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Effect of economic growth on employment in Sub-Saharan Africa.

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ABSTRACT

The study aimed at investigating the effect of economic growth on employment in Sub-Saharan African. The study employed secondary data that was sourced from the World Bank, World development indicators and FAOSTAT covering 30 Sub Saharan African Countries for the period 1990 to 2015. The study employed the traditional neo-classical aggregate production function in its estimation of the regression results. The panel data obtained was analysed using the STATA software program. Hausman test was used and it determined that fixed effects estimation was preferred to random effects estimation and therefore fixed effects regression was used during the analysis. Empirical results on effect of economic growth on employment established that total employment, women in employment and men in employment statistically and significantly influenced economic growth and on the other hand economic sectors which comprised of domestic capital, imports, exports and services sectors statistically and significantly influenced economic growth.

Key words: Sub-Saharan Africa (SSA), Economic growth, total employment, economic sectors, men and women in employment.

1. INTRODUCTION

1.1 Background to the study

Sub - Saharan African Countries have experienced sustained economic growth in the past two decades and especially from the year 2000 onwards. These countries had been bedeviled by economic stagnation for two decades earlier before experiencing economic boom. The period of economic decline had been characterized by military conflicts, economic mismanagement and an external debt that was unsustainable. Apart from a few SSA countries that have experienced conflicts which have made them not to realize economic boom, all the other SSA countries have benefited from the said economic boom. Journalists, economists and business people as well as investors noticed the economic growth and this has inspired a lot of optimism among them. Two decades earlier SSA region had been written off as having been doomed to failure (Zamfir 2016).

SSA countries are still trailing other developing countries despite them experiencing a period of promising high GDP growth. These Countries have witnessed an annual GDP growth of between three to six per cent since the year 2000. They had a peak growth between the years 2006 and 2007 but this growth had a slight decline in the year 2008 despite the financial crisis (UNECA 2009, and AfDB 2009). As SSA region's economic growth had been driven by a favourable external context, it had been feared that this growth would change suddenly in the event that this context changed. The sustained economic growth in SSA has been questioned on the basis of its sustainability and its effectiveness in reducing poverty. This has made it necessary to have a closer look at the nature of economic growth in SSA countries. The SSA region is expected to continue with the region's growth trajectory even if it grows at a slower but significant rate. Growth in some of the resource poor SSA countries is expected to continue. The SSA countries that export oil and minerals are the ones affected by the reduced world prices of these commodities. This has made these countries to realize diminished economic growth. Most SSA countries rely on exporting a few range of commodities a situation that makes them very vulnerable especially in the event of fluctuation of world prices as well as due to global economic shocks. As SSA countries have not been establishing many manufacturing entities, they as a result have not been able to create adequate jobs in the formal sector and due to this the population of these countries has not felt a positive impact of economic growth (The Economist, March 2014, McKinsey 2012).



1.2 Objective of the Study

The specific objectives of the study was as follows:

1.2.1 To determine the effect of Economic growth on employment in Sub-Saharan Africa.

1.3 Research question

This study tackled the following research question

1.3. 1. What is the effect of economic growth on employment in Sub-Saharan Africa?

2. STATEMENT OF THE PROBLEM

From the review of the previous studies there is a clear indication that very little research has been undertaken to establish the relationship between employment and economic growth in SSA. This is despite the importance of understanding the contribution of gender stratification on employment and economic growth with most previous studies focusing on general employment and unemployment in SSA. This study therefore focused on the contribution of total employed population as well as that of men and women on economic growth in SSA.

3.0 LITERATURE REVIEW

3.1 Improved political and macroeconomic climate

Sambira (2014) found that SSA countries had managed to issue bonds in international financial markets at interest rates that were relatively low. The investors had a lot of interest in buying the bonds that were being issued by SSA countries and this signaled that the investors were growing their confidence in the future of the SSA economies. The SSA countries ought to use their increasing debt for development expenditures and not in meeting their current expenditure, because, if such debt is not managed well, it might stop boosting the economic growth of the SSA countries (Sy 2015). Ghana was the first country in SSA to have been reported to be in an unstable economic situation as a result of the country having been engaged in acquisition of heavy external debts some of which Ghana acquired in private markets. She used borrowed money to pay increases in salaries for her public sector employees and in providing energy subsidies to her population instead of spending the borrowed money on development projects. Ghana adopted the idea of borrowing heavily after decline of the revenue derived from sale of gold cocoa and oil which were the country's main export commodities. As a result of this, Ghana found herself in worsened macroeconomic situation, her public debt grew to 70% of GDP, and her budget deficit reached around 10%. To make it even worse for Ghana, her currency lost 31% of its value in the year 2014. Ghana's economy had earlier been one of the best performing in Africa as a result of being boosted by discovery of offshore oil reserves with the exploitation of oil having started in 2010, though in the end, the oil revenues declined to disappointing proportions. Despite Ghana coming into an agreement with IMF in 2015 on how to pay for her loan, her risk of defaulting in paying for her loan still persisted (Bloomberg 2015).

One of the major exporters of copper in the world is Zambia as 70% of her export earnings are derived from export of copper. Zambia has faced a sharp drop on copper prices in the world and as a result making her realize large macroeconomic imbalances. Zambia was as well impacted by a depreciation of her currency by 45 % in the year 2015 (Bloomberg 2015). Some other SSA countries have as well had their currencies weakened significantly, and they include for instance Uganda, Angola, and South Africa (World Bank 2015). There is a higher risk on further economic decline among the SSA countries, for those countries rely on exporting only one or two commodities for their budget and foreign reserve revenue (Bloomberg 2015). Among SSA countries borrowing of funds has been the pillar that has resulted in the economic development of these countries as the borrowed funds have been put into infrastructural development projects among other things. However, things are not alright for the SSA countries as they are realizing fiscal deficits and their current accounts are worsening as well (IMF 2015). SSA countries have a weakness in creating a good business climate for investors for investors to set in. Most of them have a problem of creating ease with which to do business, and as a result, majority of them do not rank highly, as by the world bank rating, most of them are ranked at the bottom of the of the world bank ranking for 189 countries (World Bank 2015). However some few SSA countries are an exception to this. For instance Mauritius ranks 32nd though by the year 2014 she ranked 28th and it were the first among SSA countries. Rwanda came second ranking 62nd, Botswana 72nd South Africa 73rd, Tunisia 74th and Morocco 75th.

South Africa dropped from 43rd in 2014 to 73rd in 2015. Though Rwanda has a low GDP per capita, her high ranking is worth raising attention. Rwanda has in recent years improved her business climate as a result the World Bank recognized her as the world best reformer in two World Bank surveys on ease of doing business. This was in the years 2010, and 2011 but in the year 2014 Rwanda was ranked as the second best reformer. African countries appear among the top 10 reformers in the world, in the surveys that are conducted by the World Bank (World Bank 2014).

3.2 Despite growth GDP remains low in SSA region

The World Bank (2015) opined that the SSA economic growth despite its being robust needed to be scrutinized further. This is because the SSA output was still low in comparison to other regions. The SSA region had a population of one billion people; however the SSA total GDP when valued in Purchasing Power Parity (PPP) was nearly similar to that of Germany and Brazil. SSA countries population was growing rapidly making this region to experience the highest population growth rate in the world. As a result of this, the GDP growth rate was higher than the GDP growth Per Capita in SSA. South and East Asian and Pacific countries in the new millennium reported twice the growth of SSA countries, although it had been reported that in the same period, SSA countries were enjoying the world's third highest rise in GDP Per Capita measured in Purchasing Power Parity in percentage points. The GDP per capita in many SSA countries however remain low despite the reported economic growth in these countries. The population of SSA region constitutes 12% of the world population, while its land surface covers an area of 18% in proportion to the entire worlds land surface while 1.5% of the world's nominal GDP is produced by SSA region and in terms of purchasing power parity it constitutes a paltry 2.3 %.

3.3 Downward economic outlook forecast

World bank and IMF (2015) did a forecast of the economic outlook and performance of SSA Countries and found that the SSA region was bound to remain the region that was experiencing the fastest economic growth in the world, though it was negatively being impacted by drop in commodity prices that were being made in this region, and it was as well facing unfavorable global financial conditions. The world Bank (2015) in a report titled 'Africa pulse' indicated that SSA countries were going to experience economic decline, and that the growth was to decline in 2015 to 3.7% from 4.6% in 2014. The commodity prices were as well to decline, the commodities specifically being oil, copper and iron ore, and given that the Chinese economy was experience slowdown, and the global financial conditions were as well going to be tightened, all this was to work in tandem to slow down the SSA countries economic performance. The World Bank (2015) predicted that since 2009, the reported 2015 growth was to be the lowest, meaning that it would decline. The world Bank (2015) as well projected that the SSA economic performance would start gradually rising again from the year 2016 and 2017, and this would be as a result of domestic demand that would rise, pushing up the economic growth, and that investment was to play a pivotal role as well as the government spending in making the SSA countries economic performance to improve. The less diversified oil exporting countries such as Angola, and the republic of Congo were to be hit by low commodity prices. Those countries that export their commodities for instance in their extractive form were as well to be affected by low prices of the products they export, and they include Democratic Republic of Congo and Mauritania. The IMF and World Bank (2015) reported that the SSA countries economy had declined marginally, and was expected to grow by 3.75 % in 2015 and 4.25% in the year 2016, and this was in contrast to a more vibrant growth of 4% that had earlier on been reported in the year 2014. Nigeria being one of the oil exporting countries in SSA was to be equally affected as well as her other SSA oil exporting countries and countries that were exporting minerals, their economic slowdown was to be caused by reduction in commodity prices that they were exporting in the world market.

The World Bank and IMF (2015) reported that the North African region was experiencing slow economic growth in the year 2015 with the exception of Egypt and Morocco, as the two countries were experiencing stronger economic growth. On the other hand, Algeria, being an oil exporter was facing decline in oil prices. This was as well having an impact on Libya that was having economic decline as a result of the declining oil prices though Libya was still holding a considerable amount of foreign currency in its reserves.

It was as well reported by World Bank and IMF (2015) that the decline in economic performance of SSA countries was caused by the economic stagnation or contraction of economic performance in Ebola – affected countries such as Guinea, Liberia and Sierra Leone. These three countries in West Africa have had their economies seriously affected by it, slowing the economies of the three countries significantly. Ebola has not had a major impact on the economies of other West African countries apart from the listed three. Guinea, Liberia, and Sierra Leone had experienced good economic performance in the first half of 2014, but as from mid-2014, the economic growth these three countries collapsed completely. Mining projects postponed their activities, while the services and the agriculture sectors contracted in significant proportions. It was forecasted that the countries were to experience economic stagnation in the year 2015, but would start experiencing recovery in the year 2016 onwards. In 2015 Libya continued with its economic decline as a result of its adverse security situation as well as its chaotic political state. South Africa as well experienced slow growth, due to labor conflicts as a result of xenophobic tendencies of its population. The country was as well affected by electricity shortage that was in chronic proportions.

3.4 Employment in SSA

One of the most important variables that is used in linking economic growth to the welfare of households is employment. This is because increase in output alone is not enough to improve the welfare of the population in a nation or in a given region. Economic development results in transforming an economy from relying on subsistence agriculture, to being urbanized and setting up business enterprises, as well as setting manufacturing industries so as to add value even to the agricultural output, and engage in export trade that ends up earning such a country or region foreign revenue at much greater profits. From the analysis of Lewis in 1954 to date, the progressive transition has been measured both through output of products generated as well as through employment outcomes. SSA has had one of its first great decade of growth, with agriculture, which has been its lowest sector in terms of productivity, declining in terms of its share contribution to GDP in comparison to other sectors of the economy across the continent. This has happened despite the SSA region managing to have the prices of agricultural products to rise in the international world market. This has as well seen the share of the sectors that generate higher productivity rise in terms of their contribution to GDP in SSA. It however seems employment has not transformed as poverty levels have remained high (Afrobarometer, 2013).

3.5 Previous empirical studies on gender, employment and economic growth

Lofstrom (2009) found many empirical studies showing that a country's growth is contingent upon a wide range of factors. For instance countries whose GDP per capita levels were low tended to have a high growth rate as they were said to be doing catch-up. In such a case an empirical study of the relationship between gender equality and economic growth required a more sophisticated multivariate econometric analysis.

Osorio – Rodarte et al (2013) conducted a study to establish the non-economic factors that were likely to derail the economic development of SSA countries and established that drought and conflict were likely to affect the economic growth that was being enjoyed by the SSA countries. They as well found that SSA countries still had fragile agriculture, though it was of great importance to the SSA countries population, however, it was being impacted adversely by the climate change in these countries. The World Bank (2015) reported that SSA countries were as well experiencing a new type of conflict, which was different in nature to the large scale conventional conflicts and civil wars that existed in some SSA countries in the 1990s. This newly found types of conflicts constituted of violence that escalated before, during, or after elections, terrorism attacks and extremism, drug trafficking, that majorly affected the west African region, piracy, for instance in the gulf of Guinea and criminality as well as wars being fought by armed insurgents such as Boko Haram in Nigeria, Alshabaab in Somalia and Kenya. These happenings were putting the SSA region's economic progress at risk, especially in those countries that it was happening in (World Bank 2015).

3.6 Effect of Corona virus (Covid – 19) pandemic on Employment and economic growth in SSA.

According to WTO (2020a) and IMF (2020), a global social and economic crisis of great proportion had been precipitated by the corona virus pandemic. The world Gross Domestic Product (GDP) and international trade declined by 4.9 % and 13% respectively. This resulted in the covid 19 pandemic being the worst form of economic and health crisis since the second world war and this level of crisis is worse than the SARS pandemic and economic recessions and depressions (Vidya and Prabheesh, 2020; Kassa, 2020; Barichello, 2020. Baldwin and Tomiura, 2020).

Socrates (2020) established that the factors aligned to demand were made of paramount importance during the Covid-19 pandemic than the disruptions of the supply chains. This was obtained from the analysis of the responses that were needed in coping with the covid-19 scourge among developing countries. It was found that export trade was affected only marginally, and this was due to the fact that food products which constituted much of the exports from developing countries such as Kenya had an inelastic demand that was not affected by lockdowns. As Kenya, being a major growing third world country was facing an imminent health and economic crisis, it reduced the importation of non-essential items, so as to import more food and medical items that were too essential in combating the covid-19 pandemic crisis. This resulted in an asymmetrical balance between imports trade and export trade and the same kind of balance was realized among the modes of transport such as air and water, as well as among the commodities that were being traded in and among trading partners who comprised of the countries that were trading with each other.

Ndiili (2020) found that the tourism sector in Sub Saharan Africa had been greatly affected by the covid- 19 pandemic as it had been shedding off US\$ 8.8 billion in losses per month in the year 2020. The informal sector in SSA which had been accounting for 77 percent of the employment in this region had been as well greatly affected as a result of the containment measures that had been put forth by the governments in this region; the measures comprising of lockdowns, social distancing and businesses being closed down, all this resulting in a large number of employees losing their jobs. Economic growth in the Sub-Saharan African region was expected to undergo a slump of 1.8 percent from the previous estimated figure of 3.2 percent, and this was occasioned by decline in trade both local as well as international as a result of reduction in exportation of goods and services to developed and emerging countries such as China. This region had a doctor to patient ratio that was lower than the average recommended one by the world health organization of one doctor for every one thousand patients. The SSA region also had an added economic challenge due to its indebtedness as this region had obtained development loans amounting to a debt ratio of fifty five percent by the year 2016 from a low of seventeen percent in the year 2009 from its development partners, the major one being China.

Health and tourism had been the most affected sectors in SSA from the covid -19 pandemic. The prices of commodities had as well gone up, while the financial position of countries had been negatively impacted leading to a slump in economic growth (IMF 2020a, b). Though the rate of infection of covid-19 was lower in the SSA region in comparison to other regions such as Europe, the SSA region had been equally affected. This region had been assisted to manage the scourge by China, the World Bank as well as IMF, and they had availed varied forms of assistance that included financial aid and donations of personal protective equipment and covid – 19 test kits kits. A donation of US\$ 50 billion was provided by the IMF to the low income and middle income countries that were in dire need of monetary support. The World Bank and the International Finance Corporation (IFC) provided more aid to Africa amounting to US \$ 14 billion to support the health sector and give the needed support to the private sector so as to cushion them and their employees from the impact of the economic decline that was attributed to Covid -19 pandemic (World Bank 2020 a, b). The donation by the IFC was as well meant to enable banks give loans to small and medium enterprises that were affected by the economic slump (Ndiili 2020).

Trade declined in the month of April in Sub-Saharan Africa, which resulted to decline in value of currencies for most of the Sub-Saharan Africa. Depreciation of currencies ultimately resulted in rise in inflation, making international loans that were supposed to be paid using American Dollars more expensive (Ndiili 2020).

Sub-Saharan African countries were expected to be resilient to the shock of the covid-19 pandemic (Ndiili 2020). This region was however in a vulnerable phase as the corona virus was still spreading. The SSA countries were

expected to surmount the shock and ensure that they did not suffer from incapacitation of undertaking their proper functionality, though they faced disruption of their running as had been expounded by Linkov et al (2016) and Jonsson et al (2008). As ways of tackling disruptions of any nature, magnitude and proportion, Allen (2016) expounded on ways of being resilient using quantitative methods that were employed in both the systems as well as in the larger ecosystem. Bakkensen et al (2016) on the other hand established methods of handling disasters, and Flax et al (2016) came up with ways of handling problematic disruptions that arose in urban areas. All these methods were researched on so as to establish how Sub-Saharan African region responded to the covid-19 pandemic situation that was affecting it. Historical data was employed in establishing the level of resilience of the sub-Saharan African region on the covid-19 pandemic, as the pandemic was still in its infancy stage in the region, and little data for analyzing it was available. The Covid-19 Pandemic had had devastating effects that saw many organizations shut down, and this led to massive unemployment and declining in economic growth in this region (Ndili 2020).

3.6 Transformation of the SSA region economy

Rodrick and McMillan (2011) opined that structural economic transformation refers to reallocation of economic activities from the least productive sectors to the more productive ones in an economy. It results in economic development. It results in rising of new more productive activities and as well moving of resources from traditional activities to newer more productive ones, resulting in increase in productivity. These results in diffusing productivity to the whole economy. Those countries that have more diversification in their production capabilities as well as exports normally have higher per capita incomes. Those countries that produce and export highly sophisticated products end up growing much faster. SSA countries need to diversify their production line of goods and services and they should as well strive to produce much more sophisticated goods and services.

UNECA (2014) pointed out that several studies that had been conducted found that the African economy has had limited structural changes despite it having an impressive economic growth. It as well found that the SSA region was trailing her counterparts in other regions of the world, for instance East Asia and Latin American countries in terms of industrialization and diversification of production.

3.8 How to spur economic transformation in SSA

Rodrik (2014) pointed out that though Africa needed to increase its number of industries so as to produce more industrial products that were more profitable than her Agricultural produce; there was a suggestion that Africa could as well adopt a different path of development by nurturing its service sector that was already more thriving. It is however argued that if Africa was to set up more services sector investments, it needed to train its workforce to high levels of knowledge and competence as this was lacking among the huge youthful population in SSA. This is because the service sector requires a high degree of specialization and training. Given that the cost of labour in Asia was rising, it is claimed that Africa could attract a manufacturing industries from Asia, though this is just a hypothesis that hasn't been proved right yet using any existing data. UNCTAD (2015) was of the view that Africa's share of global services exports was very low, though it could readily assist in enabling the African continent in its structural transformation endeavor as it is the main contributor to the sustained economic growth being realized in the continent. It is only wise that the services sector in SSA be enabled to grow side by side other sectors of the economy such as the manufacturing sector as these sectors complement each other.

3.9 Contribution of International financial flows on economic growth in SSA.

3.9.1 Private capital flows to companies and individual remittances from abroad

One of the important sources of funds that have enabled the SSA to sour in its growth includes foreign remittances from migrant workers, and this has earned the SSA capital as well as foreign exchange both for the households and the recipient countries. The entire African populations that live outside their home countries comprise 3%. In the year 2010, the foreign remittances to families in Africa constituted an aggregated amount of 40 billion US dollars which was quite a good component of funds that played an important role in enriching the entire African continent further growing her economy (Zamfir 2016).



One of the factors that has resulted in an improvement in entire growth of SSA countries was as a result of increase in the volume of external financial flows which comprised of private capital flows, official development grants and assistance, as well as private individual remittances to the SSA region, and this amounts have risen from 20 billion US dollars in 1990 to above 120 billion US dollars in 2012. Much of this remitted amounts was attributable to private capital inflows and remittances, although official development assistance increased but in a declining proportion yearly from the year 2001 to 2012. In the entire period South Africa and Nigeria had been the main beneficiaries of most capital flows with South Africa getting 45% and Nigeria getting 13% of the total for the entire SSA region respectively. These two countries make up more than half of the entire GDP of SSA countries (Zamfir 2016).

4. METHODOLOGY

4.1 Data that was used in the study

This study undertook an empirical study on 30 Sub Saharan Africa countries from the year 1990 to the year 2015 with the data having been obtained from the data banks of the World Bank, FAOSTAT and World development indicators. The study used the traditional neo-classical aggregate production function in the estimation of the regression results in order to determine the effect of the respective variables on employment levels in Sub-Saharan Africa by using employment levels as the dependent variable. The equation was also used to simultaneously estimate the effect of economic growth on gender comprising of employed men and employed women in the regression process.

4.2 Theoretical Models

The theoretical model that was used to investigate the interaction of employment and economic growth was based on the traditional neo-classical aggregate production function of the form:

$$Y_{jt} = AK_{jt}^{\alpha}L_{jt}^{1-\alpha} \dots\dots\dots (1)$$

Where:

- Y = gross domestic product (GDP) in country *j* and year *t*
- K = capital stock (domestic capital investment) in country *j* and year *t*
- L = labour in country *j* and year *t*
- A = parameter that measures total factor productivity
- α and $1-\alpha$ are the relative shares of capital and labour from the total production.

Taking logarithms on both sides of equation (1), the equation becomes:

$$\ln Y_{jt} = C + \alpha \ln K_{jt} + (1 - \alpha) \ln L_{jt} + U_{jt} \dots\dots\dots (2)$$

Equation (2) was further simplified to become:

$$\ln Y_{jt} = a_0 + a_1 \ln K_{jt} + a_2 \ln L_{jt} + U_{jt} \dots\dots\dots (3)$$

Where a_0 is a constant term, $\ln Y_{jt}$, $\ln K_{jt}$ and $\ln L_{jt}$ are respectively the natural logarithms of Y_{jt} , K_{jt} , and L_{jt} . U_{jt} is the error term. a_1 and a_2 are elasticity coefficients.

Equation (3) was used in the model section to derive the models to be used to establish the relationship between employment and economic growth in SSA countries.

4.3 Empirical models

Model 1: Relationship between economic growth and employment

In order to investigate the relationships between employment and economic growth, equation (3) was further modified into an appropriate form by including employment levels in the log-linear model where employment levels were used as a proxy for labour so as to facilitate the use of appropriate estimation methods as:

$$\ln Y_{jt} = a_0 + a_1 \ln K_{jt} + a_2 \ln Empl_{jt} + a_3 \ln X_{jt} + a_4 \ln M_{jt} + U_{jt} \dots\dots\dots (4)$$



Where $\ln Y_{jt}$ is the natural log of gross domestic product (GDP), $\ln K$, $\ln Empl$, $\ln X$ and $\ln M$ are respectively the natural logs of domestic capital, employment level and trade measured by export and import of goods and services respectively. The coefficients a_1 , a_2 , a_3 and a_4 are elasticity coefficients and U is the error term. Given the different conditions in different countries, a set of country dummy variables were added into equation (4) to take care of countries different conditions and the equations became as follows:

$$\ln Y_{jt} = a_0 + a_1 \ln K_{jt} + a_2 \ln Empl_{jt} + a_3 \ln X_{jt} + a_4 \ln M_{jt} + \sum_{j=2}^{30} c_j D_j + U_{jt} \dots\dots\dots (5)$$

$$\ln Y_{jt} = a_0 + a_1 \ln K_{jt} + a_2 \ln miw_{jt} + a_3 \ln X_{jt} + a_4 \ln M_{jt} + \sum_{j=2}^{30} c_j D_j + U_{jt} \dots\dots\dots (6)$$

$$\ln Y_{jt} = a_0 + a_1 \ln K_{jt} + a_2 \ln wiw_{jt} + a_3 \ln X_{jt} + a_4 \ln M_{jt} + \sum_{j=2}^{30} c_j D_j + U_{jt} \dots\dots\dots (7)$$

The study also investigated the contribution of men and women in employment and economic growth using equations 5, 6 and 7 above.

Where D_j is a dummy variable for country j and c_j was the difference between the intercept for country j and that for the first country.

4.4 Estimation Methods

Panel data was used in the investigation of the relationship between economic growth and employment, effect of demographic characteristics on economic growth and the effect of economic sectors on the economic growth of SSA countries. A total of 30 Sub-Saharan African countries was included in the study with data spanning the period between 1990 and 2015. Hausman test was used to confirm whether fixed effects specifications were preferred to random effects specifications for the data used in this study. In all the empirical models, country dummies were used in the estimations as this took care of country differences as different countries operated in different conditions.

This study employed STATA statistical package in its regression analysis. The coefficients as presented in the three models were read directly as elasticity's for all the variables in the respective models. The sign and significance of the coefficients indicated the direction of the impact by the independent variables on the dependent variable.

5.0 RESULTS

5.1 Effect of economic growth and employment in Sub Saharan Africa over the period 1990 to 2015

This section presents regression findings for the research question on the effect of economic growth on employment in SSA. The estimated results were obtained based on the traditional neo-classical aggregate production function as in equation 5, 6 and 7. The results were estimated after carrying out a Hausman test. The Hausman test had a $\text{prob} > \chi^2$ of .0000 which implied that fixed effects were preferred to Random effects. Heteroskedasticity problem was taken care of by including robust test in the stata command during the running of the results using fixed effects with country dummies. The results as presented in table 1 presents elasticity's of total employment, domestic capital, imports, exports, service sector, women in employment, and men in employment with respect to gross domestic product that is used as a proxy of economic growth.

Estimations were conducted in table 1 and the regression results generated consistent results for all the variables and also indicated that the coefficients were different from zero. The R^2 value for the estimates was very high at 0.921 when fixed effects with country dummies were used as shown in table 1 implying that over 92 percent of economic growth was explained by the included independent variables. Table 1 presents the results of gross domestic product response to total employment, domestic capital, imports, exports, service sector, as well as women and men in employment, the results show that economic growth is determined by all the stated variables, that is, total employment, domestic capital, imports, exports, service sector, women in employment, and men in employment with all the independent variables posting a positive coefficient.

Column one in Table one provides the results of interest in the contribution of economic growth by the total number of employees as well as contribution of economic growth by the economic sectors which constitute of domestic capital, imports, exports, and the service sector while columns 3 and 4 presents the results of interest for the contribution of employed women and employed men to economic growth. The results were estimated based on equation 5,6 and 7.



From the results in table 1 a number of findings can be drawn. First, economic growth is positively and statistically significantly influenced by total employment in SSA. The elasticity of total employment is 0.445 at 1% significance level, which is positive and statistically significant at 0.01 significance level. This implies that on average, 1% increase in number of people employed will lead to an increase in economic growth by about 0.445 percent, which is high. This is the expected result as when more qualified, competent and experienced employees are hired, the level of output generated is expected to rise which results in economic growth. Ndambenda and Njoupouognigni (2010) found that though foreign aid and foreign direct investment had positive and significant effect on economic growth, labour, also referred to as human capital, was the most important factor in fostering economic growth in Sub-Saharan Africa. This was because most of production processes in this region are labour intensive. Their finding was in line to the finding in this study. Zamfir (2016), Li and Liu 2005, Fox and Sohensen (2012), Fox et al (2013), Filmer fox et al, (2013) and Timmer (1988) as well had findings that were congruent with those of this study.

Second, economic growth had a positive and statistically significant relationship with women in employment. This variable had an elasticity coefficient of 0.248 at 0.01 significant level implying that an increase in employed women by 1% will result in 0.248 percent increase in economic growth. This finding is fairly high and significant and it indicated that an increase in labour force constituting of women in employment worked to contribute an increase in economic growth among the SSA countries. It indicates that women had a significant contribution to economic growth among the SSA countries. This result is in line with that of Dieterich et al., (2016) and Croppendstedt et al., (2013) among others.

Thirdly, Men in work that connote employed men in this study was found to have a positive and statistically significant relationship with economic growth in Sub Saharan Africa. The elasticity coefficient of men in work was 0.454 at 0.01 significant level. This variable provided the strongest relationship with economic growth as it implied that a 1% increase in employment of men could lead to an increase in economic growth by 0.454 percent, which again in comparing it to that of employed women that had an elasticity coefficient of 0.248 at 0.01 significant level meant that men had a greater contribution to economic growth than women in SSA, though both gender had a significant contribution to economic growth. This finding is similar with that of Dieterich et al (2016) who found that there were more men in gainful employment than women in SSA. Croppenstendt et al (2013) found that the productivity of men in SSA was higher than that of women and thus they contributed more to economic growth in this region.

Fourth, from the estimation, the results show that economic growth in SSA is positively and statistically significantly influenced by domestic capital, which had a positive and significant elasticity coefficient of 0.0943 at 1% significance level. This implies that a 1% increase in domestic capital will lead to an increase in economic growth by about 0.0943%. With more investment in domestic capital much higher economic growth will be realized in Sub-Saharan Africa. This result is in line with those of Mohsen and Maysalam (2013), Locoviv (2012), Frey and Osborne (2015), Cheung et al (2012), Kanu and Ozuruba (2014), World Bank (2012), and Adams (2008) among others.

The fifth finding from table two was that imports was found to have a positive and statistically significant coefficient of 0.0428 at 0.05% significance level. On average, 5% increase in imports lead to an increase in economic growth by about 0.0428 %. This revenue is generated due to the supply chain network involved in the supply of imported commodities generating revenue due to for instance profits generated from the imports, and they as well pay taxes that act as source of revenue to the Sub-Saharan African Countries governments, which results in more employment opportunities being generated, especially in the supply chain. This result is in line with those of Nordman and Wolff, (2010), Bigsten (2012), IMF (2013), and Zamfir (2016) among others.

The sixth finding indicated that export was found to have a positive and statistically significant elasticity coefficient of 0.231 at 1% significance level, which implied that 1% increase in export will lead to an increase in economic growth by about 0.231 %. This was the expected results as again this is due to revenue generated by the Sub-Saharan African countries from the commodities that they exported which indicates a significant contribution to economic growth among the Sub Saharan African countries. This result is in line with those of Acet (2014), World Bank (2014), and Zamfir (2016) among others.

Lastly, the service sector was found to have a positive and statistically significant elasticity coefficient of 0.0941 at 0.01 significance level. This translated to mean that 1% increase in service sector income will lead to an increase in economic growth by about 0.0941%. This result provided the expected outcome as the sub-Saharan African countries heavily rely on the service sector such as tourism and communication among others in propping up and growing their economies even further. This result is in line with those of Yeboa and Jayne (2016), Townsend et al (2017) among others. However, the services sector's contribution to economic growth in SSA is currently on the decline due to the Covid- 19 pandemic (Ndiili 2020).

5.2 Table 1 : Relationship between Economic Growth and Employment in SSA over the period 1990-2015

	(1)	(2)	(3)women in employment	(4) men in employment
Variables	Fe IngdP	re IngdP	two IngdP	three IngdP
empl_log	0.445*** (0.0346)	0.0934*** (0.0354)		
Domestic capital_log	0.0943*** (0.00795)	0.0167 (0.0105)	0.113*** (0.00800)	0.0919*** (0.00813)
impo_log	0.0428** (0.0190)	0.257*** (0.0260)	0.0614*** (0.0198)	0.0502*** (0.0190)
expo_log	0.231*** (0.0143)	0.250*** (0.0213)	0.245*** (0.0149)	0.223*** (0.0145)
serv_log	0.0941*** (0.0122)	0.233*** (0.0166)	0.105*** (0.0127)	0.0985*** (0.0123)
wiw_log			0.248*** (0.0259)	
miw_log				0.454*** (0.0367)
Constant	4.217*** (0.353)	1.504*** (0.422)	5.925*** (0.311)	4.299*** (0.356)
Country Dummy	Yes	Yes	Yes	Yes
Observations	672	672	672	672
R-squared	0.921	0.877	0.913	0.920
Number of ID	30	30	30	30

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1.

5.3 CONCLUSION AND RECOMMENDATIONS

5.3.1 Conclusion and recommendations on relationship between economic growth and employment in SSA

From the findings of the study, it was concluded that increased economic growth statistically and significantly influenced total employment as well as employment of both men and women in the SSA region, with total employment being influenced more by the economic growth than the other variables in SSA. Domestic capital, imports, exports and the services sectors were found to statistically and significantly influence economic growth, with domestic capital and services sectors having the highest effect on economic growth, with economic growth impacting on employment through creation of more jobs as it results in more investments in the economic sectors which end up employing more people in SSA region.

Based on the above conclusion it is recommended that measures be put in place so as to bridge the gender gap because all through the study period more men continued being employed than women and this could be due to the fact that in some Sub Saharan African women were not finding it easy to get employed due to roles that traditionally are supposed to be performed by women like for instance taking care of children and being house wives. Some other Sub Saharan African communities have traditions that do not encourage girls to continue with their education to higher levels as they marry them of while they are still very young, some as young as 13 years of age which makes such girls not to get formal employment as they get entangled with their domestic marital chores, and those who get formal employment they earn low wages as they get employed to do manual jobs that require low skills for instance in pack houses in flower farms. The Sub- Saharan African governments should strengthen their policies on women empowerment through education as well as upholding affirmative policies in favor of girls especially on education and employment in this region.

More funds should as well be allocated by the Sub Saharan African governments to domestic capital so as to generate more employment. More stringent policies should be put in place by the Sub Saharan African government to support the services sector as it is a promising sector in uplifting the Sub-Saharan African economy which will result in more employment generation, and this will aid in addressing the prevailing unemployment level in this region. The Sub-Saharan African governments should as well adopt better policies on their exports as this region's exports constitutes majorly of agricultural products and minerals with minimal value addition done on them. The governments of this region should adopt policies that will improve the value of exports so as to derive more revenue from them which will in return result in more job creation among the member states.

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