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UNEMPLOYMENT AND ECONOMIC GROWTH IN NIGERIA: An Empirical Re-Examination

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Abstract

One of the foremost causes of poverty in Nigeria, as elsewhere in the continent, is the shortage of opportunities for gainful employment. Unemployment poses a great challenge to many countries (both industrialised and developing). During the first two decades of independence (1960s and 1970s), Nigeria exhibited unemployment rate similar to or better some of the industrialized economies; but since the 1980s, the country has been registering increased unemployment rate, which has endured. This insalubrious situation evolved after the oil boom of the 1970s and remained so to date. This paper investigates the relationship between unemployment and economic growth in Nigeria through the implementation of the Okun's law using the data from 1980 to 2013. The results indicate that the Okun's law cannot be confirmed for Nigeria as the Okun's co-efficient though properly signed was not significant at conventional level. As a result, economic policies allied to demand management might not have the desired outcome of reducing unemployment in the country. Thus, implementation of economic policies leaning towards structural change and reforms in the labour market would be more appropriate to reduce unemployment in Nigeria.

JEL Classification: C2, E1, E2, O4, O5
Keywords: Unemployment Rate, Economic Growth, Okun's law, Economic Policies, Nigeria

INTRODUCTION

One of the leading causes of poverty is the shortage of opportunities for gainful employment. Unemployment with its economic and social implications is one of the most pressing problem facing the Nigerian economy today: high rate of unemployment signals a deficiency in the labour market, deepens poverty incidence and perpetuates indecent standards of living (World Bank, 1994). Unemployment has been categorized as one of the staid impediments to social progress. Apart from representing a colossal waste of a country's manpower resources, it generates welfare loss in terms of lower output thereby leading to lower income and well-being (Akinboyo, 1987; and Raheem, 1993).

During the first two decades of independence (1960s and 1970s), Nigeria's unemployment rate were comparable to or in some years better than that of some industrialized economies. However, beginning 1980s, the country began recording increases in unemployment, which has subsisted to date. This insalubrious situation evolved after the oil boom of the 1970s and remained so till today. Prior to the oil boom, the Nigerian economy was largely agrarian and over 70.0 per cent of the working population were engaged in agricultural activities in the rural areas. Wage rates were comparable to international standards; indeed an average Nigerian worker could afford a decent living.

In the 1960s, the employment policies focused on shifting labour from the agricultural sector to the manufacturing sector. However, the intrusion of the military and the subsequent alteration of the Nigerian constitution including the introduction of the land tenure system, whittled down the deployment of advance technology in the agricultural sector. Moreover, at that time economic policies concentrated more on the development of the manufacturing sector, under the "import-substitution strategy", the immediate outcome of this was that labour moved from the agricultural sector to the services sector, with little productivity gains. Thus, both the agriculture and manufacturing sectors lost out, and remained underdeveloped.

The oil boom in Nigeria initiated the rural-urban drift of the population, depleting the rural population and adversely affecting agricultural output. Expanded revenue profile of government created the illusion that job creation was a primary function of the public sector as the civil service became distended; jobs were created without actual value being added to the government services. In addition, series of wage reviews, including the Morgan Commission of 1963,

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Udoji Commission of 1975, ostensibly to reconcile the public and private sector wage structures or carry out internal realignment compounded the developments in the labour market (Onwioduokit, 1994).

However, as oil fortunes dwindled, the reality of unsustainable and over bloated public sector and a private sector that lacked capacity to absorb all the new entrants into the labour market became real. The deficiency in the private sector's ability to perform creditably in terms of employment generation was partly attributed to government policies that crowded out the sector from the loans market. It was not until the late 1990s that the need for public-private partnership became popular and some attention began to be paid to self-employment. The rapid depreciation of the domestic currency, the naira and the concomitant inflationary pressures decreased the value of real incomes, thereby creating a vicious cycle of unemployment and poverty (Onwioduokit, 1998).

The economic realities of the oil doom dictated a change in policy focus of government towards simultaneous improvement in all the sectors. However, dwindling government revenue made the objective of economic diversification tricky. To date, the country is still struggling to synchronize agricultural and manufacturing sector in order to create the required backward and forward linkages. Thus, in Nigeria and since the early 1980s, unemployment has assumed alarming and disturbing dimensions with millions of able-bodied persons who are willing to accept jobs at the prevailing rates unable to find placements (Onah, 2001).

In the first five years of the 1980s for instance, Nigeria had a composite unemployment rate that was consistently over 5.0 per cent with the exception of 1982 when 4.3 per cent unemployment rate was recorded. However, while the urban unemployment rates increased from 7.9 per cent in 1984 to 9.8 per cent in 1985 the rural unemployment increased from 4.4 to 5.2 per cent during the same period. The composite registered unemployment rate in the second half of 1980s increased from 5.3 per cent in 1986 to 7.0 per cent in 1987 and thereafter declined gradually to 4.5 per cent in 1989. In the decades of 1990s, the official unemployment figures were generally below 3.5 per cent, with the highest rate of 3.5 per cent registered in 1990 and the lowest rate of 1.8 per cent recorded in 1995 (Balogun et al, 2003).

In 2000s, the composite unemployment rate increased to 18.1 per cent while the urban and rural unemployment rates were 14.2 per cent and 19.8 per cent, respectively. The rate declined gradually to 12.2 per cent in 2002, nudged to 14.8 per cent in 2003 before decelerating to 11.8 per cent in 2004. However, the rate increased gradually from 11.9 per cent in 2005 to 26.0 per cent in 2013. The performance of both the urban and rural rate maintained a similar trend during the period (National Bureau of Statistics, 2013).

On the theoretical front, the growth rate of GDP is assumed to be positively related to employment generation and inversely related to unemployment. This conventional view derives essentially from the Okun's law. This relation has been confirmed in several studies and mostly in the industrialised countries including Daniels and Ejara (2009). This in part explains the strong emphases on real GDP growth by policy makers globally. However, despite the social and economic consequences related with high unemployment rates, some additional issues remain unresolved.

This study aims to test Okun's law for the Nigerian economy during the period 1980-2013. The result is expected to motivate Nigerian policy-makers to adopt strategies that will rescue the economy from the perennial problem of unemployment. The rest of the paper is organized thus: following this introduction, Part II, discusses causes and trend of unemployment in Nigeria. Part III dwells on theoretical and conceptual issues, including a brief review of empirical literature, while Part IV contains model specification and empirical results. Part V concludes the paper with some policy implications.

II CAUSES AND TRENDS OF UNEMPLOYMENT

In general, unemployment arises whenever the supply of labour exceeds the demand for labour at the prevailing wage rate. Causes of unemployment can therefore be analysed from both the supply and the demand sides of the labour market. On the supply side, there is the rapidly growing urban labour force arising from rural-urban migration. Adebayo (1999) opined that rural-urban migration is usually explained in terms of push-pull factors. The push factors include the pressure resulting from man-land ratio in the rural areas, and the existence of serious underemployment arising from seasonal cycle of climate. These factors are further strengthened in Nigeria by the lack of infrastructural facilities, which makes rural life unappealing. The pull factors include a wide rural-urban income differential in favour of urban dwellers and a presumed higher probability of securing lucrative employment in the cities. Added to these are, the concentration of social amenities in the urban centres. This implies that the rural areas are for most of the period neglected in the allocation of social and economic opportunities.

Another supply-side factor facing Nigeria is rapid population growth. Based on the 2006 population census, future projections indicate that the country's population could reach 175 million by the year 2015 given the annual growth rate of 2.8 per cent. It is argued that the high population growth rate has resulted in rapid growth of the labour force which far outstripped the supply of jobs.

Todaro (1992) identified continuous transfer of economic activities from rural to urban areas as one of the keys causes of unemployment. There are several factors that account for this outlook, the first is demographic. Not only is the aggregate population increasing at a faster rate, but also the proportion of the youths (ages 15-24) in total population is growing, a phenomenon uncommon in the rest of the world (African Employment Report, 2010).

A second factor pertains to the enormous expansion in school enrolment, ensuing increase in the number of school leavers seeking jobs. In times when the employment situation is bleak, new school leavers, on account of their inexperience, are the first to suffer. Other factors are policy induced, and they are relevant to the extent that policies affect the pattern of whatever development that takes place and its capacity to generate jobs. Thus, policies with respect to land tenure, taxation, wages, education, technology and a host of others have important bearing as it can either promote or hamper employment generation.

Hollister and Goldstein (1994) noted that the effect of the accelerated growth of population on Nigeria's unemployment problem is multifaceted: it affects the supply side through a high and rapid increase in labour force relative to the absorptive capacity of the economy. Secondly, the increase in the number of children in the population presently implies a serious burden as a result of high dependency ratio.

Other supply-side factors include what has been termed inappropriate school curricula and lack of employable skills. Several analysts, including (McGrath and King, 1995) have argued that in so far as the formal sector is concerned, the skills that job seekers possess do not match the needs and demands of employers in Nigeria. It is contended that Nigeria's education system, which is largely liberal arts bias, does not just over supply the labour market with graduates and school leavers, but also fails to equip the graduates with the type of skills demanded in formal employment.

Manning and Junankar (1998) averred that the substantial growth of higher education has been accompanied by increasing difficulties in finding suitable employment by graduates in a variety of courses. This shows that there are imbalances between the supply and demand for these different categories of highly educated manpower. Thus, the rapid expansion of Nigeria's educational system first acts directly to increase the supply of educated manpower above the corresponding demand and consequently compounded the problem of urban youth unemployment in Nigeria.

Oni (1994) noted that high unemployment incidence of secondary school-leavers is a reflection of improper co-ordination of the educational system. Lambo(1987), identified the government expenditure policy whereby most of government projects (industries and public utilities) were concentrated in urban areas with the utter neglect of the rural areas because of its tendency to encourage mass exodus of rural skilled and unskilled labour from villages into the urban centres, thus causing urban unemployment.

As indicated earlier, the incidence of unemployment in Nigeria has been cavernous, cutting across all facets of age groups, educational strata and geographical entities. One peculiar feature of the unemployment in Nigeria is that it was more endemic in the early 1980s. The unemployment rate rose from 4.3 per cent in 1976 to 6.4 per cent in 1980. Though it recorded some marginal decline between 1981 and 1986, the rate was relatively higher than what obtained in the natural unemployment rate of 3.0 per cent (Onwioduokit, 1998).

The unemployment rate declined progressively from 7.0 per cent in 1987 to 1.8 per cent in 1995 and thereafter increased gradually to 3.4 per cent in 1996. The rate remained unchanged at 3.2 per cent in 1997 and 1998, but fell to 3.0 in 1999. Beginning 2000, the unemployment rate in Nigeria registered double digits; however, the rate declined from 18.1 per cent in 2000 to 12.2 per cent in 2002, increased to 14.8 per cent in the succeeding year before declining by 3.0 percentage points to 11.8 per cent in 2004. In 2005, a rate of 11.9 per cent was recorded and thereafter rose progressively to 26.0 per cent in 2013.

The high unemployment rates in the 1980s were as a result of the lull in the economy during the period. The economic down-turn did not only discourage new investments but also forced government to implement stabilization measures including restrictions on importation. Given the high import-dependency of most manufacturing enterprises, the import restriction forced many companies to operate below installed capacity, causing most of the organisations to close down or retrench a significant proportion of their workforce. For

instance, the survey of manufacturing companies undertaken by the Manufacturers Association of Nigeria (MAN) showed that 61.0 per cent of the companies surveyed were shut down for different periods of not less than three months while between 62.0 and 63.9 per cent disengaged over 100 workers (CBN, 2003). This development made job placement for fresh school leavers extremely difficult. In addition, the government also placed embargo on employment from September 1981, though relaxed at some periods (e.g. November 1982). This was implemented pari-passu with the public sector retrenchment.

Again, the Structural Adjustment Programme (SAP), adopted in 1986, had serious implications for the short run unemployment problem. Contrary to the expectations of SAP, which was geared towards encouraging greater employment opportunities in the private sector (especially among the small-medium enterprises), the unemployment rate rose from 5.3 percent in 1986 to 7.0 percent in 1987. This was partly attributable to the organizational down-sizing, re-engineering and rationalization policies which accompanied the SAP, especially in the private sector. This was further exacerbated by the continuance of staff retrenchment and placement of embargo on employment in the public sector.

Besides, the new policy orientation brought about some structural changes within the Nigerian labour market. Sectors such as the oil, banking and the external sectors became the blue chips as against the public and industrial sectors which were the foremost of the labour market prior to the adoption of SAP in 1986. Consequently, this development created some structural and frictional unemployment problems in the country. The emergence of the structural and frictional unemployment coupled with the lack of job placement for fresh graduates, compounded the unemployment situation in the country. As observed by Umo (1996), an annual average of about 0.15 million fresh graduates enter the Nigerian labour market, with only about 10.0 per cent of that number getting employment. This demonstrated the severity of the problem.

It is evident from Figure 1 that unemployment rate had been consistently higher than the GDP growth rate between the period 1980 and 2013, moreover, the gap between unemployment rate and GDP growth rate widened significantly between 1996 and 2013. It is germane to note that unemployment statistics in Nigeria has been very contentious as some independent estimates have reported higher figures in all the years.

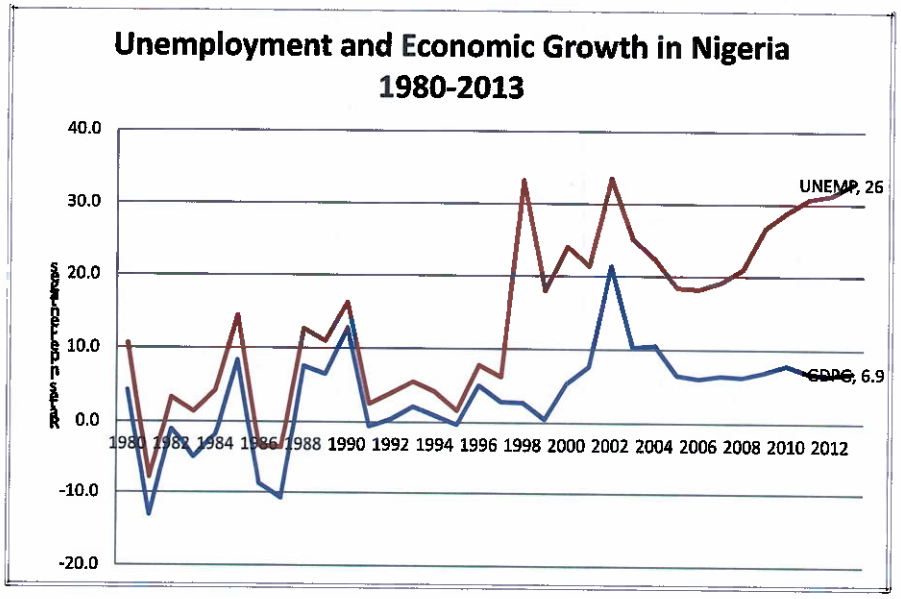
The observed downward trend in the unemployment rate in the 1990s may be attributed partly to the intensification of the implementation of the Agricultural Development Programmes (ADPs) and the Accelerated Development Area Programmes (ADAPs). The latter was transformed into the Directorate of Food, Roads and Rural Infrastructure (DFRRI). The activities of the National Directorate of Employment (initiated in 1986), the Peoples Bank, Better Life for Rural Women Programme, among others, may have also accounted for the decline. The intensification and expansion of the informal sector activities could also be an important factor during this period. In addition to the consistent observation of the CBN's annual reports on this issue, other evidence also indicates that the informal private sector expanded in scope of activities and in pattern of employment, with more graduates participating in the sector.

The average annual rate of unemployment was higher in the urban areas than in the rural areas between 1980 and 2013. The average rate for urban unemployment for the period was 6.4 per cent compared to the rate of 6.1 per cent for rural unemployment. The influx of rural dwellers into the urban centres in search of better employment opportunities also accounted for the observed pattern. However, beginning from 2000, there was a shift in this general trend as the average rate of urban unemployment between 2000 and 2004 was 12.4 per cent, 2.4 percentage points lower than the rate of rural unemployment during the same period. Perhaps the expansion in rural infrastructure during the period which may have reduced the rate of rural-urban migration could explain the observed trend in parts. However, beginning 2005 the urban unemployment rate has consistently been higher than the rural rate.

The dynamics of the linkage between educational status and the unemployment rate in Nigeria is of crucial importance. In the 1970s, the people most seriously affected by unemployment were those with no schooling or those with primary education. According to Central Bank of Nigeria (2004), "no schooling" category accounted for 65.4 percent of the unemployed in 1976, while the primary school leavers in the same period accounted for 26.5 percent. The incidence of unemployment on these categories of people declined very significantly in the 1980s and early 1990s. The average unemployment rate for the no schooling category stood at 17.5 per cent between the period 1990 and 1999, compared to 14.4 per cent with primary school certificate during the same period.

Secondary school graduates accounted on the average for

FIGURE 1: Nigeria's Unemployment Rates (1980-2013)



57.5 per cent in the corresponding period, while graduates of tertiary institutions accounted for 10.6 per cent. However, in the first decade of the 21st century, (2000-2010), the structure of unemployment in Nigeria indicated that those with no schooling constituted on the average 11.5 per cent of the unemployed, while primary school leavers constituted in the same period 17.4 per cent. With respect to the secondary school graduates the comparable figure was 43.3 per cent.

On the other hand, tertiary institutions' graduates constituted 13.2 per cent. The emerging picture of the above analysis is intriguing. There is a clear reduction in the unemployment rate over the structured two periods, in the no schooling category from an average of 17.5 per cent in the decades of the 1990s to 11.5 per cent in the first decade of this century. The similar trend is observed for those with secondary education plummeting from 57.5 per cent in the 1990s to 43.7 per cent in the period (2000-2010). However, those with primary education as well as those with tertiary education indicate a worsening trend as their comparable figure deteriorated from 14.4 per to 17.4 per cent for primary school leavers, and from 10.6 per cent to 13.2 per cent for tertiary institutions' graduates over the two periods. Thus, the severity of this problem varies according to educational attainments.

The evidence from the educational classification is further reinforced by CBN (1997) that asserted that about 80.0 per cent of the registered unemployed belong to the lower level workers. The number of this category of people registered with the Ministry of Employment, Labour and Productivity rose from 11,732 in 1970 to 23,239 in 1975 and 256,623 in 1980. In contrast, the number of registered unemployed professionals which dropped from 518 in 1970, to a mere 135 in 1978, rose markedly to 2,514 in 1984, and 16,293, 22,206 and 32,942 in 1988, 1992 and 1995, respectively. This represents 1.8, 12.3, 19.7 and 28.7 percent of the total registered unemployed people as opposed to an annual average of 1.7 percent between 1970 and 1978.

The demographics of unemployment reported by Central Bank of Nigeria (2004)

Indicated that unemployment rate had been unevenly distributed across the age groups with young people bearing the burden of unemployment. The unemployed persons are mostly youths aged 15- 24 years. The proportion of this category of unemployed fluctuated between 71.1 and 41.9 per cent during 1980- 2003 periods. It recorded an annual average of 59.4 per cent during the period. This outcome revalidates the dominance of secondary school leavers among the unemployed since most of them fall into this age group.

Another prominent age group is 25 -44. It is worrisome to observe that while the percentages of other groups unemployed have been declining consistently over time, those of this group have been on the upward trend except for the brief period 1985-1995. This perhaps portends the widening gap between the output produced by the tertiary institutions and the skill requirements of the labour market. The rising trend of graduate unemployment, as observed by many analysts, may have contributed very significantly to the rising wave and sophistication of crime in the country (Albert, 2000).

An inverted U-shaped trend is observed for the age group 45 - 59, with 1995 recording the peak of 13.8 per cent. The current wave of self-employed activities may have partly accounted for this observation. The inclusion of age group 60 - 64 in the current labour force statistical survey is advancement on the previous exercises. The inclusion of this set of people will reduce to some extent, the wide gap between the published unemployment rate and the actual one. The exclusion of this group in the past led to serious underestimation of unemployment. However and as showed the unemployment rate for this group is very insignificant (Onwioduokit, 1998).

Long term unemployment has become a chronic problem in Nigeria. For instance, Oladeji (1994) observed that 75.5 and 13.61 per cent of those sampled in the Graduate Employment Tracer Study of the Manpower Board in 1986 has been unemployed for 13 - 34 and 25 - 30 months respectively. Only 10.8 per cent were unemployed for the duration of 1 - 12 months. This type of unemployment has been linked to job transition patterns. This approach emphasizes hiring people from the public sector by the private sector, or between firms than from the unemployed people. It thereby makes the pool of the unemployed to be increasingly homogenous.

The risk attached to long- term unemployment has been well acknowledged in the literature (see Alhson and Ringold, 1996). The longer an individual is unemployed, the more difficult it is to find work. It is therefore important to put up active labour market programmes for this category of people.

The incidence of underemployment or disguised unemployment has been acknowledged in the literature as a serious constraint to economic progress. Underemployment is a reflection of the extent to which some human resources are rendered potentially idle. This problem has contributed significantly to the widening gap between the reported and actual unemployment in Nigeria. Underemployment has been particularly high in the country in the last three decades.

III THEORETICAL AND EMPIRICAL REVIEW

III.1 Theoretical and Conceptual Issues

The theoretical foundation of unemployment is verse and encompasses the entire spectrum of the classical and neo-classical, as well as the neo-Keynesian and new classical schools in addition to the theories of endogenous growth. The various schools on development paradigms are also applicable. Various forms of unemployment identified in the theory include: demand-deficient or cyclical unemployment; seasonal unemployment; frictional or search unemployment and structural unemployment.

Demand-deficient unemployment occurs when there is insufficient demand to necessitate the employment of all those who want to work. It is the type that Keynesians focus on, particularly as they believe it happens when there is disequilibrium in the economy. It is also known as cyclical unemployment because it will vary with the trade cycle. When the economy is booming, there will be lots of demand and so firms will be employing large numbers of workers. Demand-deficient unemployment will at this stage of the cycle be fairly low. If the economy slows down, then demand will begin to fall. When this happens firms begin to lay workers off as they do not need to produce so much. Thus, demand deficient unemployment arises.

The behaviour of demand-deficient unemployment will accurately mirror the trade cycle. Seasonal unemployment occurs when the demand for a particular labour skill is limited only to a certain period of the year. For instance some goods are only in high demand during a short period of the year, necessitating the expansion in output and thus high employment, while the reverse is the case for the rest of the year, thereby creating seasonal unemployment. Most seasonal unemployment is less severe and tends to occur in certain industries. The effects of seasonal unemployment are often highly regionalized. Frictional or search unemployment occurs when individuals lose their or choose to leave their job in search of another one. On the average, it will take a reasonable period of time before another job is secured. The time lag between the previous job and securing a new job explain this particular unemployment. The more efficiently the job market matches people and jobs, the lower this form of unemployment.

However, if there is imperfect information and people don't get to hear of jobs availability that may suit them, then frictional unemployment will endure. Structural unemployment occurs when the structure of industry changes. As an economy develops over time the type of industries may well change. This may be because peoples' tastes have changed or it may be because technology has moved on and the product or service is no longer in demand.

The extent of structural unemployment will depend on various factors, including mobility of labour. If people are able to quickly switch jobs from a declining industry to a rapidly growing one, then there will be less structural unemployment; the pace of change in the economy –the faster the changes taking place in peoples' tastes, demand and supply, the more structural unemployment there may be since industry has to adapt more quickly to change and the regional structure;-if industries that are dying are heavily concentrated in one area, then this may make it more difficult for people to find new jobs.

Lambo (1987) opined that in Nigeria, unemployment could be broadly divided into two main groups: Open unemployment and Underemployment or disguised unemployment. The author noted that open unemployment is mainly associated with the urban areas of the country, while disguised unemployment applies to the rural agricultural zone.

Todaro (1992) described open unemployment to include people who are able and eager to work but for whom no suitable jobs are available, whereas underemployment or disguised unemployment is mainly for people who are normally working full time but whose productivity is so low that a reduction in hours would have a negligible impact on total output. The rate of unemployment is significantly higher in urban areas than rural areas. This is because rural areas usually have more self-employed workers whether in family farms or non-agricultural enterprises. This situation of rural areas is known as disguised unemployment (Heckman et al, 1987).

Conceptually, people are classified as employed if they did any work at all as paid employees during the reference period; worked in their own business, profession, or on their own farm. People are also counted as employed if they were temporarily absent from their jobs because of illness, bad weather, vacation, labour-management disputes or personal reasons. People are classified as unemployed if they meet all of the following criteria: they had no employment during the reference period; they were available for work at that time and they made specific efforts to find employment sometime during the period. Persons lay off from a job and expecting recall need not be looking for work to be counted as unemployed.

The civilian labour force is the sum of employed and unemployed persons. Those not classified as employed or unemployed are not in the labour force. The unemployment rate is the number unemployed as a percent of the labour force. The labour force participation rate is the labour force as a percent of the population, and the employment-population ratio is the employed as a percent of the population. The International Labour Organization (ILO) defines the unemployed as numbers of the economically active population who are without work but available for and seeking work, including people who have lost their jobs and those who have voluntarily left work (World Bank, 1998).

In sum, the definition of unemployment covers people who are: out of work, want a job, have actively sought work in the previous four weeks and are available to start work within the next fortnight; or out of work and have accepted a job that they are waiting to start in the next fortnight.

Although there seems to be convergence on this concept, its applications have been bedevilled with series of problems across countries. First, most published unemployment rates are recorded open unemployment. People's attitude on this varies from country to country. While this may be high in developed countries, it is likely to be very low in the developing countries, including Nigeria.

Okigbo (1986) pointed out the problem arising from the concept of labour force. In most countries, particularly in Nigeria, people below the age of 15 years and those above the age of 55, who are actively engaged in economic activities are usually excluded from labour statistical surveys. All these factors have the tendency to result in underestimation of unemployment thereby making international comparison very difficult. Factors including the preponderance of full housewives (but who are willing to be engaged in paid job) and unpaid family workers also contribute significantly to the underestimation of unemployment.

Although there seems to be a consensus on the definition of unemployment, the problem of defining unemployment has received attention in the literature. Dantwala (1971) defined unemployment as a state in which people who can work are without jobs and are seeking for pay or profit. This definition gives rise to the problem of measurement, especially when we are interested in knowing the average rate of unemployment in the economy over a period of time. Falae (1971) considered such a definition too broad because some categories of people who are without work should not really be regarded as unemployed in any meaningful sense. He therefore pointed to the labour code prescription of lower and upper limits for the labour force in Nigeria and submitted that anyone who is unable to work is not counted as unemployed, even though he or she would like to work.

Englama (2001) defined the unemployment rate in an economy as the number of people unemployed expressed as a percentage of the total labour force. The total labour force is defined as the number of people employed plus the number of people unemployed within the age bracket of 15-60 years. Unemployment exists when members of the labour force wish to work but cannot get jobs (Adebayo, 1999).

The foregoing indicates the complexities of measuring unemployment in Nigeria as the official statistics is grossly inadequate to capture the real problem.

Understanding the linkage between unemployment and output is a major focus of macroeconomic policy. The theoretical nexus is the Neo-Keynesian concept of 'potential output' which at times is referred

to as natural output[2]. This level of output also corresponds to the natural rate of unemployment, or what is often referred to as the non-accelerating inflation rate of unemployment (NAIRU)[3]. In this particular framework, the 'built-in inflation rate'[4] is determined endogenously, that is by the normal workings of the economy. According to this theory, inflation depends on the level of actual output (GDP) and the natural rate of employment.

Initially, if GDP exceeds its potential and unemployment is below the natural rate of unemployment, citeris paribus inflation will accelerate as suppliers increase their prices and built-in inflation worsens. This causes the Phillips curve to shift in the stagflationary direction; towards greater inflation and greater unemployment. Additionally, if the GDP falls below its potential level and unemployment is above the natural rate of unemployment, holding other factors constant, inflation will decelerate as suppliers attempt to fill excess capacity, reducing prices and undermining built-in inflation, leading to disinflation. This causes the Phillips curve to shift in the desired direction towards less inflation and less unemployment.

Ultimately, if GDP is equal to its potential and the unemployment rate is equal to NAIRU, then the inflation rate will not change, as long as there are no supply shocks. Thus, the unemployment rate is given and equal to the natural rate of unemployment, while there are a large number of possible inflation rates that can prevail at that unemployment rate. However, one problem with this theory is that, the exact level of potential output and natural rate of unemployment is generally unknown and tends to change over time. Inflation also seems to act in an asymmetric way, rising more quickly than it falls, mainly due to the downward rigidity in prices.

Endogenous growth theories describe economic growth which is generated by factors within the production process, for example: economies of scale, increasing returns or induced technological change as opposed to exogenous factors such as the increases in population. In endogenous growth theory, the growth rate is dependent on one variable: the rate of return on capital. Variable like inflation that decreases the rate of returns which also in turn reduces capital accumulation, and decreases the growth rate.

One feature accounts for the foremost difference between the endogenous growth models and the neo-classical economies. In the neo-classical economies, the return on capital declines as more capital is accumulated. In the simplest versions of the endogenous growth models, per capita output continues to increase because the return on capital does not fall below a positive lower bound. The basic intuition is that only if the return on capital is sufficiently high will people be induced to continue accumulating it.

Models of endogenous growth also permit increasing returns to scale in aggregate productions and also focus on the role of externalities in determining the rate of return on capital. Endogenous models explain growth further with human capital development growth theory by implying that the growth rate also depends on the rate of return to human capital, as well as physical capital. The rate of return on all forms of capital must be equal in the balanced-growth equilibrium. A tax on either form of capital induces a lower return.

Some versions of the endogenous growth models aver that the effect of inflation rate on growth is miniscule. Gomme (1993) found that as inflation rate increase employment declines. He submitted that, efficient allocations satisfy the condition that the marginal value of the last unit of today's consumption equals the marginal cost of the last unit of work. A rise in inflation reduces the marginal value of today's last unit of consumption, thus inducing people to work less. With less labour, the marginal product of capital is permanently reduced, resulting in a slower rate of capital accumulation.

Alternative models examine how inflation might directly affect capital accumulation and hence output growth. Marquis and Reffert (1995) and Haslag (1995) specified models in which capital and money are complementary goods. The authors examined inflation rate effects in a Stockman economy within the assumption of a cash-in-advance constraint on capital. Haslag (1995) observed that banks pool small savers but are required to hold money as deposits to satisfy a reserve requirement.

Thus, an increase in the inflation rate drives down the return to deposits, resulting in deposits being accumulated at a slower rate. Since capital is a fraction of deposits, capital accumulation and output growth are slow. In theoretical literature, the growth in industrial output is primarily associated with new investment in plant and machinery. However, new investment alone does not ensure economic growth. It must also be matched by efficiency of investments.

[2]This is a level of output where the economy is at its optimal level of production, given the institutional and natural constraints.
[3]NAIRU is the unemployment rate at which the inflation rate is neither rising nor falling.
[4]Built-in inflation is often linked to the price/wage spiral because it involves workers trying to keep their wages up with prices and then employers passing higher costs on to consumers as higher prices as part of a vicious circle.

Several studies have empirically investigated the relationship between output and unemployment. These studies mostly confirmed the validity of the relation between output and unemployment rate. However, the estimates of Okun's coefficient vary substantially across countries and regions.

Gylfason (1997) used a production function to calculate the output which is further used in Gap version. He used Swedish data for the analysis and found a 3 to 1 ratio relationship between output gap and unemployment exactly as in previous historical relationships. In early 1990s when Swedish economy experienced a deep crisis at home and discovered that the increase in unemployment was beyond the prediction of gap version of Okun's law.

Silverstone (2001) assumed a symmetric relationship between changes in unemployment and output. This assumption means that expansions and compression in output have same absolute impact on unemployment but might not be always suitable. Okun used Gap version for short run analysis. He tested the co-integration in the long run and an error correction model in the short run. His study was based on data across countries.

Freeman (2001) uses new developments in trend cycle decomposition to test Okun's Law for a panel of ten industrial countries that Okun's original estimate for the U.S. of three points for each one percent reduction in the unemployment rate now averages Pooled estimates for Europe are smaller than estimates for the rest of the sample. Freeman concluded that the law is still adept of proving estimates of the effects of unemployment.

Vougas (2003) used the dynamic version. He used non-accelerating rate of unemployment (NAIRU) to find the natural rate of unemployment. Vougas estimated (NAIRU) from a Philips curve taking account of hysteresis effect. With the hysteresis theory, the natural rate of unemployment can be determined from the previous rate of unemployment.

Sinclair (2004) used the gap version to examine the bivariate correlation between unemployment and output. He divided the two macroeconomic variables in a permanent and a transitory component and he then estimated the correlation of these components. By applying this model to the US economy, he noted that the fluctuation between output and unemployment is largely permanent and there is a presence of negative relationship between these permanent components.

Adanu (2005) estimated Okun's coefficient using the gap version approach for ten Canadian provinces. He used two methods to estimate Okun's coefficient with the Hodrick Prescott detrending method (HP) and under the quadratic detrending method (QT). He found relative stability of the coefficients for the two detrending methods.

Knotek (2007) applied three versions of Okun's Law. First, he used the difference version and estimated unemployment rate from one quarter to the other. Second, Knotek also used the gap version to calculate the gap between the potential output and actual output. Third, in the dynamic version he analyzed the effects of unemployment on the past level of output, current level of output and past level unemployment.

Loria (2007) used three structural time series models on Mexican quarterly data for the analysis. He compared the results from the related studies with the results from a study based on annual data. Loria based his study on Okun's gap version, difference version and dynamic version approach to estimate the Okun's coefficient which varied from 2.35 to 2.58.

Moosa (2008) studied the validity of the Okun's law in four Arab countries (Algeria, Egypt, Morocco and Tunisia) and reported that output growth does not translate into employment gains for the four countries, which means that Okun's coefficient turn out to be statistically insignificant. Keller and Nabil (2002) reported that economic growth in the MENA region has been insufficient compared to the region's labor force and that high growth does not guarantee good labor market outcomes.

Petkov (2008) applied the Hodrick-Prescott filter into an autoregressive distributed lag model (ARDL) by combining both the economic and statistical approach. Petkov used the HP filter to capture the (NAIRU) which was furthered by error correction model (ECM) to estimate the Okun's coefficient. He discovered a relationship between output growth and unemployment. The dynamic version of Okun is similar to that in Knotek (2007). Petkov used a regression method to explain the dynamic relationship.

Villaverde and Maza (2009) analyzed Okun's law for Spanish regions using data for the period 1980 results verified the existence of Okun's law for most of the regions and for the economy as a whole. However, the magnitude of Okun's coefficient differed for various regions due to regional productivity differentials.

Beaton (2010) investigated the stability of Okun's law for Canada and the United States using a time varying parameter approach. Time variation was modeled as drift less random walks and was estimated using the median unbiased estimator. Okun's law exhibits structural instability in both countries, with the sensitivity of the unemployment rate to

movements in output growth increasing recently over time in both Canada and the United States.

Arewa and Nwakanma (2012) provided an empirical evaluation of the relationship between output and unemployment using the –first differencell and output-gab versions of the regression equations that were first estimated by Okun. The study particularly adopted vector autoregressive (VAR) mechanism to estimate this relationship; and found that the Okun's coefficient is not significant in Nigerian economy. But however, the trade-off between output-gab and unemployment gab is positive, meaning that a decrease in the gap between natural rate of unemployment and current rate of unemployment leads to a decrease in the difference between potential GDP and real GDP.

IV EMPIRICAL ANALYSIS AND RESULTS

Okun's study remains a central theory in studying the relationship between unemployment and growth. Okun's law states that a unit reduction in the unemployment rate would increase approximately 3.0 unit of output. On the other hand, reversing the causality, a 1.0 percent increase in unemployment will result in more than 3.0 percent loss in GDP growth. This relationship implies that the rate of GDP growth must be equal to its potential growth just to keep the unemployment rate constant. To reduce unemployment therefore, the rate of GDP growth must be above the growth rate of potential output.

Data Sources

The data for this study was obtained from the Central Bank of Nigeria and the National Bureau of Statistics.

IV.1 Model Specification

Drawing from the literature reviewed, a standard version of Okun's law is tested using the model:

$$UNEMP_t = \alpha_0 + \alpha_1 RGDP_t + e_t \quad (1)$$

Where

RDGP = Growth rate of Real Gross Domestic Product

UNEMP = Unemployment rate

e = Disturbance term

From equation1, the parameter (α) is known as the Okun coefficient and signifies changes in unemployment rate caused by changes in real output. The estimated elasticity provides a measure of the relationship between employment and economic growth; where low estimates of Okun's coefficient suggest little correlation between economic growth and employment rate, while high estimates of the slope coefficient provides support of Okun's law.

In order to obtain reliable regression results, we first needed to make sure that our model could not be subject to "spurious regression" (Gujarati, 1995) therefore, we first test the nature of the time series to determine whether they are stationary or non- stationary by carrying out a unit root test on the macro-variables in the model.

Iv.2 Empirical Results

The Augmented Dickey-Fuller Philip-Perron and Kwiatkowski-Phillips-Schmidt tests were applied to both variables to identify if they were stationary or non-stationary. Both the real GDP growth and unemployment were stationary at levels I(0). The results are presented in Appendix A.

The results as presented in Table 1. The coefficient of our variable of interest was rightly signed (negative) implying a negative relation between the two variables; however, the absolute value of the t-statistic for the slope coefficient is not significant at conventional level. Although, the calculated adjusted R-squared and the F-statistic does confirm the strong relationship between the two variables. The non-significance of the relationship between our variable of interest indicates that unemployment does not depend on economic growth in Nigeria. Therefore, based on our findings, we believe that Okun's law does not hold in Nigeria. The absence of a statistically significant relation

Table 1: UNEMPLOYMENT – ECONOMIC GROWTH RESULTS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.607281	0.966485	4.767048	0.0000
DUMMY	14.74387	1.649849	8.936497	0.0000
GDPG	-0.198972	0.125000	-1.591768	0.1216

R-squared	0.749889	Mean dependent var	10.80294
Adjusted R-squared	0.733753	S.D. dependent var	7.931200
S.E. of regression	4.092429	Akaike info criterion	5.740252
Sum squared resid.	519.1874	Schwarz criterion	5.874931
Log likelihood	-94.58428	Hannan-Quinn criter.	5.786181
F-statistic	46.47254	Durbin-Watson stat	0.926268

between unemployment and output at the aggregate level indicates that a cyclical recovery will not be accompanied by reduction of unemployment. Furthermore, this might reflect the sizable structural and/or frictional component of unemployment in Nigeria. Indeed, this finding is consistent with earlier studies including Arewa and Nwakanma (2012) who reported nonexistence of okun's law in Nigeria.

Perhaps a plausible explanation for this result is that unemployment in Nigeria is essentially more structural than cyclical. Structural unemployment results from unemployed people who do not have the skills and qualifications to do the available jobs. In this case, economic growth may not reduce unemployment.

Perhaps this could be attributed to the nature and structure of the Nigerian economy, where oil production has been the main source of growth until very recently when the non-oil sector especially agriculture is beginning to contribute meaningfully to growth. Since oil had been the major driver for growth over the years and the oil economy is essentially an enclave economy, growth may not lead to job creation. Again and as noted earlier, the quality of unemployment data generated by the authorities has been called to question severally. The measurement of unemployment in Nigeria which considers anybody that work for less than 40 hours in a week as unemployed relative to international bench mark of just two hours a week might largely explain the disconnect between these two variables. This may also partly explain the no significant relationship between the two variables.

The results have huge policy implication going by the conventional economic theory which expects growth to reduce unemployment, but in the case of Nigeria over the study period, this outcome could not be established. It therefore means that the authorities would need to seek a more creative ways of making growth to connect with unemployment. One way will be the diversification of the economy totally away from crude oil so the growth will be broad based, and employment generating.

V Conclusion

The government can only create limited job vacancy, the creation of sustainable employment lies basically with the private sector, especially the small and medium scale enterprises. However, it is the responsibility of government to create an enabling environment for these groups to do business that will create jobs. Again there is need to re-examine the educational curriculums of the various institutions to ensure that there is an effective nexus between what is produced and what is demanded in the labour market. Regarding the various job creation initiatives of the government there is need to sequence the process and refocus it to skill acquisition that could integrate the beneficiaries into the production process.

Finally, the Nigeria authorities responsible for generating unemployment data should review the number of working hours per week from the current 40 hours to the level that would make for international comparison. It is germane to note that applying the same numbers of working hours per week to a country like France which currently apply 35 working hours per week will mean that everybody in France is unemployed.

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APPENDIX A

Null Hypothesis: GDPG has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.719898	0.0083
Test critical values:	1% level	**-3.646342**	
	5% level	-2.954021	
	10% level	-2.615817	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: UNEMP has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=8)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.306282	0.0828
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	**-3.209642**	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: UNEMP has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.306282	0.0828
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	**-3.209642**	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	21.88589
HAC corrected variance (Bartlett kernel)	21.88589

Null Hypothesis: GDPG has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.160313	0.0011
Test critical values:	1% level	-4.262735	
	5% level	-3.552973	
	10% level	-3.209642	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	29.35319
HAC corrected variance (Bartlett kernel)	29.62117