Capital Accumulation and Unemployment in Namibia, Nigeria, and South Africa

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Abstract—The research investigates the causes of unemployment in Namibia, Nigeria and South Africa and the role of Capital Accumulation in reducing the unemployment profile of these economies as proposed by the post-Keynesian economics. This is conducted through extensive review of literature on the NAIRU models and focused on the post-Keynesian view of unemployment within the NAIRU framework. The NAIRU (non-accelerating inflation rate of unemployment) model has become a dominant framework used in macroeconomic analysis of unemployment. The study views the post-Keynesian economics arguments that capital accumulation is a major determinant of unemployment. Unemployment remains the fundamental socio-economic challenge facing African economies. It has been a burden to citizens of those economies. Namibia, Nigeria, and South Africa are great African nations battling with high unemployment rates. The high unemployment rate in the country led the citizens to chase away foreigners in the country claiming that they have taken away their jobs. The study proposes there is a strong relationship between capital accumulation and unemployment in Namibia, Nigeria, and South Africa, and capital accumulation is responsible for high unemployment rates in these countries. For the economies to achieve steady state level of employment and satisfactory level of economic growth and development, there is need for capital accumulation to take place. The countries in the study have been selected after a critical research and investigations. They are selected based on the following criteria; African economies with high unemployment rates above 15% and have about 40% of their workforce unemployed. This level of unemployment is the critical level of unemployment in Africa as expressed by International Labour Organization (ILO). And finally, the African countries experience a slow growth in their Gross fixed capital formation. Adequate statistical measures have been employed using a time-series analysis in the study and the results revealed that capital accumulation is the main driver of unemployment performance in the chosen African countries. An increase in the accumulation of capital causes unemployment to reduce significantly. The results of the research work will be useful and relevant to federal governments and ministries, departments and agencies (MDAs) of Namibia, Nigeria and South Africa to resolve the issue of high and persistent unemployment rates in their economies which are great burden that slows growth and development of developing economies. Also, the result can be useful to World Bank, African Development Bank and International Labour Organization (ILO) in their further research and studies on how to tackle unemployment in developing and emerging economies.

Keywords---Capital accumulation, NAIRU, post-Keynesian economics, unemployment.

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I. INTRODUCTION

UNEMPLOYMENT is a major and fundamental socio-economic challenge affecting African and emerging economies. Namibia, Nigeria, and South Africa are great African nations which are among the African nations with highest unemployment rates. In 2013, the countries recorded high unemployment rates of 16.9%, 23.9% and 24.9% respectively. Most of the unemployed in these economies comprises of youth. Roughly about 40% working age South Africans has jobs, whereas in Nigeria and Namibia is less than that. Unemployment in Africa has wide implications on households which has led to extensive poverty and inequality, and created a rampant criminality. Recently in South Africa there has been a case of xenophobic attacks which were caused by the citizens of the country as a result of unemployment. The essence of this research is focused on the need to examine empirically the effect capital accumulation has in reducing the level unemployment in these African economies (Namibia, Nigeria and South Africa). The effect capital accumulation has on labour has been argued by scholars (see [1], [2]) about whether capital and labour are substitutes or compliments. By them being substitutes, this means capital and labour will tend to do the same kind of job. That is, the more you have one, the more the other has less use to you. Having more capital will tend to make labour less productive on the margin. This will result into a lower demand for labour. On the other hand, if capital and labour tend to be compliments, more capital would make labour more productive on the margin. This means labour will be using capital to improve its productivity. This will lead to higher demand for labour. The accumulation of capital is investing in more capital goods (e.g. investing heavily in industrialization of the economy) that brings an addition to stock of capital assets in an economy that will derive productivity in the real sector which will lead to more growth in the physical capital assets of the economy. Capital formation captures all the real-value-added to the economy in real-asset-terms which will lead to further enhancement of savings investment and generation of more wealth in future, [3]. Looking at what it does to different types of labour; we differentiate between two types of labour; the first type of labour is substitute to that capital.

Overtime, if factories are built and investment in new machineries have taken place; the demand for substitute labour will tend to fall which will lead to unemployment of labour. The second type of labour is complimentary to capital. It is true to some extend to say that investment in capital destroys jobs in certain circumstances but can also create jobs

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in others. Jobs can be created when machineries are built, maintained and controlled by labour. And this labour will tend to compliment capital itself as argued by [4].

Scholarly works in Nigeria mainly focused on the impact capital accumulation has on the economic growth of the nation and have not focused on the impact it has on unemployment in the economy. Ogundipe and Aworinde [5], in their research on the impact of public investment on the economic growth in Nigeria, disaggregated public investment into expenditures on education, agriculture, defence and internal security, health, transport and communication. Their results show that a positive and significant relationship exists between economic growth and defence and internal security and structural adjustment programmes, but a negative relationship between education, and agriculture. The study recommended a reduction in government expenditure on defence and internal security and an increase in public expenditure on productive sectors like education, agriculture, transport, and communication to enable sustain a reasonable accumulation of capital to derive and stimulate the development of the economy. A study [3] empirically examined the relationship between capital accumulation and economic development in the Nigerian economy. In the study, capital accumulation was disaggregated into public capital accumulation, domestic private capital accumulation and foreign private capital accumulation, and their various impacts on the economic development of the country. The results revealed that the impact of public capital accumulation on economic development was negative and statistically significant, that is an increase in accumulation of capital reduces unemployment significantly. The study recommended to optimally raise the level of capital accumulation in Nigeria, government has to maintain steady supply of energy (power) and other infrastructural supplies.

In South Africa, [6] looked at Capital accumulation and macro policy in the country. The paper examined the causes of inadequate capital accumulation in the economy by looking at political and economic institutions using fixed effects estimation of investment function. The study arrived at a conclusion that the important variable in explaining the inadequate accumulation of capital is the political conflict and institutional uncertainty. Fedderke [7] conducted a research on capital formation in South Africa. The researchers investigated the determinants of investment and linked it with economic growth. The conclusion of the study affirmed that there is a low rate of capital formation which is affecting economic growth. Two old studies [8] and [9] also looked at capital accumulation but linked it with economic growth and violence respectively.

For the case of Namibia, [10] researched the determinants of unemployment in the country from 1997 to 2007. The study employed an unemployment model by adopting the Engle-Granger two-step procedure. The research examined how GDP, investment, and wages affect unemployment. The result showed that a reduction in wages reduces unemployment; and an increase in GDP growth and investment reduces unemployment as well.

From the researches [4], [3], [7], [10] conducted in each of the chosen African economies and with full review of vast relevant articles and papers the proposed study tend to close the gap in the current literature by examining the role of capital accumulation and how it affects the unemployment rate in these three chosen African countries. And also contribute to existing literature by establishing the arguments of the post-Keynesian economics that capital accumulation is the main driver of unemployment in economies within the non-accelerating inflation rate of unemployment (NAIRU) framework which has never been done before in these chosen African economies.

The post-Keynesian NAIRU model is the basis of the study which supports the role of capital accumulation as a major determinant of unemployment in economies as stated by [11]. However, the proposed research study different from that of [11] and [12], the major innovations of the research study is to include three critical factors; the rate of population growth, power (electricity is) generation and importation of goods and services in the NAIRU model. Developing economies especially in Africa are experiencing a rapid increase in their population yearly which contributes to the high level of unemployment as a result of inadequate capital stock to sustain the growing population. Power generation is another factor which attributes to the high unemployment rates in developing economies. The shortage in the level of power generation will result to a slowdown in the level of capital accumulation which again causes unemployment. High importation of goods and services affects the domestic production capacity of economies. These three critical factors are omitted in the NAIRU model proposed by [11] which makes the model unsuitable to explain unemployment variations in developing and emerging economies. Therefore, the proposed study also aim at closing these gaps in the current literature on the NAIRU model and make it a more suitable framework for macroeconomic analysis of unemployment in developing economies because the theory explains and includes the main cardinal factors which best explains unemployment in economies as argued by the post-Keynesian economics.

The rest of the paper is structured as follows; the second part of the paper discusses the gap and capital-unemployment relationship in Africa. The third part discusses the empirical literature review on labour market institution, capital accumulation and unemployment. Section IV discusses the post-Keynesian NAIRU model. Section V presents the estimated equation for the countries. The sixth discusses the methodologies and the statistical measures and techniques employed. The seventh presents the empirical results and findings. The eight contains facts discussed about capital-unemployment relationship. Finally, the conclusions and recommendations are given in the last part of the paper.

II. Capital-Unemployment Relationship in Africa

The macro-labour literature in the 1990s was dominantly shaped by the NAIRU model and its focus on wage-push factors as main driver of unemployment (see [13]). The

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mainstream economics account have been denying the influence of capital formation on unemployment of economies as proposed by, among others, [14]. However, the significant role of capital accumulation in the evolution of unemployment rates across economies has gradually regained the interest of macro-labour economists and the resulting literature is fast growing (see [11], [15]-[19]).

Despite the abundant resources in Africa, infrastructure appears to be a dismal factor that led millions of its citizens into unemployment. The manufacturing sectors in developing economies are experiencing setbacks due to insufficient accumulation of capital. In 2009, according to a survey conducted by the Manufacturers Association of Nigeria (MAN), about 837 factories became inoperative in the country due to insufficient capital (see [20]). The survey showed that 179 industries became deficient and collapsed in the northern part of the country, 178 collapsed in the south eastern part, 46 collapsed in the south, 225 in the south-west and 214 in Lagos (see [21]). Dunlop Plc is known to be a dominant tyre manufacturing industry in the country has been shutting down shops and laying-off workers due to poor electricity supply. Investigation shows that the company has been investing $800,000 annually on electricity and yet not working in full capacity. As a result of this poor electricity supply, the company shut down its $42 million tyre plant four years after re-investing $32 million on the plant technology with a view of boosting its output. The company had to laid-off its employees which resulted to a rise in unemployment rate in that region. The Nigerian government lost revenue of $32 million annually due to misfortunes of the key tyre manufacturing company in the country (see [22]). Michelin also a tyre manufacturing company followed the suit of Dunlop Plc which has laid-off a large number of its employees because of the same factor. The United Nation Industrial Development Organization (UNIDO) statistics revealed that approximately 170 textile industries have closed down shops and about 120,000 employees are laid off all on the account of poor infrastructure (power, road and water supply) [23].

Following a report by the Organization for Economic Co-operation and Development (OECD), the South African economy has relatively strong average labor productivity but a low employment generation in respect to its growing population. After the end of the apartheid, the economy continued to grow but the rate of population growth and high youth unemployment was ignored. Productivity in the economy does not appear to have been driven by capital deepening because investment rates and the growth of capital stock are still low [24].

In 2010, the OECD conducted another report and stated that the South African economy is experiencing a strong domestic demand growth, low savings, as well as low investment rates. The report stated that the South African economy is experiencing setbacks in its manufacturing and mining sectors of the economy. This led to an unexpected decline in the export demand and attributed to a sharp reduction in private investments, and subsequently a fall in employment generation. As a result of this, the economy experienced a reduction in its GDP growth from more than 5% in 2007 to 2% in 2009. The report suggested that the increase in investments in the economy and accumulation of capital will lead to a strong export performance and improve the employment generating capacity of the economy [25].

Namibia is another African country with high unemployment rate of about 22.1% 11 according to World Bank report [26], and about 60% of these comprises of youths. The country is facing high and persistent unemployment rate and low level of industrialization. The Namibian economy has political stability, good democracy and less crime. Despite all these factors, unemployment and inadequate capital stock possesses great threat to the growth and development of the country. About 30% of its employed citizens depend on agriculture which account for 5% in respect to its contribution to the GDP of the economy. The employment in other sectors of the economy such as mining is about 2% which contribute to about 11% to the GDP of the country. This shows there is a paradox between the sectorial shares of employment and their contributions to the economy's GDP. There is need for heavy investments in these sectors, both private and public investments to improve both the country's employment generation and economic growth and development [27].

III. THE EMPIRICAL LITERATURE ON LABOUR MARKET INSTITUTIONS, CAPITAL ACCUMULATION, AND UNEMPLOYMENT

The arguments by the New Keynesians that labour market institution and their policies influences unemployment has gone through further empirical investigations. Faccini and Bondibene [28] conducted a research and used data for 20 OECD countries to investigate empirically if labour market institutions and their policies are responsible for the rise in unemployment rate in the countries. The paper assessed the effects of labour market on the cyclical volatility of unemployment using fixed-effect estimation in a panel of the 20 OECD economies. The statistical result posit that institutions such as; Employment protection legislation (EPL) and stronger unions tend to increase the volatility of unemployment. However, the duration of unemployment benefits and labour taxes were founded to decrease the volatility of unemployment rates. The overall study affirmed that labour market institutions and their policies tend to contribute to variations in unemployment rate in these economies investigated. These findings are in line with the results of [29] which found that high collective bargaining coverage leads to increase in real wage rigidity which results to a rise in unemployment rate. A paper also conducted by IMF [30] as regarding whether policies created by labour market institutions to reduce volatility of unemployment may tend to increase its persistence found that higher duration of unemployment benefit, employment protection legislation (EPL) and tighter product market regulations are responsible for a higher unemployment persistence over time. Baccaro and Rei [31] in their study also found significant effects of union density. Flaig and Rottman [32] investigated 19 OECD countries and found significant effects of tax wedge, benefit

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replacement ratio and employment protection. Nickell, Nunziata and Ochel [33] undertook an empirical investigation of the unemployment patterns in the OECD countries from the period of 1960 to 1990. The study aimed at investigating if shifts in unemployment in these countries can be explained by change in the labour market institutions and their policies which is also expected to have impact on the NAIRU. The results posit that changes in labour market institutions account for about 55% of the rise in the European unemployment level within the time period estimated. EC [34] conducted a research using a panel analysis of 13 EU (European Economies) to ascertain the impact of labour market institutions and macroeconomic shock on the NAIRU, the study also found a strong impact of labour market institutions. However, some studies found no significant effects of labour market institutions. Blanchard and Wolfers [35] investigated a panel of 20 OECD countries in which they pointed out the interaction between institutions and shock. They arrived at a conclusion that labour market institutions can explain cross country differences in unemployment but cannot explain the persistent rise of unemployment overtime. Lehmann and Muravyev [36] used a unique data set that covered the labour market outcomes, labour market institutions and macroeconomic controls from 1995 to 2008 for Eastern European and central Asian countries. The result found negative relationship between institutions and unemployment. A research also by [37] used 5-year averages of a panel of OECD economies in which the study found no relationship between labour market institutions and changes in NAIRU. On the other hand, econometric evidences supporting the argument of the post-Keynesians as regarding the effects of capital accumulation has been found using different methodologies. Karanassou, Sala and Salvador [15] were motivated by investigating the role of capital accumulation in shaping unemployment in Nordic countries (Denmark, Sweden and Finland) from a period of 1973 to 2005 for Denmark, 1976- 2005 for Finland and 1966 to 2005 for Sweden. The paper examined the effects of capital stock in the labour market by adopting the chain reaction theory of unemployment and estimated a dynamic multi-equation labour market model. The evidence provided by the statistical results is that the persistent shocks of 1978 to 1985 and 1989 to 1997 approximately accounts for about 30% and 15% of the rise in unemployment rate in Denmark and Finland respectively. The results also showed that 1991 to 1997 slowdown in capital accumulation contributed to about 50% of unemployment rate during that period in Sweden. Gonzalez and Sala [38] also conducted a study on the impact of financialisation on the United States unemployment through its effect on capital accumulation using the chain reaction theory and also found a strong effect of capital stock as a major cause of the U.S unemployment between the periods of 1991 to 1997. Bande and Karanassou [16] used the chain reaction theory as well to investigate the causes of regional unemployment in Spain from the periods of 1985 to 2000. The study found strong relationship between capital accumulation and unemployment during the period of the study. The study found out that from

1985 to 1991 when the economy was in boom period, investment which is the growth rate of capital stock and oil prices were the main factors that led to the drop down in unemployment level. However, the oil prices had a minor contribution. In addition, from 1994 to 2000, investment was the main factor that led to the reduction in unemployment. The researchers opined that if the capital stock was to remain as it was in 1994, the unemployment rate would have been 26% instead of 10%. These finding are similar to the results obtained by [18] in a study they conducted on the Spanish economy as well from 1970 to 2005.

Studies [15], [16], [18], [38] conducted using the chain reaction theory has shown evidences that capital accumulation has appeared to be the main driving force of the unemployment rates in all the studies conducted by the researchers. However, there are other studies conducted using different methodologies which also affirmed the role of capital accumulation in reducing unemployment. A research [17] conducted to empirically ascertain the role of capital stock in determination of wages and unemployment in Nine Economic and Monetary Union (EMU) countries which are; Australia, Belgium, Spain, Finland, Ireland, Italy, Germany, France and Netherlands using a time series and panel data analysis. The focus of the paper is to investigate the role of capital stock whether it has an important role to play in determining wages and unemployment in the EMU countries and to compare the results and findings across the countries. The researchers derived a wage and unemployment relationship which were estimated and test with comparable data sets for the countries. The statistical evidence showed that there is a negative relationship between capital accumulation and unemployment. And suggest that the degree of substutability between capital and labour is not as elastic as it has been assumed to be. Alexious and Pitelis [39] conducted a research to investigate the causes of persistence rise of European unemployment using a panel data analysis. The research focused on the role of capital stock on the European unemployment from the period of 1961 to 1998.Based on the statistical findings, it asserts that one of the potential factors responsible for persistence and high unemployment rate in the European region is the insufficient growth of capital stock and inadequate aggregate demand. Koskela, Stenbacka and Juselius [19] explored the long term effects of capital stock on employment based on a model of labour market imperfections. The research established a strategic effect of capital investment by showing that higher capital-labour ratio had a wage increasing effect with strong labour imperfections. The study was conducted based on a quarterly data for 28years for 16 OECD countries. The study opined that there is a strong relationship between capital stock and unemployment and stated that the relationship between capital and labour is not monotonic. The rise in unemployment is as a result of inadequate capital as well as three other factors which are; the bargaining power of unions, the capital-labour ratio and the production function parameters. In a more recent study conducted by [11], they estimated the NAIRU model which includes capital accumulation, labour market institutions, and

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housing bubbles for panel of 12 OECD economies from 2007 to 2011. The study concluded that insufficient capital accumulation rather than labour market institutions is the main factor affecting unemployment performance.

All these findings are strong evidences which support the arguments of the post-Keynesians that capital accumulation is a major and driving factor in determining the unemployment level in economies. However, there are empirical findings which contradict the role of capital accumulation and consider interest rate as the cause of unemployment volatility. Bassani and Duval [40] estimated a panel analysis of 20 OECD countries from 1982 to 2003. The empirical findings posit long term real interest rate has a strong effect on unemployment. Blanchard and Wolfers [35] also in a panel of 20 OECD economies illustrated the relationship between institutions and shocks and also found significant effects of real interest rate. Fitoussi et al [41] estimated a regressing explaining changes and fluctuations of unemployment from 1980 to 1990 in 19 OECD countries. The statistical evidence provided show that changes in domestic interest rate coincides with changes in average unemployment level.

IV. THE POST-KEYNESIAN NAIRU MODEL

The NAIRU (non-accelerating inflation rate of unemployment) model has become the most common and a more dominant framework used in the macroeconomic analysis of unemployment (see [33], [42]-[45]). The NAIRU model posits a short-run trade-off between the level of inflation and unemployment. That is a short-run Phillips curve. Equilibrium can in principle be either unstable or stable based on the adjustment in the goods market as expressed by [11]. The model is a general macroeconomic theoretical framework that can be interpreted by the Monetarist, New Keynesian and the Post-Keynesian interpretations based on the closures with respect to demand and the relying assumptions regarding its exogeneity or endogeneity [11].

Dated back to the 1950s, the relationship between inflation and unemployment has been a main focal point for macroeconomic theory and policies. This relationship has been identified as the deterministic law for macroeconomic theory which is the generally known Phillips curve. Bozani [46] stated the Phillips curve has undergone adjustments and augmented to be used for the NAIRU model estimations. The dominance of the NAIRU framework in macroeconomics and its unexpected policy implications seem to be the reason why the mainstream economists are unable to prevent economies from subsequent recessions and unemployment expansions. The existence of any unemployment can be mainly faced by changes in the labour market institutions and their policies. These policies of labour market institutions which lead to unemployment expansions can be represented by softening minimum wage restrictions, taxes on labour and strong restrictions on hiring workers and also with the reduction or elimination of unemployment benefits. Labour market institutions and their policies tend to create an unfriendly environment for workers despite the existence of unemployment protection system or not. On this regard, the

post-Keynesian economists took a step beyond; they questioned the fundamental concept of the NAIRU model and came up with a more realistic approach (e.g. [46], [47], [39]). In their view, the only suggestion of reducing the unemployment level in an economy is by the adoption of the traditional Keynesian theories and policies. Keynes has earlier pointed out the role of insufficient capital accumulation as a cause of unemployment in an economy. He stated that the level of output and investment as a whole in any particular economy depends on the amount of investment in that economy (see [48], [49]).

The post-Keynesians argue that NAIRU is endogenous and that capital accumulation is a major determinant of unemployment in the short and medium term. That is, investment expenditure has an important role to play in determining the unemployment level in an economy. A factor to why the NAIRU is considered to be endogenous is because investment has a demand-side and supply-side effects. The demand-side effects are the multiplier effects. While the supply-side effect is that a change in investment expenditures will tend to impact the capital stock, which consequently has two effects on the NAIRU. First, by assumption of a standard production function, it will affect the marginal product of labour [11]. As explained [1], [50], the NAIRU will always depend on capital stock unless the elasticity of substitution is exactly equal to unity, that is, unless if the function is Cobb Douglas. The second effect is that a change in capital stock will lead to a change in capacity utilization which will have an effect on the price setting power of firms. In the post-Keynesian NAIRU model proposed by [12] and [11], the NAIRU is determined by macroeconomic shocks, labour market Institutions and capital accumulation. This is given by:

$$U_N = u(MS; LMI; K) \tag{1}$$

where U_N, MS, LMI and K are the NAIRU. U_N stands for unemployment. *MS* represents a vector of macroeconomic shocks LMI stands for Labour Market Institutions and K represents capital accumulation. However, this study takes a step further. The standard post-Keynesian NAIRU model proposed by [12] is not a detailed and suitable model which can be used in the analysis of unemployment in developing economies. Developing economies face greater challenges which cause high and persistent unemployment rates other than macroeconomic shock, labour market institutions, and inadequate capital accumulation. This study explores three other critical factors which attributes to the high unemployment rates in developing economies. These include population growth, power (electricity) generation, and importation of goods and services.

According to the United Nations, the highest population growth occurs in developing economies, [51]. Their population grows rapidly greater than the stock of capital in the economies. The entire addition to the labour force cannot be absorbed in productive employment due to insufficient capital accumulation which will sustain the growing population and as a result leads to high unemployment, [52].

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Power generation is another major challenge to developing and emerging economies (especially Africa). The United Nation Industrial Development Organization (UNIDO) has stated that industries in developing economies are experiencing a setback in their operations due to shortage of electricity supply as witnessed by [23]. The problem of insufficient power supply discourages investors to invest in the economies because they will be left with thinking on how to source for an alternative means of power generation for their production activities which will cost them more. This challenge is holding back investments in emerging economies which is also considered as a factor that explain high unemployment rates in these regions because there is no conducive environment for job creation (see [53] and [54]). High importation of goods and services is another major critical factor affecting emerging economies. Most African economies are dependent on high level of importation to meet their domestic consumption while on the other hand this high importation of goods and services has a great impact on the domestic production in the economies. The importation will tend to discourage local producers from production since majority of the goods they produce are being imported and mostly preferred than theirs. This major factor leads to a high unemployment rate in the economies because it puts the domestic producer out of business and discourages other people investing in the sector (see [55]).

These critical challenges which attributes to high unemployment rates in developing nations were not included in the post-Keynesian model proposed by [12]. Therefore, the proposed study tends to modify the NAIRU model in a way that will make it a more realistic model that can accommodate unemployment variations in developing and emerging economies. The proposed NAIRU model base on this study takes the following form:

$$U_N = u(\Delta INF; MS; LMI; K; PG; EG; IM) \tag{2}$$

where U_N, MS, LMI, K, PG, EG and IM are the NAIRU. U_N stands for unemployment. MS represents a vector of macroeconomic shocks, LMI stands for Labour Market Institutions, K represents capital accumulation, PG and EG represent population growth and electricity generation respectively and IM represents importation of goods and services. The change in the inflation rate (ΔINF) is the measure of the deviation of actual unemployment rate from the NAIRU.

In reference to [17], the assumption that capital stock and unemployment are closely related is a current macroeconomic thinking. However, the issue is that monetary policies are usually concerned with the nominal side of the economy. The supply side policies are created to specifically address the real side of the economy. The supply side of the economy is taken to be based on unchanging supply side equilibrium, with the NAIRU assumed to summarize it. Generally, the NAIRU is usually estimated and presented as a single figure (implicitly unchanging). The supply side equilibrium can eventually change overtime but not in response to the demand side of the

economy. A change in labour market institutions and policies can be assumed to result to a change in the supply side equilibrium, and this change is assumed to occur independently from any variations in the activity level of the economy. If the capital stock is a potential determinant of the NAIRU, then there will be a factor which will continue to change the NAIRU (because net investment always causes the capital stock to change) and investment structure will be affected by the level of economic activity. Therefore, the variability of the NAIRU will be affected subsequently by the changes in aggregate demand.

A higher level of capital accumulation relative to output raises the productivity of labour, thereby mitigating inflationary pressure and allowing an economy to function and operate at a lower level of unemployment (see [56]). The whole concept of the NAIRU model is basically to encourage the idea that policies should focus on establishing a minimum level of unemployment in an economy in which the inflationary rate remains unchanged (see [57] and [58]).

V. THE MODEL FOR NAMIBIA, NIGERIA AND SOUTH AFRICA

In conducting the research, a secondary method of data collection is adopted and applied in a time series analysis. The data were sourced from the publications of the Bureau of National statistics of the Federal Republic of Nigeria (NBS), the Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank Statistical database. A sample period of 29 years will be examined in the study. That is, from the period of 1996 quarter 1 to 2011:4. In order to present a realistic result of this work, a multiple regression analysis will be employed to determine the effect capital accumulation has on unemployment in the chosen economies from 1996 to 2011. The regression equations to be estimated will take the form:

$$Unem_t = \beta_1 \Delta INFL_t + \beta_2 INT_t + \beta_3 ACCU_t + \beta_4 PG_t + \beta_5 EG_t + \beta_6 IM_t + \varepsilon_t \tag{3}$$

where; $Unem_t, INFL_t, INT_t, ACCU_t, PG_t, EG_t$ and IM_t stand for unemployment rate, inflation rate, interest rate, capital accumulation, population growth, electricity generation and importation of goods and services respectively. The change in inflation rate ($\Delta INFL_t$) is the measure of the deviation of actual unemployment rate from the NAIRU. Capital accumulation is the total accumulation of capital in the economy (Gross Capital Formation). ε_t represents the error term (white noise) and β_1,β_2,β_3,β_4,β_5 and β_6 are the parameter estimates. This equation is the reduced form of the NAIRU.

VI. ESTIMATION TECHNIQUES

A time series data is assumed to be generated by a stochastic process. Therefore, if the data was to be used without investigating its stationarity process, the results derived would yield a spurious result (see [59]). The aim of conducting a unit root test is to avoid spurious results. Before the estimation of our statistical model (2), it is very necessary to investigate the stochastic properties of the variables to be estimated. This is done by conducting a unit root test. From

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the generally known Wold's theorem, a single stationary time series variable with no deterministic components has an infinite moving average description that is approximated generally by a finite autoregressive moving average process. Therefore, economic series should be assumed to be differenced before stationary can hold (see [60]). The non-stationarity test, that is, a unit root test is dependent on the value of t-statistics on the coefficient of first lag of a variable. The null hypothesis of a unit root will be rejected (i.e. $\delta=0$) if the t-statics value appears to be higher than the critical value in the t-statistics table. If it is lower than the critical value, the null hypothesis will be accepted and the variable is said to be non-stationary (i.e. $\delta\neq0$) (see [61]). The analysis was conducted using the Augmented Dickey-Fuller (ADF) test. The equation of the ADF test to be estimated takes the form:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \alpha_2 Y_{t-1} + lags\ of\ \Delta Y_t + \varepsilon_t \qquad (4)$$

That is, the first difference of the variable Y_t is regressed against a constant, time trend (t=1, 2, 3, ...T), the first lag of the variable Y_t and lags of ΔY_t. Adequate lags of ΔY_t are introduced in the estimation of the model to ensure error term ε_t are not correlated. If the variable is stationary at this point then it is considered to have been integrated at order zero, that is, I(0) variable. But If Y_t is found to be non-stationary, that is, have a unit root, then $\llbracket\Delta Y\rrbracket\_t$ should be tested next for stationarity. This is done by estimating the model:

$$\Delta^2 Y_t = \alpha_0 + \alpha_1 t + \alpha_2 \Delta Y_{t-1} + lags\ of\ \Delta^2 Y_t + \varepsilon_t \qquad (5)$$

That is, regressing the first difference of ΔY_t against a constant, time trend (t=1, 2, 3, ….T), the first lag of ΔY_t and sufficient lags of $\Delta^2 Y_t$ to ensure that errors are not correlated. If the variable becomes stationary then it is integrated at order one. That is, I(1).This is repeated until the variable becomes stationary (see [61], [62]). The granger causality is also employed to find the relationship between variables. The test was developed by [63] which aimed at finding the causal relationship between two variables. An X variable can be said to granger cause a Y variable if the present Y can be predicted with much greater accuracy by using the past values of the X variable rather than not using the past values, with all other information being identical. There are basically two best known tests for causality which are; the granger test and the Sims test [61]. However, for the purpose of this research the Granger test will be adopted. Granger causality test is usually only relevant with time series data. For the basis of this study, the focus of this test is to ascertain whether shortage of capital accumulation causes unemployment or unemployment causes capital accumulation. That is, whether it is a one-way relationship or two-way relationship and also to determine the short run relationship between the former and the latter. In conducting the test the following models will be estimated:

$$Unem_t = \sum_{i=1}^{n} \alpha_i ACCU_{t-i} + \sum_{j=1}^{n} \beta_j Unem_{t-j} + \varepsilon_{1t} \qquad (7)$$

$$ACCU_t = \sum_{i=1}^{m} \lambda_i ACCU_{t-1} + \sum_{j=1}^{m} \delta_j Unem_{t-j} + \varepsilon_{2t} \qquad (8)$$

From the above, (6) states that current unemployment ($Unem_t$) is related to the past values of capital accumulation ($ACCU_{t-i}$) as well as itself ($Unem_{t-j}$). While (7) postulates that current capital accumulation ($ACCU_t$) is related to the past values of unemployment ($Unem_{t-j}$) as well as itself ($ACCU_{t-1}$) where ε_{1t} and ε_{2t} are assumed to be uncorrelated.

Prior to the estimation of the above models ((6) and (7)), the number of lags must be determined to assure the genuity of the models. In performing Granger causality test the number of lags to be used is very necessary. An optimal lag order (p) needs to be selected. There are ways of choosing the optimal lag operator which are; the Akaike Information Criterion (AIC) and the Schwarz Information Criterion (SIC). However, these criterions cannot be chosen both at the same time, only one can be used. In this research, the Akaike information Criterion (AIC) is adopted. This is done by the Vector autoregressive (VAR) lag selection criteria (see [64]). This procedure is necessary in order to ascertain the optimal number of lags to include which will equate the marginal benefit of introducing them to the marginal cost, because using fewer lags will lead to taking a risk of omitting potential significant information while using many lags can result in the estimation of more coefficients than required, therefore, causes estimation error (see [65]).

VII. Empirical Results

As a preliminary condition for time series analysis the test for stationarity, that is, unit root test is considered to be the first procedure in the estimation of the model. The test involves the univariate properties of variables adopted in (3). Variables in the model were tested for unit root using the ADF test statistic critical value of -3.60 for the sample size. For Namibia, the ADF test conducted on the variable reveals that unemployment, interest rate, capital accumulation, population growth and electricity generation are integrated at order 1,I(1) because they became stationary after being differenced once, which the null hypothesis for unit root was rejected ($\delta=0$). Inflation and imports of goods and services on the other hand are integrated at order $I(0)$ and $I(2)$ respectively. The ADF test conducted on the data for Nigeria reveals that unemployment, inflation, population growth and imports of goods and services are $I(0)$ variables, while interest rate, capital accumulation and electricity generation are $I(1)$ variables. Lastly, the South African data reveals that unemployment, inflation rate $I(0)$, interest rate and imports of goods and services are $I(1)$ and capital accumulation, electricity generation and population growth are $I(2)$ variables. After the conduct of ADF test on each of the variables, diagnostic test was carried out to check correlation of errors and the result shows that errors are white noise.

Table I presents the linear regression result for model (3) for the Namibian economy. The result indicates that the coefficient of inflation, interest rate, population growth, and imports are statistically significant at 4.44, 3.39, 4.26, and 3.77 percent respectively as indicated by their probability values of 0.0444, 0.0399, 0.0426, and 0.0377 respectively. A

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one percent increase in inflation rate, interest rate, population growth, and imports raises unemployment by 2.85, 13.45, 134.5 and 111.6 percent respectively. These findings on interest rate are fairly comparable to that of [12]. While the coefficient of capital accumulation and electricity generation are found to be statistically significant at 1 percent level as indicated by the probability values of 0.0300 and 0.0501 and also rightly signed negative as expected in model. This therefore implies that a one percent increase in the level of capital accumulation and electricity generation will reduce unemployment by 3.75 and 74.75 percent respectively. These results suggest that the unemployment rate in Namibia can be reduced by the increase in the level of capital accumulation and electricity generation in the economy. These results are consistent with the findings of [10] and [17].

TABLE I
LINEAR REGRESSION RESULT FOR NAMIBIA

Dependent Variable: UNEM
Method: Least Squares
Date: 10/30/15 Time: 14:34
Sample (adjusted): 1996 2011
Included observations: 16 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
_INF	2.851005	0.199268	14.30737	0.0444
INT	13.45152	0.717946	18.73611	0.0339
ACCU	-3.751479	0.123293	-4.909826	0.0300
PG	134.5294	9.009604	14.93178	0.0426
EG	-74.75024	6.957696	-10.74353	0.0501
IM	111.6751	6.621917	16.86447	0.0377
C	1871.186	161.4381	11.59074	0.0548
R-squared	0.998827	Mean dependent var		24.03750
Adjusted R-squared	0.991789	S.D. dependent var		6.379865
S.E. of regression	0.578115	Akaike info criterion		1.412469
Sum squared resid	0.334216	Schwarz criterion		1.481981
Log likelihood	1.350123	Hannan-Quinn criter.		0.943643
F-statistic	141.9163	Durbin-Watson stat		2.652214
Prob(F-statistic)	0.004167			

The F-statistics value of 141.9 which measures the joint significance of the independent variables is found to be statistically significant at 5 percent level as indicated by the probability value of 0.004167 in Table I. This implies that at least one of the variables (inflation, interest rate, capital accumulation, population growth, and electricity generation) is statistically significant. The R^2 value of 0.9988 (99%) implies that 99 percent variation in unemployment is accounted by the independent variables. The Durbin Watson statistics of 2.65 in the table is higher than R^2 value of 0.9988 which implies that the model is non-spurious (meaningful). The test for autocorrelation using Breusch-Godfrey LM test is performed. The result indicated a p-value of 0.3864 which suggests that the null hypothesis that the variables in the model are not correlated can be accepted. In testing also the validity of the estimation of the model, a homoscedasticity test was carried out on the residuals of the estimation and gave a probability value of 0.4851. This result suggests that the errors are homoscedastic. A normality test is conducted to investigate

the behavior of the errors employing the Kurtosis and Jarque Bera skewness test. Null hypothesis for the test is that the value of kurtosis (skewness) is zero, which means that errors are normally distributed. The result of the test gave a joint probability value of 0.5693 which indicates that the skewness value is zero and the null hypothesis is accepted. Therefore, the results suggest a normal distribution of errors.

TABLE II
LINEAR REGRESSION RESULT FOR NIGERIA

Dependent Variable: UNEM
Method: Least Squares
Date: 10/30/15 Time: 13:56
Sample (adjusted): 1996 2011
Included observations: 16 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.30643	25.23597	0.408403	0.6925
_INF	0.014098	0.010156	1.388144	0.1985
INT	0.037874	0.034882	1.085771	0.3058
ACCU	-13.07982	0.652854	-18.64526	0.0007
PG	6.697483	9.462120	2.707821	0.0040
EG	-31.41974	7.000264	-12.41863	0.0021
IM	3.051953	0.549606	4.148604	0.0004
R-squared	0.843315	Mean dependent var		2.378971
Adjusted R-squared	0.738859	S.D. dependent var		0.652157
S.E. of regression	0.333265	Akaike info criterion		0.939877
Sum squared resid	0.999588	Schwarz criterion		1.277884
Log likelihood	-0.519012	Hannan-Quinn criter.		0.957185
F-statistic	8.073377	Durbin-Watson stat		2.719167
Prob(F-statistic)	0.003244			

Table II depicts the result for model (3) for the Nigerian economy. The result indicates that the coefficient of inflation and interest rate are statistically insignificant at 19.85 percent and 30.58 percent respectively as indicated by their probability values of 0.1985 and 0.3058 respectively. Although inflation and Interest rate are statistically insignificant and signed positive suggest that one percent rise in the inflation and interest rates level raises unemployment by 0.014 and 0.03 percent. These findings are in line with that of [12]. The coefficients of population growth and imports are statistically significant and signed positive which suggests that a one percent rise in the level of the former and latter will increase unemployment by 6.69 and 3.05 percent respectively. Capital accumulation and electricity generation on the other hand are found to be statistically significant at 1 percent level as indicated by their probability values of 0.0007 and 0.0021, and also rightly signed negative as expected in model. These therefore imply that a one percent increase in the level of capital accumulation and electricity generation will reduce unemployment by 13.07 and 31.41 percent respectively. These results suggests that unemployment rate in Nigeria can be reduced by the increase in the level of capital accumulation and improvement in electricity generation in the economy. These results are consistent with the findings of [17]. The F-statistics value of 8.07 which measures the joint significance of the explanatory variables is found to be statistically significant at 5 percent level as indicated by the probability

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value of 0.0032 in the table. The R^2 value of 0.8433 (84%) implies that 84 percent variation in unemployment in Nigeria can be explained by the variation in the independent variables. The test for autocorrelation using Breusch-Godfrey LM test gave a p-value of 0.6604 which suggests that the variables in the model are not correlated. A homoscedasticity test was carried out on the residuals of the estimation and gave a probability value of 0.33489. This result suggests that the errors are homoscedastic. A normality test is conducted and the test gave a joint probability value of 0.5577 which indicates that the skewness value is zero.

TABLE III
LINEAR REGRESSION RESULT FOR SOUTH AFRICA

Dependent Variable: UNEM
Method: Least Squares
Date: 10/30/15   Time: 14:03
Sample (adjusted): 1996 2011
Included observations: 16 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-34.05361	17.91266	-1.901092	0.0897
_INF	-0.001815	0.004656	-0.389917	0.7057
INT	0.007200	0.009295	0.774538	0.4585
ACCU	-1.159964	0.334058	-3.472345	0.0070
PG	0.115396	0.119585	0.964973	0.3598
EG	-1.589837	0.718433	-2.212923	0.0042
IM	0.340650	0.184223	2.849120	0.0025

R-squared	0.726670	Mean dependent var		3.190745
Adjusted R-squared	0.544449	S.D. dependent var		0.074008
S.E. of regression	0.049951	Akaike info criterion		-2.855900
Sum squared resid	0.022456	Schwarz criterion		-2.517892
Log likelihood	29.84720	Hannan-Quinn criter.		-2.838591
F-statistic	3.987865	Durbin-Watson stat		1.804933
Prob(F-statistic)	0.031529			

Table III presents the linear regression result for model (3) for the South African economy. The results show that the coefficient of inflation, interest rate and population growth are statistically insignificant as indicated by their probability values of 0.7057, 0.4585 and 0.3598 respectively. Although inflation not statistically significant still shows that there is a form of a negative relationship existing between inflation and unemployment in South Africa. One percent increase in rate of inflation will result into a decrease in unemployment by 0.002 percent. The evidence provided by the result shows that the Phillips curve conjecture holds for South Africa. Interest rate and population growth also being statistically insignificant as well and signed positive suggest that one percent rise in the former and latter raises unemployment level by 0.007 and 0.115 percent respectively. The coefficient of imports shows that a percent increase in imports reduces unemployment by 0.34 percent, while the coefficients of capital accumulation and electricity generation are also found to be statistically significant at 1 percent level. A one percent increase in the former and latter will reduce unemployment by 1.16 and 1.59 percent respectively. The F-statistics value of 3.98 which measures the joint significance of the independent variables is found to be statistically significant at 5 percent level as

indicated by the probability value of 0.03 in the table. The R^2 value of 0.7266 (72%) implies that 72 percent variation in unemployment is accounted by the independent variables in the model. The test for autocorrelation indicated a p-value of 0.5525 which suggests the variables in the model are not correlated. A homoscedasticity test gave a probability value of 0.8569. A normality test is conducted and the result of the test gave a joint probability value of 0.5741 which indicates that the skewness value is zero. Therefore, the results suggest a normal distribution of errors.

The Granger causality test is conducted to determine if a causal as well as short run relationship exist between the variables, particularly, if the causality runs from the independent variables to unemployment or vice-versa. However, on the basis of the paper, the objective of the causality test is to determine the causal relationship between capital accumulation ($ACCU_t$) and unemployment ($Unem_t$) and investigate if there is a short-run relationship existing between them. In conducting the test the VAR lag selection criteria was estimated in which the Akaike Information Criterion (AIC) was used to determine the optimal number of lags to be used in running the causality test. The test result revealed an optimal number of four lags for both Namibia and Nigeria and five lags for South Africa which have the lowest AIC value. The results of the causality tests are shown in Tables IV-VI.

TABLE IV
GRANGER CAUSALITY TEST RESULT FOR NAMIBIA

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 11/05/15   Time: 17:12
Sample: 1995 2011
Included observations: 13

Dependent variable: UNEM			
Excluded	Chi-sq	df	Prob.
ACCU	12.16027	4	0.0023
All	12.16027	4	0.0023

Dependent variable: ACCU			
Excluded	Chi-sq	df	Prob.
UNEM	0.969837	4	0.9143
All	0.969837	4	0.9143

From the result above presented in Table IV, the null hypothesis that capital accumulation does not granger cause unemployment at 5% significance level can be rejected as indicated by a probability value of 0.0023 and confirmed by the Chi-sq statistics value of 12.16027 but accept the null hypothesis that unemployment does not granger cause capital accumulation as indicated by probability value of 0.9143 and confirmed by the Chi-sq statistics value of 0.969837. These results however are consistent to the findings of [65]. Therefore, the result indicates one-way causation relationship flowing from capital accumulation to unemployment. That is, a unidirectional causality relationship. The results also suggest that there is a short run relationship between the former and the latter.

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TABLE V
GRANGER CAUSALITY TEST RESULT FOR NIGERIA

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 10/30/15 Time: 14:14
Sample: 1995 2011
Included observations: 13

Dependent variable: UNEM			
Excluded	Chi-sq	df	Prob.
ACCU	16.36750	4	0.0026
All	16.36750	4	0.0026
Dependent variable: ACCU			
Excluded	Chi-sq	df	Prob.
UNEM	5.134325	4	0.2738
All	5.134325	4	0.2738

From Table V, the null hypothesis that capital accumulation does not granger cause unemployment at 5% significance level can be rejected as indicated by a probability value of 0.0026 and confirmed by the Chi-sq statistics value of 16.36750 but accept the null hypothesis that unemployment does not granger cause capital accumulation as indicated by probability value of 0.2738 and confirmed by the Chi-sq statistics value of 5.134325. The result indicates one-way causation relationship flowing from capital accumulation to unemployment and a short run relationship between the former and the latter.

Table VI shows the granger causality test conducted on the South African economy, the null hypothesis that capital accumulation does not granger cause unemployment at 5% significance level can be rejected as indicated by a probability value of 0.0000 and confirmed by the Chi-sq statistics value of 1260.972 but accept the null hypothesis that unemployment does not granger cause capital accumulation as indicated by probability value of 9.648332 and confirmed by the Chi-sq statistics value of 9.648332. The result indicates one-way causation relationship flowing from capital accumulation to unemployment which is also a unidirectional causality relationship. The result of the test also confirms that there is a short run relationship between the former and the latter.

TABLE VI
GRANGER CAUSALITY TEST RESULT FOR SOUTH AFRICA

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 10/30/15 Time: 14:09
Sample: 1995 2011
Included observations: 12

Dependent variable: UNEM			
Excluded	Chi-sq	df	Prob.
ACCU	1260.972	5	0.0000
All	1260.972	5	0.0000
Dependent variable: ACCU			
Excluded	Chi-sq	df	Prob.
UNEM	9.648332	5	0.0858
All	9.648332	5	0.0858

VIII. SUMMARY, POLICY IMPLICATION, CONCLUSION, AND RECOMMENDATIONS

The factor behind the conduct of the paper was to investigate the proposition of the post-Keynesian economists that capital accumulation has an important role to play in determining unemployment in economies. The study examined the factors responsible for unemployment in Namibia, Nigeria and South Africa. The investigations and analysis are conducted through a vast review of related literature and theoretical models.

The paper presented empirical evidences acquired from the estimation of the statistical model of unemployment which includes change in inflation, interest rate, capital accumulation, population growth, electricity generation, and imports of goods and services as the independent variables on the time series data of the chosen economies from the period of 1995 to 2011. The empirical results of the estimations show that capital accumulation and electricity generation are statistically significant and there is a negative relationship between capital accumulation and electricity generation and unemployment in all the economies. One percent increase in the level of capital accumulation will reduce the unemployment rates of Namibia, Nigeria, and South Africa by 3.75, 13.07, and 1.59 percent respectively. And a one percent increase in electricity generation will reduce unemployment by 74.75, 31.42 and 1.58 percent respectively. Investment both in physical capital and electricity production must me ensured in other to create jobs for the unemployed in the countries (in line with findings of [17]. The results show for Namibia a positive relationship between unemployment and inflation, interest rates, population growth and imports. This means that a rise in these variables will increase in unemployment rate of the Namibian economy. In Nigeria, the findings also suggest a positive relationship between unemployment and inflation, interest rates, population growth and import, but the coefficients interest and inflation rates are statistically insignificant. The South African economy show a negative relationship between inflation and unemployment which shows that the Philips curve hypothesis holds for South Africa. This shows that that unemployment can also be reduced in the economy by stipulating spending which is responsible for high inflation rate (in line with [10]). Interest rate, population growth and imports on the other hand has a positive relationship with unemployment as revealed by the data. An increase in these variables will raise the unemployment level of the economy (in line with [12]) although interest rates and population growth are statistically insignificant. The study also estimated the Granger causality test also called Block Exogeneity Wald test to investigate the interactions between capital accumulation and unemployment in the economies. The findings of the tests suggest a one-way causation relationship between the former and the latter in all economies. This means that the former tends to lead to the latter but the latter doesn't lead to the former. Although a two-way relationship is not expected because accumulation of capital in an economy with a high unemployment rate is not expected to cause unemployment, but rather the accumulation

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of capital should be able to reduce the unemployment situation of the economy. These therefore suggest that the shortage of capital in the chosen economies is the main driving force of the unemployment level in the countries. The insufficiency of accumulation of capital in Namibia, Nigeria, and South Africa causes a high and persistent unemployment level in the economies. The granger causality tests also show that capital accumulation is a major determinant of unemployment in the short term in the economies as revealed by the results which are in line with the arguments of the post-Keynesian economics [12]. These results are in line with results of [66]. The analysis and empirical findings however suggests that one of the potential and important factors causing the persistent and high unemployment in Namibia, Nigeria and South Africa are the insufficient accumulation of capital and inadequate aggregate demand in the economy.

The policy implication of the findings of the paper is that capital accumulation should be stimulated by the governments of the economies. The study assigns Fiscal policy a major role in tackling the high unemployment rate in the economy. Economic policies that will promote a faster rate of accumulation of capital should be a priority of any policy collection which aimed at reducing the unemployment rate of the economies. Policies should be set to ensure investments are made attractive to both the private and public sectors of the economies. Aggregate demand is widely regarded as the prime determinant of investment, therefore economic policies should be focused on the role of stimulating aggregate demand and also recognize that monetary policy is not seen as neutral with respect to unemployment in the long run. The negative policy implication is that monetary policy should aim at reducing the interest rate in the economy to attract investments to the citizens which will provide jobs for the unemployed.

The paper has established the relationship between capital accumulation and unemployment by application of adequate statistical measures. The study has met the objectives which it was based upon in investigating the role of capital accumulation in reducing unemployment in Namibia, Nigeria and South Africa. The results of the findings are line with the research hypothesis of the study that insufficient capital accumulation is responsible for the high unemployment rate in the economies. The paper has also established that the argument of the post-Keynesian economists is true for the chosen economies as revealed by the statistical measures explored. Based on the analysis and findings of this research the following policy recommendations are made.

First, the Namibian, Nigerian and South African governments need to improve the manufacturing sector of their economies by providing sufficient energy generation. The countries have to increase their level of power generation to maximum capacity which will sustain all the industries in the economy and to attract others to invest in the sector without having fear of where to source for electricity. This energy generation is the major obstacle affecting the manufacturing sector of many emerging economies. The increase in electricity output will increase the industrial capacity of the countries which will in turn increase productivity that will be supported by a high demand for manpower. More companies and individuals will be attracted to invest into the sector and by them investing there will be a very large amount of job creation in the economies.

Secondly, Nigeria needs to set up more refineries that will work to full capacity and also ensure that those dilapidated refineries in the country that are working below capacity have been put to place. If the government invest heavily in refineries and ensure the epileptic ones are fixed and equipped with modernize technology and new ones are set up, it would generate employment for millions of unemployed citizens, it will also enhance the generation of power in the nation as well as boost the economy of Nigeria. The country will also be able to meet up with local consumption and devoid from importing what it produces.

Lastly, the governments of the economies with arable land should boost their agricultural production to generate employment for its citizens. The governments have to invest heavily in the sector by providing modern agricultural technology that will make agriculture less cumbersome for the citizens. It has to create multi agribusiness centres across the nation and establish farm settlements in which labour will be employed and used in the production of different commodities. Agricultural machineries should be procured and at disposal for young school leaver as well as graduates so that they can take part in the agricultural sector as a profitable venture to improve the unemployment profile of the countries. The improvement in the sector should also include the governments making land available for both private and public organisations to set up agricultural industries. If the agricultural sector is well funded and embraced in the countries, this can lead to a diversification of the economy from economies. And this will however help in solving the problem of unemployment in the economies.

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