Article

Poverty, Unemployment and Economic Growth in Sub-Saharan Africa

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Abstract
The study examines the effect of poverty and unemployment on economic growth in selected sub-Saharan Africa (SSA) covering the period 1991 to 2018. The study employs Panel OLS regression analysis technique using the fixed effect model to establish the impact of poverty and unemployment on the economic growth in SSA. The study also examines long-run relationship among the variables using the Vector Error Correction Model (VECM) framework. The study finds that poverty (measured as per capita income) had a positive and significant effect on economic growth in the region while unemployment had a negative and insignificant effect on economic growth within the study period. The study also finds that there exists a long-run relationship among poverty, unemployment and economic growth in SSA. The study concludes that an increase in per capita income (i.e. reduction in poverty level) enhances economic growth in the region. The study recommends that there should be further improvement in per capita income (as a measure of poverty) in order to transform economic activities in the countries. Also, the government should fully engage unemployed people in productive activities which in turn accelerate the economic growth of the selected countries.

Keywords
Poverty; Unemployment; Economic Growth; sub-Saharan Africa
JEL Classification: P46; E24; O47; O55

Introduction

The incidence of poverty and unemployment has remained an important issue of public discourse for many years in African countries, particularly the Sub-Saharan region. Unemployment and poverty are so intertwined that one can easily confuse one for the other. The worsening employment situation of youths in many African countries has a number of socio-economic, political and moral consequences. This has resulted in poverty in these countries. The

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share of the total population living below $1 a day poverty line today is higher than that of the 1980s and 1990s despite significant improvements in the growth of GDP of many of these countries in recent years (Sunday & Success, 2014). Egunjobi and Titilayo (2014) noted that about 66 per cent of the Nigerian population (most populous nation in sub-Saharan Africa) fell below the poverty line of about a dollar a day compared to 43 percent in 1985. According to a report by the World Bank (2018), Sub-Saharan Africa is the only region in the world where the overall number of extremely poor people is increasing rather than decreasing; and noting further that the average poverty rate for Sub-Saharan Africa stood at 41 percent, and of the world's 28 poorest countries, 27 are in Sub-Saharan Africa all with a poverty rate above 30 percent.

It is noteworthy to point out that a notable reduction in poverty which is a critical determinant of economic development and sustainable development is likely to evolve from making the efficient use of available resources (both human and non-human) which can also be referred to as employment. Be that as it may, many Sub-Saharan African countries have found it difficult to escape the shackles of underdevelopment as a result of increasing unemployment and poverty. Chinedu (2015) noted that it is saddening that in many of these countries, many of the labour entrants are graduates in whom the countries have invested a lot of resources through education and training. Though many of these countries have implemented policies in the bid to reduce the extent of unemployment and poverty ranging from poverty alleviation programmes to youth empowerment schemes the results in most of these countries have not proven favourable. For instance, Operation Feed the Nation in Nigeria; Ghana Poverty Reduction Strategy; Poverty Reduction Strategy in Gambia e.t.c. (see Nzeshi, 2006; IMF, 2003 and Njie, 2020).

What is also surprising about the poverty and unemployment situation is that in recent years it has occurred within the context of positive economic growth among the countries in the region. In the 1970s and 1980s, the pre-occupation was with growth, the need to experience positive growth in income level and the economies at large (World Bank, 1999). Growth was seen as a prerequisite for improved welfare. Following this ideology, many developing countries in the 1980s implemented Structural Adjustment Programmes (SAP) which was aimed at enhancing growth. As a result of these programmes many countries recorded positive real growth rates for which many of them did not transcend into economic development (World Bank, 1999).

A report by the International Labour Organisation (2017) showed that sub-Saharan Africa suffers from poor quality employment than unemployment and this remains the main labour market challenge. This problem is compounded by rapid population growth, specifically the growth of the working-age population. It adds that across sub-Saharan Africa, there is a lack of productive opportunities for youths and adults. The reality of vulnerable employment is worsened by working-poverty, considering that 33.6% of all employed people

in Sub-Saharan Africa were living in extreme poverty i.e. less than $1.9 per day in 2016. An additional 30.1 % were living in moderate poverty between $1.9 and $3.10 per day which corresponds to over 230 million people living in either extreme or moderate poverty (ILO, 2017).

The failure of economic growth to reduce the incidence of poverty in general, and working poverty in particular in Sub-Saharan Africa, suggests the need to critically re-examine the nexus among growth, unemployment and poverty reduction in this region. Curiously, little analytical work has been done in this area. In contributing to the literature on this subject matter and on the scope, this study examines the impact of poverty and unemployment on economic growth in selected Sub-Saharan African countries — Nigeria, South-Africa, Kenya, Mali and Tanzania. The study also investigates if there exists a long-run relationship among poverty, unemployment and economic growth in the selected Sub-Saharan African countries.

Literature Review

This study begins by defining the concepts of poverty and unemployment, and thereafter reviews the various theoretical and empirical literatures that are relevant to the study.

Scholars and economists of all times and of all ages have at various times expressed various degrees of concern over the threat of unemployment. The classical school of thought provided the earliest thinking on economic issues and they did not fail to give a central point of reflection on the undesirability of unemployment and its menace on the growth of the economy. The Keynesian revolution of 1930 apparently, treated unemployment as a central issue of great concern (Aiyedogbon & Ohwofasa, 2012). We refer to "the unemployed" as people who are willing and capable of work but are unable to find suitable paid employment. The International Labour Organization (ILO) defines the unemployed as numbers of the economically active population who are without work but available for and seeking work, including people that have lost their jobs and people who have voluntarily left work (World Bank, 1998). The population of every economy is divided into two categories, the economically active and the economically inactive. The economically active population is also referred to as the "labour force" or "working population". This is the total number of people that are willing and able to work, including those actively engaged in the production of goods and services (employed) and those who are unemployed (Njoku & Okezie, 2011). The economically inactive population refers to people who are neither working nor looking for jobs. Examples include housewives, full time students, invalids, those below the legal age for work, old and retired persons.

The dominant western definition since World War II has explained poverty in monetary terms and making use of levels of income or consumption to measure poverty and defining the poor by a headcount of those who fall below a given income/consumption level also referred to as 'poverty line' (Grusky & Kanbur, 2006). However, other definitions have also complemented this economic definition in recent years by other perspectives that define poverty in a more multidimensional way (Subramanian, 1997).

According to Egunjobi (2013), in most cases, while defining poverty, a distinction is made between absolute and relative poverty. Absolute poverty exists where there is lack of minimum physical requirements of an individual or household for existence and is so extreme that those affected are not capable to live a life worthy of human dignity. Egunjobi (2014) also described absolute poverty as the inability to obtain and consume a certain bundle of goods and services due to lack of adequate resources. While relative poverty on the other hand refers to a person or household whose provision of goods is lower when compared with other persons or households within the same income bracket or social standing. It, therefore, does not imply that the persons concerned cannot live a life that is worthy of human dignity. Thus, relative poverty exists when the subject in consideration is poor in relation to others who live in the society (Egunjobi, 2014). Poverty is also defined by a sense of helplessness, dependence and lack of opportunities, self-confidence and self-respect on the part of the poor (Aiyedigbon & Bright, 2012). Indeed, the poor themselves see powerlessness and being voiceless as key aspects of their poverty (Narayan, 2000). Further, the acknowledgement of the multidimensionality of poverty is reflected in the range of both quantitative and qualitative methodological approaches adopted to conceptualize and measure poverty (Handley, 2009).

The classical approach to poverty views individuals as largely responsible for being poor or remaining poor e.g by spending outrageously. This approach also emphasises that state aid should be limited to changing individual capabilities and attitudes (i.e. capitalists tradition). The neo-classical theories are more wide-ranging and recognise reasons for poverty beyond the individual's ability, for example, economic phenomenon like market failures which exclude the poor from credit markets and cause certain adverse choices, barriers to getting good education, immigrant status; poor health and barriers to employment for lone payment families (Philips & Miguel 2015).

Marxist theory maintains that poverty, like wealth, is an inevitable consequence of a capitalist or a class society. Marxists argue that poverty benefits the ruling class, as it ensures that there is always a workforce willing to accept low wages. Similarly, the existence of unemployment and job insecurity means that there is always a 'reserve army of labour' able and willing (or, unable to be unwilling) to take their place if they are not happy. Capitalism and the bourgeoisie, therefore, benefit from the existence of poverty (Cunningham, 2007). It is not simply that there are rich and poor, it is rather that some are rich because some are poor. For Marxists then, poverty is an

intrinsic and integral feature of capitalist society, which is a direct consequence of the inequality inherent in the class system. Poverty can be categorized into five dimensions of deprivation; personal and physical deprivation, economic deprivation, social deprivation, cultural deprivation and political deprivation (Aku, Ibrahim & Bulus, 1997). Personal and physical deprivation is experienced in health, nutrition, literacy, educational disability and lack of confidence. Economic deprivation includes lack of access to property, income assets, factors of production and finance. Social deprivation involves the barriers to full participation in socio-politico and economic life. Cultural deprivation occurs when people are deprived in terms of values, beliefs, attitudes, knowledge, information and orientation and political deprivation is caused by ignorance which is a deterrent to the elimination of poverty because it complements conditions of exploitation, domination and deprivation (Aku, Ibrahim & Bulus, 1997).

Classical economists argue that with the existence of perfect competition and economic efficiency in the face of many producers and consumers none of whom is large enough to influence prices and wages in the economy will always tend towards full employment (Todaro, 1992). Such that, the level of employment and subsequently the wage rate are determined simultaneously by the forces of supply and demand. They believe that unemployment will occur when rigidities are present in the wage structure and interferences occur to hinder the free workings of the market system. Events indicate that in most developing countries many of which are in Sub-Sahara Africa wage rates are typically not flexible downward because they are largely determined by institutional forces including trade union pressures, legislated government salary scales and multinational corporations hiring practices (Todaro, 1992).

The classical school of thought argues that increase in output brings about increase in the demand for goods and services and such leads to increase in the demand for labour services which, in turn, results in increased number of people employed and thus decrease in unemployment. However, it is important to reiterate that the growth that brings about increase in employment (or decrease in unemployment) and thus reduction in poverty is that which is highly labour-intensive and goes with increased labour force participation (Anuolom & Anuforom, 2014).

The New Classical economists believe that as agents continue to optimize, markets will continue to clear, and this implies that involuntary unemployment does not exist. What exists is voluntary unemployment which occurs when rational people voluntarily decide not to work and withdraw their services from the labour market for some reason. Neo-Classical theorists in their opinion assert that there is a natural rate of unemployment, which reflects a given rate of technology, individual preferences and endowments. With flexible wages

which is a characteristic of competitive labour market, wages adjust to clear the market and any unemployment thereafter is voluntary. The latter view was that held by Milton Friedman and strongly influenced government policy in the early 1980s without success. There is, of course, no simple explanation for unemployment and no simple solution (Egunjobi, 2014).

Many empirical evidences show a negative relationship between growth and unemployment. For instance, within the Caribbean region, countries that have sustained high growth rates have decreasing unemployment rates; these countries include Antigua and Barbuda, the Bahamas, Barbados, and St. Kitts and Nevis (Baker, 1997).

Ibrahim and Umar (2008) assess the determinants of poverty as well as the poverty coping strategies in Nigeria. The study finds that the incidence of poverty among the sampled households was high. Muhammad, Inuwa and Oye (2011) examined the implication of unemployment on gross domestic product in Nigeria over the period of nine years (2000-2008) using regression analysis. Findings show that unemployment has a huge effect on the making of the Nigerian GDP and there exists an inverse relationship between unemployment and gross domestic product, which means that as unemployment increases, gross domestic product falls. Ijaiya (2011) examined the impact of economic growth on poverty reduction in Nigeria with time series data, using multiple regression analysis, the result obtained indicates that the initial level of increase in GDP does not influence poverty reduction, while a positive change in GDP is prone to poverty reduction.

Ditimi and Ifeakachukwu (2013) examined the impact of unemployment on productivity growth in Nigeria covering the period 1986 to 2010, using co-integration and error correction mechanism. They find that unemployment has a positive effect on economic growth in Nigeria. In the same vein, Meidani and Zabihi (2011) studied the dynamic effect of unemployment rate on GDP in Iran. Their study covered the period 1971 to 2006, using Auto-regressive Distribution Lag (ARDL), based on the results of short run and long run estimates, they also concluded that unemployment is positively related to GDP. Meanwhile, Villaverde and Maza (2008) analyzed Okun's law to test the relationship between output and unemployment for Spanish regions using data for the period 1980-2004. The results verified the existence of Okun's law for most regions and for the economy as a whole. However, the magnitude of Okun's coefficient differed for various regions due to regional productivity differentials. Meanwhile Sadiku (2015) having empirically examined unemployment relation to growth in Macedonia using VAR approach with quarterly based data from 2000-2012, finds that there exists a negative relationship between unemployment and economic growth as propounded by Okun's Law and also no direction of causality between unemployment and economic growth.

Ejikeme (2014) assessed the link between unemployment and poverty on security challenges in Nigeria. His study demonstrates that unemployment and

poverty are universal phenomena, and not necessarily a peculiar characteristic of any particular segment of the society. His results revealed that unemployment and poverty have direct links to security challenges in Nigeria. Ayinde (2014) investigated the effect of unemployment and poverty on agricultural output growth in Nigeria covering the period 1980-2011. He finds a uni-directional causal relation from poverty to agricultural output, and a uni-directional causal relation from unemployment to poverty. His results further revealed that there exists a long run relationship between unemployment rate, poverty and agricultural output in Nigeria.

Osunubi (2006) examined the relationship among economic growth, unemployment and poverty using a descriptive statistical approach and secondary data from the Central Bank of Nigeria. The results show that economic growth has not always been accompanied by decline in unemployment and poverty. In the study by Simon-Oke (2016), he revealed that there is a high rate of poverty despite various advantages derived by the country from petroleum resources. Bello and Abdul (2010) likewise examined poverty situation in Nigeria by employing the data of economic growth and millennium development goals (MDGs) expenditure, the study employed panel data analysis consisting of pooled model, fixed-effects, random-effects and weighted least square. The study concluded that economic growth and MDG spending has not substantially reduced poverty in Nigeria. Similarly, Gangas (2017) asserts that the relationship between poverty index and economic growth as well as unemployment and economic growth is inverse in Nigeria. Oyegoke and Wasiu (2018) found a negative relationship between economic growth and poverty incidence.

In a recent study, Mansi, Hysa, Panait and Voica (2020) showed that economic growth had insignificant effect on poverty reduction; they further revealed that unemployment positively stimulated poverty in Western Balkan countries and European Union. Adelowokan et al. (2019) revealed that there is no long-run relationship between unemployment, poverty and growth in Nigeria; and further revealed that unemployment has a negative and significant relationship with growth. They argued that in absolute terms, Nigeria's economy will continue to grow even with the increasing poverty. In another study Ilugbusi, Ajala, Nkire, and Ojo (2019) find the existence of both short and long-run relationships between unemployment and economic growth and an inverse insignificant relationship between unemployment and economic growth. Another study by Enilolobo, Mustapha, and Ikechukwu (2019) revealed that change in agriculture GDP in the current period resulted in a negative and significant change in unemployment level in Nigeria.

Having examined the related literature on the impact of poverty and unemployment on economic growth, it can be concluded that scholars have had

varying results and conclusions on the impact of unemployment on economic growth. Though as regards the impact of poverty, a greater number of empirical findings have found the existence of a negative relationship with economic growth. From the foregoing, scanty literature exists on the impact of unemployment and poverty on economic growth in sub-Sahara Africa. With respect to the above assertion, it is in this light that this study aims to fill this gap.

Methodology

The standard exposition of the Solow neoclassical growth model uses an aggregate production function by Cobb-Douglas which is expressed as thus:

$$Y = TK^{\propto}L^{\beta} \quad (1)$$

Where Y is output or income, T the level of technology, K is the stock of capital and L is labour. T is neutral because it raises output from a given combination of capital and labour without affecting their relative marginal products. The parameter and exponent α is (ΔY/Y)/(ΔK/K), which means the elasticity or responsiveness of output with respect to capital (holding labour constant). The parameter β is (ΔY/Y)/(ΔL/L), which is the elasticity of output with respect to labour (holding capital constant). The augmented Solow neoclassical model includes human capital as an additional explanatory variable to physical capital and labour. Although there are diminishing returns to physical capital by itself, there are constant returns to all (human and physical) capital (Lucas, 1998). Mankiw, Romer, and Weil (1992) modified the equation to:

$$Y = TK^{\propto}L^{\beta}H^{\delta} \quad (2)$$

Where $\alpha + \beta + \delta = 1$ and H = human capital.

From the foregoing, the model thus implies that both physical and human capital as well as labour and technology determine total output in the economy. It is also important to note that the level of technological progress is the residual factor that explains that the long-term growth is independent of other factors in the model (Nafziger, 2006). Therefore, from equation (2) and following Egunjobi (2013), We can set k, l, has a function of Y as expressed in the equation below:

$$Y = f(k, l, h) \quad (3)$$

Where Y represents output and is proxied by *gdp*, k represents physical capital and technology which is proxied by gross capital formation (*gcp*), l represents labour which is proxied by unemployment rate (*unmp*), h represents human capital and is proxied by index of life expectancy at birth *(lfe*). Furthermore, to accommodate the impact of poverty on economic growth and following Gangas (2017), the per capita income *(pci*) is included in the model as an independent variable. Therefore, the model becomes:

$$gdp = f(pci, unmp, gcp, lfe) \quad (4)$$

Equation 4 can further be expressed in linear mathematical form as thus:

$$GDP_{it} = \beta_0 + \beta_1 pci_{it} + \beta_2 unmp_{it} + \beta_3 gcp_{it} + \beta_4 lfe_{it} + \varepsilon_{it} \quad (5)$$

Where ε = error term, i = individual country, t = time subscript

This study selected the following countries in Sub-Saharan Africa due to data availability, namely, Nigeria, South-Africa, Mali, Tanzania and Kenya being the 5 largest economies in sub-Saharan Africa.

Before examining the impact, the preliminary investigation starts with the confirmation of the order of integration of each variable by conducting the panel unit root tests. There are six popular panel unit root tests with varying assumptions about the autoregressive (AR) process. However, these six tests are classified into two main groups based on the assumption of the AR process in the series (Egbetunde & Akinlo, 2015). The first group assumes that the series have a common root. This group includes the Levin, Lin and Chutest (LLC, 2002), Breitung (2000) and Hadri (2000). The second group assumes that the series have individual root and include Im, Pesaran and Shin (IPS,1997), Fisher-ADF, and Fisher-PPtests. The null hypothesis for all the tests in the two groups is the presence of non-stationarity (presence of unit root). This study conducted four tests to confirm the reliability of the unit root tests. These tests included LLC, IPS, Fisher-ADF and Fisher-PP.

The study employs the use of estimation techniques which include Panel OLS estimation and Panel Vector Error Correction Model. In evaluating the impact of poverty and unemployment on the selected economies of SSA countries, the Panel Ordinary Least Square (Panel OLS) regression is employed. To also examine if long-run relationship exists among the variables, the Panel co-integration test and Panel VECM is employed.

OLS regression helps as the basis of many other techniques (Lim, 1997; Abdullah et al., 2010; Ishikawa & Fukushige, 2007; Hutcheson, 2011). The Panel OLS for the selected countries include the estimation of the independently pooled panel OLS regression model, fixed effect model and the Random effect model. The pooled panel OLS model assumes homogeneity of all sections of data in a panel data or all entities in the data (Adefemi, 2017). The fixed effect model allows for heterogeneity or individuality among different entities of the data-set. The model allows each cross-section to have its own intercept, the intercept may be different for the cross-sections but it is time invariant (Adefemi, 2017). Random effect model just like fixed effect also allows for heterogeneity and is also time invariant, the difference is that the individual specific effect is uncorrelated with the independent variables. The study uses Panel Vector Error Correction Mechanism (PVECM) to examine the long-run relationship among the variables. A PVECM is a restricted VAR

designed for use with non-stationary series that are known to be cointegrated. Following Verter and Becvarova (2014), the general vector error correction model adopted for this study to eliminate the problem of spurious estimates is of the form:

$$\Delta GDP_t = \delta_0 + \sum_{i=0}^{n} \delta_{1t} \Delta GDP_{t-1} + \sum_{i=0}^{n} \delta_{2t} \Delta PCI_{t-1} + \sum_{i=0}^{n} \delta_{3t} \Delta UNMP_{t-1} + \sum_{i=0}^{n} \delta_{4t} \Delta GCP_{t-1} + \sum_{i=0}^{n} \delta_{5t} \Delta LFE_{t-1} + \lambda_1 ECM_{t-1} + \varepsilon_i \qquad (6)$$

$\delta's$ = unknown parameters to be estimated; ECM_{t-1}= Error Correction factor
All data are sourced from World Development Indicators (WDI), 2019.

Empirical Results and Discussion

This section presents and discusses the trend of poverty, unemployment and economic growth in Sub-Saharan Africa as well as the impact of poverty and unemployment on the economy of selected Sub-Saharan African countries. Household consumption expenditure was used as a measure of poverty incidence in the graph. The graph of poverty rate (its data were sourced from WDI) is presented in figure 1 below.

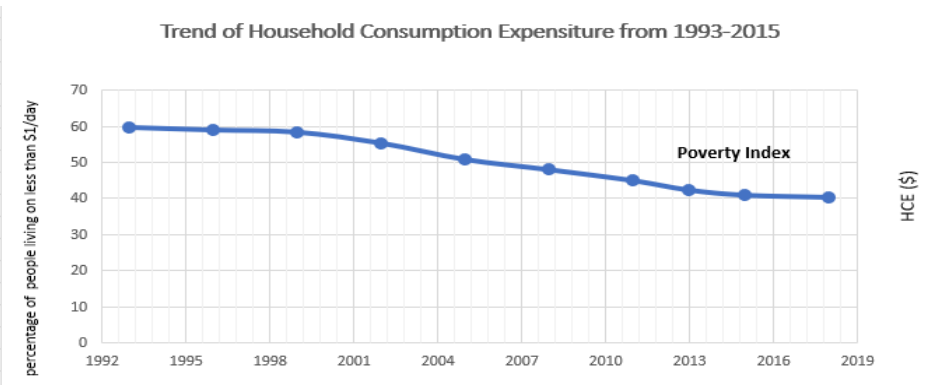

Figure 1: Trend of Poverty Rate in Sub-Sahara Africa

For almost three decades the level of poverty has not really experienced a significant change or decline in Sub-Saharan Africa. Figure 1 presents the poverty rate in Sub-Saharan region spanning from 1993 up till 2018. From the figure 1 above, the poverty rate in Sub-Saharan Africa has maintained a very high rate over two decades. In 1993, it stood at 59.6%, that is, approximately 60% of people were living in poverty in Sub-Saharan Africa and did not earn

up to $1 per day. Almost a decade later in 2002, the poverty rate was 55.3% in the region, by 2018 (16 years after) the poverty rate still remained above 40%.

Figure 2 depicts the trend of GDP growth rate and unemployment rate (the data were sourced from WDI) in Sub-Saharan Africa from 1993 to 2018.

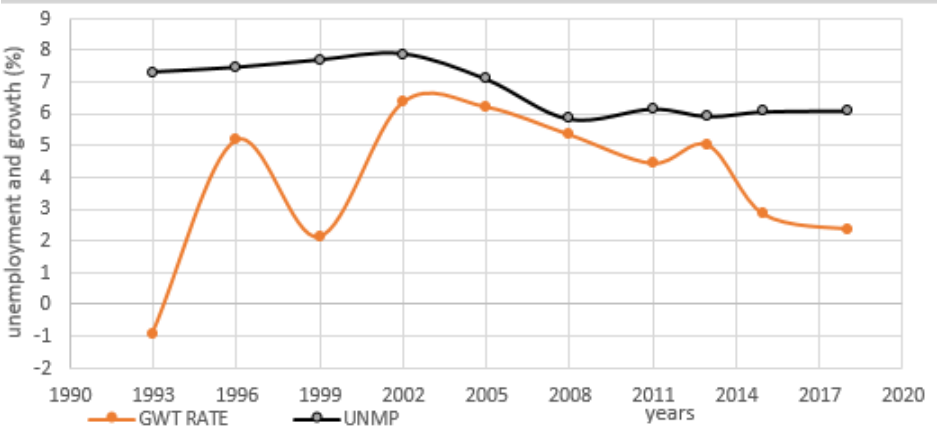

Figure 2: Trend of Unemployment Rate and GDP Growth Rate in SSA

From figure 2, the output growth level from 1993 till 2002 shows that the output growth has not maintained stability. There has been a steady decline in the output growth level from 2002 up till 2015, though this output still remains positive, although the output growth increased from 4.4% to 5% between 2011 and 2013. Surprisingly the unemployment level has also been on a decline between 2002 and 2018, this implies that reduction in the growth rate from year to year has simultaneously occurred with decreasing number of people getting employed and being lifted out of poverty.

Before examining the impact of poverty and unemployment on economic growth in Sub-Saharan Africa, we first examine the stationarity properties of the data used. The Panel unit root result is presented below:

Table 1: Panel Unit Root Result

Variables	LLC	IPS	ADF	PP	Order of Integration
GDP	-4.68571*** (0.0000)	-10.2517*** (0.0000)	94.9014*** (0.0000)	116.667*** (0.0000)	I(1)
PCI	-0.58542** (0.2791)	-2.39935*** (0.0082)	23.3402*** (0.0096)	47.7796*** (0.0000)	I(1)
UNMP	-0.21956 (0.4131)	-2.84159*** (0.0022)	27.7666*** (0.0020)	36.3233*** (0.0001)	I(1)
GCP	-6.47246*** (0.0000)	-6.35499*** (0.0000)	56.6273*** (0.0000)	71.0587*** (0.0000)	I(0)
LFE	-9.09485*** (0.0000)	-6.93788*** (0.0000)	63.2446*** (0.0000)	9.16023 (0.5170)	I(1)

Note: *,**,*** denotes the significance of the coefficient at 10%, 5% and 1% respectively

Table 1 presents the unit root result of the variables. The variables demonstrated non-stationarity at level I(0) except GCP, while other variables are non-stationary. Having taken the first difference I(1), all the other variables are stationary at 1% level of significance ($p<0.01$).

The next stage is to estimate the impact of *pci* and *unmp* on *gdp* using the panel OLS; both the fixed and random effects are also computed. The estimation results are given in the table below:

Table 2: Panel OLS Estimation PCI, UNMP on GDP

Dependent Variable: GDP			
Variable	**Pooled (OLS)**	**Random (RE)**	**Fixed (FE)**
C	2.669672*** (8.352234)	2.669672*** (9.875618)	2.819034*** (10.38379)
D(PCI)	0.031845*** (9.421363)	0.031845*** (11.13975)	0.038536*** (12.65105)
D(UNMP,2)	-0.102924 (-0.554836)	-0.102924 (-0.656034)	-0.156224 (-0.993759)
D(LFE)	1.578881*** (3.929714)	1.578881*** (4.646464)	0.838924** (2.346108)
GCP	0.025776* (1.838355)	0.025776** (2.173657)	0.012073 (1.354522)
R-squared	0.466375	0.466375	0.630522
F-statistic	27.31168***	27.31168***	25.81112***
D. Waston	1.278748	1.278748	1.681627
Hausman test			53.756451 (0.0000)

Note: *,**,*** denotes the significance of the coefficient at 10%, 5% and 1% respectively

In Panel OLS analysis, the Hausman test is usually used to determine whether the fixed effect model is more appropriate than the random effect model. From Table 2, the probability value of the Hausman test is lower than 5%, thus we reject the null hypothesis and conclude that the fixed-effect model is the most appropriate model for the study. In other words, this demonstrates that there are heterogenic qualities in the economic performance of each country which are not captured by the explanatory variables that were used in the course of this research. These heterogenic qualities do not vary with respect to time but are correlated with per capita income (PCI), unemployment rate (UNMP), life expectancy at birth (LFE) and gross capital formation (GCP) of the specific countries. Some examples include cultural factors, differences in business practices across countries, the political context of different countries.

The R-squared reveals that the explanatory variables explain 63% of the variation in GDP in the 5 selected Sub-Saharan African countries. In other words, 63% of the changes in gross domestic output growth rate can be explained by the per capita income level, the unemployment level, the life expectancy rate and the level of investment. The F-statistic estimated value is significant at 1% and implies the overall significance of the entire four variables put together in explaining the variation in GDP growth rate over the study period. The per capita income is significant in explaining the variation in the output growth performance at 1% significant level, while the life expectancy age is significant in determining the output growth of the SSA countries at 5% significance level. The coefficient of the per capita income is 0.038536. By implication this means that keeping all other factors constant, a unit increase in per capita income will increase the output growth rate by 0.04 unit and vice-versa. In this vein, it means the poverty level has a negative effect on the healthiness of the economies of this region i.e. the poorer people become (by reduction of 1 dollar), the lesser the rate of output growth (by 0.04). This also implies that if people can get 1 dollar richer, all things being equal, it would reflect on the economic performance by 0.04 unit and vice versa. This result is in line with Gangas (2017), Oyegoke and Wasiu (2018) who analysed the relationship between economic growth and poverty reduction in Nigeria and found a negative relationship between growth and poverty.

By observing the behaviour of unemployment from the result (in table 2), the unemployment rate demonstrated a negative relationship with the GDP. But the surprising outcome is the fact that the variable shows a very high level of insignificance (probability value of 0.322) to the output growth pattern i.e. the impact of unemployment over this study period suggests that unemployment has played an insignificant role in driving economic growth in this region. This is likely because the nature of unemployment in these regions has not been growth-friendly. In essence, the nature of jobs that most people engage in over

the study period in the Sub-Saharan African region are not jobs that are highly productive which can significantly improve or increase the growth of total economic output because they do not add significant value to growth. This result is in line with Onwanchukwu (2015) but contradicts Abiodun and Fatai (2013) who found a positive relationship between unemployment and growth.

In evaluating whether there exists a long-run relationship among the variables, Table 3 below presents the Panel VECM estimates.

Table 3: Vector Error Correction Model (VECM) Estimation

Long-run Estimates			
Co-integrating equations	**Coefficient**	**Std Error**	**t-stat.**
GDP(-1)	1.00000		
PCI(-1)	0.000623	0.00027	2.34142**
UNMP(-1)	-0.079448	0.08495	0.93528
GCP(-1)	0.066344	0.02719	2.44009***
LFE(-1)	-0.005201	0.06395	-0.08132
C	-6.912027		
Short-run Estimates			
VARIABLE	Coefficient	Std. Error	t-stat
D(GDP(-1))	-0.525056	0.18103	-3.30308***
D(GDP(-2))	-0.132071	0.08777	-1.50481
D(PCI(-1))	0.010201	0.00855	1.19289
D(PCI(-2))	-0.011379	0.00788	-1.44353
D(UNMP(-1))	-0.041054	0.31781	-0.12918
D(UNMP(-2)	-0.023647	0.30984	-0.07632
D(GCP(-1))	0.058322	0.01651	3.53259***
D(GCP(-2))	0.040348	0.01507	2.67800***
D(LFE(-1))	1.713189	2.87273	0.59636
D(LFE(-2))	-1.573901	2.91768	-0.53944
ECT(-1)	-0.473216	0.18103	-2.61401***
R-squared	0.475361	Adjusted R-squared 0.424290	
F-statistic	9.307822		

Note: *,**,*** denotes the significance of the coefficient at 10%, 5% and 1% respectively

From the result, the coefficient of ECM(-1) is -0. 473216 and is statistically significant at 1% level. This implies that the disequilibrium that occurs as a result of shocks in the economy can be totally corrected in the long run with a speed adjustment process of 35.8% per annum. The error correction term (ECT) with a negative sign is also to show that there is a long-run relationship among the variables within the study period. In other words, this implies that there is a long-run relationship among poverty, unemployment and economic growth in the selected Sub-Saharan African countries. The findings are also in line with Muhammad, Inuwa and Oye (2011); Ogueze and Odim (2015).

Conclusion

This study examines the impact of poverty and unemployment on economic growth in the selected Sub-Saharan African countries. The study uses Panel OLS and fixed effect techniques to establish the impact of poverty and unemployment on economic growth in the countries and VECM technique was used in establishing the long run relationship among the variables. The results show that poverty proxied by per capita income had positive and significant effect on economic growth but unemployment had negative and insignificant effect on economic growth in the countries. The results further reveal that there exists long run relationship among poverty, unemployment and economic growth in the countries. With the unemployment rate being insignificant in determining economic growth, it implies that the nature of jobs in these countries are not growth-enhancing, in other words, many of the available jobs that citizens engage in are not jobs that lift the citizens out of poverty condition and this is in line with the report by World Bank (2018) that poverty accounts for a very high share of the entire labour force in Sub-Saharan Africa.

The study recommends that the nature of jobs that should be provided should be capable of lifting the citizens out of poverty. Also, with the result of the study, the nature of poverty and unemployment of the countries in Sub-Saharan Africa is multi-dimensional and peculiar to each country, effective measures should be taken to reduce the level of poverty and unemployment to the barest minimum so that this will significantly affect the economic growth of these nations. These effective policies are to pay due attention to the differences in the socio-structural factors among these countries, the differences in technology, the different cultural heritage or background, the different political system, differences in value systems and many other factors that affect the extent of poverty and unemployment in individual countries in the region.

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