

 $\beta_1$  is the elasticity of poverty with respect to income inequality given by the Gini coefficient L.

 $\beta_2$  is the growth elasticity of poverty with respect to Changes in real per capita GDP given by Y.

 $x_{it}$  is the control variables.

These control variables reflect the state of the empirical literature on the fundamentals of inclusive growth, which is the modification to the adopted model. The set of control variables includes primary school enrollment ratio to GDP, employment rate, FDI as a percentage of GDP, and democratic accountability as a proxy for institutional factor, and å is an error term that includes errors in the poverty measure.

However, in time series analysis, it is common to have mixed stationarity properties of variables which necessitate the cointegration test. Thus, the estimation technique that captures this is considered. In line with Pesaran, Shin and Smith (2001), this study employs the autoregressive distributed lag (ARDL) bounds test to examine cointegration among variables in equation (11). Though the ARDL-bounds testing method need not have the included variables in the model to be of the same order of integration, rather an integration of either order zero I(0) or order one I(I) is a necessity. Following the Pesaran et.al. (2001), the unrestricted error correction version of the ARDL model on the variables in equation (11) is as stated below

$$\Delta Pov_{it} = \beta_0 + \beta_1 \log L_{it-1} + \beta_2 \log Y_{it-1} + \beta_3 \log X_{it-1} + \sum_{t=1}^n \alpha_1 \Delta Pov_{t-i} + \sum_{t=0}^n \alpha_2 l \log L_{t-i} + \sum_{t=0}^n \alpha_3 Log Y_{t-i} + \sum_{t=0}^n \alpha_4 X_{t-i} + \xi_{it}$$
[12]

Where:

 $\Delta$  is difference operator.  $\beta_i$ , i = 1, 2, 3 are the long-run estimates.  $\alpha_i$ , i = 1,2,3,4 are short-run multipliers and estimates.  $\epsilon_{it}$  is the error term of country i at time t.

The ARDL chooses its appropriate lag length automatically. In this setting, the decision rule for establishing cointegration among the variables in equation 12 is explained as follows. The null hypothesis of no cointegration among variables in equation (12) is set as H<sub>0</sub>:  $\beta_1 = \beta_2 = \beta_3 = 0$  against alternative hypothesis H<sub>0</sub>:  $\beta_1 \neq \beta_2 \neq \beta_3 \neq 0$ . If cointegration is established, according to Pesaran et. al. (2001), the next is error correction model (ECM) with short-run dynamics presented as follows:

$$\Delta Pov_{it} = \alpha_0 + \sum_{t=1}^n \alpha_1 \Delta Pov_{t-i} + \sum_{t=0}^n \alpha_2 log L_{t-i} + \alpha_3 Log Y_{t-i} \sum_{t=0}^n + \sum_{t=0}^n \alpha_4 X_{t-i} + \alpha_5 ECM_{t-1} + \xi_{it}$$
[13]

The short-run coefficients are  $\alpha_i$ , i = 1,2,3,4. While ECM<sub>t-1</sub> is the error correction term that confirmed the long-run equilibrium and  $\alpha_5$  is the parameter that captures the speed of adjustment to equilibrium after a shock. This parameter must be negative and significant to justify the existence of the long-run relationship among the variables.

S/N	Variables	Symbol	Description	Sources	Measurement
1	Economic	GDP	Changes in real GDP	World Development	Percentages
	Growth		per Capita	Indicator, 2020	
2	Poverty Level	Pov	Real Consumption Expenditure per capita	Calculated	(Private Consumption Expenditure * Inflation rate)/Population (See Okojie (2002); Oladipo & Olomola (2015)
3	Income Inequality	Gini	Gini Coefficient	World Bank: Standardized World Income Inequality Dataset, 7.0	Percentages
4	Control Variables	X	<ul> <li>i. Primary School Gross Enrollment ratio</li> <li>ii. Foreign Direct Investment as Percentage of GDP</li> <li>iii. Employment rate.</li> <li>iv. Governance: Democratic Accountability</li> </ul>	World Development Indicator, 2020 International Country Risk Guide (ICRG), 2016	Percentages Percentages Percentages Index

Table 1: Data Description and Sources

## **Diagnostic** Test

For many economic applications, it is important to know whether an observed series is stationary or non-stationary. To avert spurious regression results, panel unit roots test were performed by Newly-West method which assumes even cointegration between panel members, cross-sectional independence, but allow for heterogeneity of the form of individual deterministic effects (constant and/or linear time trend) and heterogeneous serial correlation structures of the error terms. Thus, Levin, Lin and Chi unit root test (LLC) and Im, Pesaran and Shin unit root test (IPS) was performed to know the level of stationarity of the series. The lag length for each of the variables was automatically selected by Schwartz Information Criterion (SIC). The results of the tests were presented in Tables 2 to 5.

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<b>CLASSIFICATIONS</b>	POV	$\Delta POV$	GINI	AGINI	GDP	ΔGDP	EMPL	AEMPL	FDI	ΔFDI	DACC	ADACC	PRYSCH	APRYSCH
ON TRACK	13.39	26.96*	2.47	16.28*	14.26	27.52*	19.07*	$53.50^{*}$	3.29	23.03*	2.15	14.86*	12.83**	25.74*
OFF TRACK	15.99	358.16*	274.75	64.87*	58.99	159.29*	35.52*	322.27*	-5.51*	102.57*	$40.86^{*}$	171.77*	30.67*	112.23*
POVERTY RISING	41.25	80.35*	14.12	28.73*	42.84	64.43*	39.47*	62.38*	33.36*	55.25*	$40.06^{*}$	37.42*	14.14	39.12*
Note: * and **	deno	otes sig	mifican	nt at 1%	ó and '	5% res	nective	elv. Th	le resu	lts wei	re pene	erated u	sing	
E-View softwar	re pa	ckage									0		0	
	1	)												
<b>Table 3:</b> Im, Pesara:	n and	Shin U1	nit Root	Test (IPS)	_									
CLASSIFICATIONS	POV	ΔPOV	GINI	AGINI	GDP	AGDP	EMPL	ΔEMPL	FDI	AFDI	DACC	ADACC	PRYSCH	APRYSCH
ON TRACK	13.47	263.39*	2.75	15.88*	14.46	282.92*	18.99*	58.80*	3.26	24.11*	0.85	14.76*	13.18**	311.74*
OFF TRACK	90.45	$1432.28^{*}$	* 229.41	63.68*	71.17	1113.38*	293.78*	323.86*	50.46*	866.24*	11.15	44.74*	49.34*	1046.66*
POVERTY RISING	42.32	790.17*	2.14	29.10	58.98	831.64*	38.66*	63.25*	133.05*	554.68*	26.06*	49.48*	12.65	316.31*
Note: * and ** denc	tes sig	uificant	at 1% ai	nd 5% res	pectivel.	y. The re	sults we	re genera	ted using	50				
E-View software pa	ickage													
Table 4: Summary 6	of Levi	in, Lin a	und Chi l	Unit Root	: Test (L	LC								
CLASSIFICATIO	NS	POV	GINI	GDP	EM	IPL PI	<b>NSCH</b>	FDI	DA	2				
<b>ON TRACK</b>		I(I)	I(I)	I(I)	I(0)	I(C	(	I(I)	I(I)					
<b>OFF TRACK</b>		I(I)	I(I)	I(I)	I(0)	I(C	(	I(0)	I(0)					
POVERTY RISIN	Ŀ	I(I)	I(I)	I(I)	I(0)	I(I		I(0)	I(0)					
Note: I (0) indicates	signifi	cance at	t levels aı	nd I (I) inc	dicates s	ignificar	nt at first	differenc	es.					
Table 5: Summary of	f Im, P	esaran á	and Shin	Unit Roc	ot Test (	(SdI								
CLASSIFICATION	S	POV	GINI	GDP	EMPL	PRYS	CH	FDI	DACC					
ON TRACK		([])	[]] (1) (1)	[[] []	I(0)	I(0)		(I)	[]] (1)					
UFF IKACK		I(I)	1(1)	1(1)	1(1)	1(U)		(n)	1(1)					
<b>POVERTY RISINC</b>	( ħ	I(I)	I(I)	I(I)	I(0)	I(I)	-	(0)	I(0)					

Note: I (0) indicates significance at levels and I (I) indicates significant at first differences.

Table 2: Levin, Lin and Chi Unit Root Test (LLC)

For all the methods, the null hypothesis of the series was tested against its alternative hypothesis. For Levin, Lin and Chi unit root test (LLC) and Im, Pesaran and Shin unit root test (IPS), the null hypothesis was that the variable has a unit root (i.e., non-stationary) which was tested against the alternative hypothesis that the variable does not have a unit root (i.e., stationary). Thus, from tables 4 to 5 (the summaries of the unit root test), the panel unit root results produce a mixed outcome of stationarity and non-stationarity at a level and at first difference, generating different orders of Integration I (0) and I (I).

## **Discussion of Findings**

To assess the extent of responsiveness of poverty to growth and inequality a panel ARDL approach was adopted using pooled mean group (PMG), mean group (MG), and dynamic fixed effects (DFE) estimation techniques. In the study, PMG estimator was proved to be more efficient and effective than the DFE or MG estimators with the outcomes of the Hausman tests. The implication of this is that while the influence of exogenous variables reflects heterogeneous nature in the short-run period, homogeneous nature was reflected by the same independent variables in the long run. For this reason, our discussion only focuses on the PMG results.

As shown in Table 6, in line with the propositions of trickle-down theories (Balami, 2006; Rostow, 1960), economic growth has a positive significant impact on reduction in poverty level in both periods only in "On Track" African countries. This implies that economic growth does not aggravate poverty incidence, as the dividends of increased growth circulate among everyone in the classification, thereby alleviating the poverty level. These findings were in line with the results of empirical studies such as Sala-i-Martin and Pinhovskiy, 2009; Thorbecke, 2013. Other classifications, revealed a direct relationship between growth and poverty level in both periods. This finding implies that economic growth aggravates poverty incidence but insignificantly in the short run, except for the "Off Track" classification. The insignificant impact of growth on the poverty level was attributed to inefficient institutional factors (i.e. democratic accountability, government stability, etc.) which impeded the benefits of increased productivity to be evenly distributed in the selected African countries. These findings contradict the conclusions of studies such as Odhiambo (2011), Okoroafor and Chinweoke (2013), Thorbecke, (2013).

Income inequality (proxied by Gini coefficient) was expected to have a direct relationship with poverty level (Lustig, Arias and Rigolini, 2002). The results from the model showed that this *a priori* expectation was only valid in both periods in the "Off track" classification. This implies that reduction in income inequality is an effective tool in the reduction of poverty incidence in the classification. However, both period of "On track" classification and the long-run period of "poverty rising" classification, have no significant impact on the reduction of poverty incidence. The negative relationship exhibited between poverty and income inequality in the long run instances was inconsistent with the theoretical literature position on the impact of income inequality on poverty reduction (Bourguignon, 2004), and empirical studies such as Young (2012), Okoroafor and Chinweoke (2013).

As fundamentals of inclusive growth, employment rate, foreign direct investment, institutional factor (proxied by democratic accountability), and human capital development, proxied by primary school enrolment ratio were expected to stimulate poverty reduction by exhibiting a negative relationship with poverty level to make an impact in the reduction of poverty (Balami, 2006). In the PMG results, only employment rate and foreign direct investment insignificantly stimulate poverty reduction in the "on track" and "Off track" classifications, while in "Off track" and "poverty rising" classifications, democratic accountability made an insignificant impact in the reduction of poverty in the PMG model. Lastly, the coefficient of the error-correction term is required to be negative and significant. The lagged error correction term (ECT) of the PMG result is negative and statistically significant at the 5% level with a coefficient equal to -1.197, -1.024 and -0.996 for "On track", "Off track" and "poverty rising" classifications respectively. This is an indication that the model converges towards equilibrium.

Table 6: PMG,	MG, a	nd DF.	E Resu	lts for	Poverty	y Ratin	lg Grou	p.							
Dep. Var. POV				OHS	<b>RT-RUN</b>								LONG	RUN	
Classification	a	q	C	q	e	۰L	ත	Η			K		m	n	d 0
			(+)	-	-	-	- -	(-)	(-)	(+)	(-)	(-)	(-)	(-)	(-) (-)
On Track	-0.45	PMG	-2.010*	-0.086	-1.538	0.222	8.597	-2.082	-1.197*	-0.107	-0.064	-3.438	-0.268	36.183	0.462 -1.197*
Off Track	0.052	PMG	6.497	0.891	-30.023	-0.664	-11.149	0.355	-1.024*	0.037	0.031**	-0.547	-0.015	42.142	-0.029 -1.024*
<b>Poverty Rising</b>	0.548	PMG	5.778	0.398	-90.966	-1.937	-88.954	0.366	-0.996*	-1.123	0.294	53.908**	0.272	34.482	-0.087 -0.996*
Author's Com	ıpilatio	n using	Stata S	softwar	e packa	ige (20.	21).							n	

Note :

1. a = Hausman Test Probability; b = Selected Model based on Hausman test; c =

 $\Delta$  GINIMKT;  $d = \Delta$  GDP;  $e = \Delta$  EMPL;  $f = \Delta$  FDI;

 $G = \Delta$  PRYSCH;  $h = \Delta$  DACC; i = ECT; j = GINIMKT; k = GDP; l = EMPL; m = FDI; n = PRYSCH; o = DACC, p = ECT

\*, \*\* denotes Significant at 1% and 5% respectively.

2. \*, \*\* מפווטעט ב-.. 3. () denotes *A priori* signs

#### Conclusion

From the outcomes of the analysis of inclusiveness of growth through the responsiveness of poverty level to inequality and economic growth, none of the classifications showed evidence of inclusiveness of growth. Expectedly, income inequality and economic growth should exhibit a positive and negative relationship with poverty levels respectively. This situation is expected to trickle-down the benefits of growth, thereby alleviating the poverty level. This aligns with the theoretical literature position on the impact of economic growth on the poverty level (Bourguignon, 2004; Balami, 2006; Young (2012); Okoroafor and Chinweoke (2013), Nguyen, (2017). The sensitivity of measures of income inequality to changes in economic growth provides strong links among poverty, economic growth, and income inequality, which give rise to the assertion that both growth and distribution effects are the major determinants of inclusiveness of growth in African countries, even though, the distribution effects seem to be a pre-condition. The findings in the study had shown that, in some instances, where there was increased growth, this development still failed to guarantee inclusive growth, in the responsiveness of poverty level to income inequality and economic growth because the distribution effects eroded the growth effects.

Given the findings which emanated from this study, the study recommends the need for investment in informal and formal economic sectors, through increased investment in public infrastructure which will reinvigorate growth and consequently create significant employment opportunities for the youth and ensure that new jobs are progressively created in both an economically advantaged and disadvantaged areas. This will go a long way in fostering inclusive growth in Africa. Besides, both distributional and growth-oriented macroeconomic policy such as investing in qualitative education which will promote advancement in human capital development and consequently boosts productivity in the economy can be an impetus towards inclusive growth in African countries.

#### References

- Adams, R. H. (2004). Economic Growth, Inequality and Poverty: Estimating the Growth Elasticity of Poverty. *World Development*. Vol 32. *No.* 12. PP. 1989 2014.
- Ali S.S. and Tahir S. (1999). Dynamics of Growth, Poverty, and Inequality in Pakistan. *The Pakistan Development Review*. Vol. 38, No. 4. PP 837 858
- Anyanwu, J. C. and Erhijakpor, A. E. (2010). Do International Remittances Affect Poverty in Africa? African Development Review, 22. PP 51 91.
- Balami, D.H. (2006). Macroeconomics theory and practice. Salawe prints, off Leventis, Wulari Maiduguri.
- Bourguignon, F. (2003). The growth elasticity of poverty reduction: explaining heterogeneity across countries and time periods in T. Eicher and S. Turnovsky, eds. Inequality and growth: Theory and Policy Implications (Cambridge, Mass: The MIT press).
- ----. (2004). The Poverty-Growth-Inequality Triangle, paper presented at Indian Council for Research on International Economic Relations, New Delhi, 1-30.
- Clarke, G. R. (1995). More Evidence on Income Distribution and Growth. *Journal of Development Economics*. 47(2), pp. 403–27.
- Deininger, K. and L. Squire. (1996). A New Data Set Measuring Income Inequality. *World Bank Economic Review*. September 1996, 10(3), pp. 565–91.
- Dollar, D., & A. Kraay. (2002). Growth is good for the poor. *Journal of Economic Growth*. 7(3), 195-225.
- Foster, J. and M. Székely (2001). Is Economic Growth Good for the Poor? Tracking Low Incomes Using General Means. Inter-American Development Bank Research Department Working Paper No. 453.
- ----, J. and M. Székely. (2008). Is economic growth good for the poor? Tracking low incomes using general means. *International Economic Review*. Vol. 49, No. 4. pp. 1143-72.
- Fosu, A. K. (2009). Inequality and the impact of growth on poverty: Comparative Evidence for SSA. *Journal of development Studies*. vol. 45, No. 5. PP 726 745.

- - . (2016). Growth, inequality, and poverty reduction in developing countries: Recent global evidences. Research Economics. Vol. 71(2017). PP 306 336.
- Grinspun, A. (2004). Pro-poor growth: Finding the Holy Grail (One Pager 6). New York, NY: International Poverty Center, United Nations Development Programme. Global Monitoring Report, 2015/2016: The World Bank Group.
- Kraay, A. (2004). When is Growth Pro-Poor? Evidence from a Panel of Countries Policy Research Working Paper, The World Bank Series No. 3225.
- Lustig Nora, Arias Omar and Rigolini Jamele. (2002). Poverty reduction and economic growth: A two-way causality. American Development Bank, sustainable development department, poverty and inequality unit.
- McKay. (2013). Growth and Poverty Reduction in Africa in the Last Two Decades: Evidence from an aerc Growth-Poverty Project and Beyond. *Journal of African Economies.* 22 (s1): i49–i76.
- Mthuli Ncube, John Anyanwu and Kjell Hausken. (2013). Inequality, Economic Growth, and Poverty in the Middle East and North Africa (MENA). Working Paper Series; African Development Bank Group. No. 195
- Narayan, S. and L.Tiwari. (2013). Shared Prosperity: Links to Growth, Inequality and Inequality of Opportunity. *World Bank*, Washington DC
- Nguyen, Van C. (2020) The efect of economic growth and urbanization on poverty reduction in Viet-nam. *Asian Finance Econ Bus.* Vol 7. no7. 229. https:// doi. org/ 10. 13106/ jafeb
- Odhiambo, N. M. (2009a). Finance-Growth-Poverty Nexus in South Africa: A Dynamic Causality Linkage. *Journal of Socio-Economics*. 38:320–5.
- - - - . (2009b). Energy Consumption and Economic Growth in Tanzania: An ARDL Bounds Testing Approach. *Energy Policy*. 37 (2): 617-22.
- ----- (2011). Growth, Employment and Poverty in South Africa: In Search of a Trickle-Down Effect. *Journal of Income Distribution*. 20 (1): 49–62.
- Ogbeide, E. N. O. & Agu, D. O. (2015). Poverty and income inequality in Nigeria: any Causality? *Asian Economic and Financial Review*, 5 (3), 439-452
- Oladipo, S and Olomola, P.A. (2015). A Multivariate Causal Relationship among Road Transport Infrastructure Development, Economic Growth and Poverty Level in Nigeria. *International Journal of Economics and Research.* Vol 1, No 4. PP 57 – 64.
- Okojie, C. E. E. (2002). Gender and education as determinants of household poverty in Nigeria. UNI-WIDER discussion paper. No 2002/37. Helsinki.
- Okoroafor, M. O., and N. Chinweoke. (2013). Poverty and Economic Growth in Nigeria 1990–2011. *The Macro theme Review*. 2(6):105–15.
- Pesaran, M. Hashem, Yongcheol Shin & Richard J. Smith. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*. 16(3):289–326.
- Ravallion, Martin. (1997). Good and Bad Growth: The Human Development Reports. World Development, Vol. 25, pp. 631-38.
- Ravallion, M., (2012). Pro-Poor Growth: A Primer. Available via the Internet: wwwwds.worldbank.org.
- Ravallion, M and S. Chen. (2003). Measuring pro-poor growth. *Economics Letters* 78(1): 93–99. Balakrishnan Ravi, Steinberg Chad, and Syed Murtaza. (2013). The Elusive Quest for Inclusive Growth: Growth, Poverty, and Inequality in Asia. IMF Working Paper, No. 152.
- Sala-i-Martin, X., and M. Pinkovskiy. (2009). Parametric Estimations of the World Distribution of Income. NBER Working Paper No. 15433 (2009)
- Seers, D. (1979). The Meaning of Development, with a Postscript. In Seers, Nafziger, Cruise O'Brien, & Bernstein, pp. 9-30.
- Sen, A. K. (1999). Development as Freedom. Oxford: Oxford University Press.
- Sims, C.A. 1980. "Macroeconomics and reality." Econometrica 48:1-48.
- Thorbecke, E. (2013). The Interrelationship Linking Growth, Inequality and Poverty in Sub-Saharan Africa. *Journal of African Economies.* 22 (s 1): i15-i48.
- Todaro, M.P. (1997). Economic Development. Reading, ma: Addison-Wesley. United Nations. 2014. Millennium Development Goals Beyond 2015. New York: United Nations.

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- World Bank. (2015). Global Monitoring Report MDGs, Washington DC, USA World Bank, World Development Indicators Database.
- World Development Indicators. (2020). The World Bank. [Online] Available from: <u>http://</u><u>data.worldbank.org/data</u> catalog/world-

World Poverty Clock. (2018). (https://worldpoverty.io/index.html)

Young, A. (2012). The African Growth Miracle. *Journal of Political Economy*. 120 (4) PP696-739.56