Unemployment and Income Inequality in Nigeria

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Abstract

This study offers update on the assessments of unemployment and income inequality in Nigeria, using data from the General Household Surveys of the National Bureau of Statistics. Data were also obtained from World Bank and Central Bank of Nigeria. Based on an array of operational techniques, the study made the following major findings: first, the Nigeria economy is characterized by a persistent rise in national unemployment rate, with variability at some periods; which may persist. Second, the male labour force has a higher unemployment rate compared to their female counterpart. Third, unemployment is higher among youths, between 15-34years. Fourth, in addition to socioeconomic and demographic characteristics, post-secondary educational labour force is the dominant class of the unemployed. Fifth, a growing trend of income disparity was found between Nigerian states and regional clusters. Finally, it was revealed that rising unemployment accelerates income inequality. Besides, fiscal federalism, strategic economic policies aimed at providing sustainable employment encompassing the youths and graduates of post-secondary education should be put in place.

Keywords: Unemployment, Income Inequality, Labour force

JEL Code: E24, I24, J21

1.0 Introduction

Nigeria is one of the countries with alarming level of unemployment and income inequality in the world. In recent times, unemployment rate grew consecutively from 13.30% in 2016(Q2) to have hit 18.80% in 2017(Q3); from 16.20% (Q2) (NBS Database, 2018). Recent survey showed that it has climbed to 19.70 in 2018.

This abysmal record amidst Nigeria's recession has heightened income inequality. This unpleasant scenario in a macroeconomic context, featured a drastic reduction in aggregate demand, that followed an apparently high inflation, sudden and uninterrupted fall in oil price, dogged wage decrease (crash in the price and income of labour), unfavorable import controls without domestic production stimulus; decrease in government purchases, money supply fell further from 2.92% in 2016 to 10.64% in 2017. This was as a result of Central Bank of Nigeria's infructuous monetary policy decisions to control inflation and stabilize exchange rate. Also, we registered bumpy trend in agricultural output, in spite of its position as the *life forte* of income of mainstream households in Nigeria. The agricultural sector has been severely affected by the Boko Haram insurgency and farmer-herdsmen cataclysms. These stubborn economic aberrations is however associated with fiscal and monetary squeeze,

which stemmed an increase in the levels of unemployment and inequality in Nigeria. Although, it is proclaimed that economic recovery has begun since lately in 2017, meanwhile, this claim has been largely criticized that it is not supported by growth in real and household economic indicators. Income inequality and rising unemployment are core indices of underdevelopment, which constitute critical aspects of development challenges.

Income inequality has been described as the difference in per capita income of household incomes across populations within or across a country (Isere, Ibrahim and Agu, 2010).

Hence, Jhingan (2006) listed the factors responsible for income inequality to include: poverty; inadequate economic development; economic concentration (which I call unbalanced industrialization and economic planning); tax evasion; inequitable distribution of the means of production (which I call false fiscal federalism), capital-intensive technology that crowds-in employment opportunities; low productivity; inflation; population growth; unemployment and underemployment. On the other hand, Gbanador (2007) identified some factors that contributes to Nigeria's unemployment *cum* income inequality, to include: rapid population growth; rural-urban income differentials; defective educational system and geographical immobility of labour.

Nigeria's Minister of Finance-Dr. Ngozi Okonjo-Iweala during the 4th Annual Pan-Africa 1:1 Investor Conference held in Lagos-Nigeria on February 11, 2013, decorously decried that unemployment and inequality are Nigeria's biggest challenges, the duo is however of global concern. She stressed that there is rising income inequality and earnings in Nigeria, in other words, the gap between the rich and the poor is growing.

Even with Nigeria's resource abundance, it is paradoxical to reveal its apex state of persistent rise in unemployment and income inequality. Unsurprising, as Mayah (2017) in an Oxfam Technical report stated, poverty and inequality in Nigeria are not due to lack of resources, but to the ill-use, misallocation and misappropriation of such resources.

From some theoretical standpoints, some schools of thoughts have emerged to express the factors responsible for continued rise in inequality in income and earnings. Prominent amongst them, is the Radicals, they believe that weak and easily avoided inheritance taxes permits inequality ascending from private proprietorship. Another view, holds that it is created and raised by the use of economic power by one group, against other groups. Hence, giant private enterprise knows how to use their market power in both labour and commodity markets to the disadvantage of non-capitalists as employees and customers. As a result, monopoly profits accumulate and income inequality is strengthened. The third school, holds that the tax system that is supposed to function as a powerful equalizer of incomes, has failed to function as expected; while the human well-being has been underfunded as a result of failure in public sector to capture the lower income earners (the poor) (McConnel, 1975).

Notwithstanding, several empirical studies have tried to investigate the determinants of unemployment and income inequality (Ssewanyana, Okidi, Angemi and Barungi, 2004; Okatch, Siddique and Rammohan, 2015). According to Kware (2015), "the most remarkable cause of unemployment, income inequality and poverty in Nigeria has been corruption." As a

result, this study is set to seek for solution to the ravaging rife of unemployment and income inequality in Nigeria.

2.0 A Selection of Theoretical Discourse

Marxian Theory

Marx (1844) expressed that labour is the source of all incomes (wealth). However, the worker gets only a trivial part of this incomes (wealth); that is unsatisfactory to stay employed. This implies that the vast majority of the output of labour is routed to the capitalist, which leads to a revolting tussle between capital and labour. In this contest, the capitalist aims to bring wages to a minutest, thus, the capitalist considers labour simply as a commodity, and all human affairs are quickly reduced to money affairs. In his manuscript of 1844, he noted that the capitalist is certainly enriched at the disadvantage of the employee, who survives at a subsistence level.

In his study, Marx noted an upward tendency on the way to monopoly concentration of capital into less hands, thus, capitalism, otherwise considered as exploitation tends to increase the profit (wealth) of the capitalist entrepreneur, as it exploits labour and raise a huge disparity in income.

Marx pronounced five laws or what he described as "general tendencies" innate in capitalism:

1. ***The Law of Accumulation and the falling Rate of Profit:*** Under capitalism, the quest for capitalists to increase profit; leads them to substitute capital for labour. Marx narrated that a situation where a capitalist adopts labour-savings mechanism, such capitalists will be capable to produce at a lesser cost than his competitors, and still trade at a price offered by less mechanized firms. Consequently, the combined influence of individual capitalist to amass more capital and added profit appears to slash the average proportion of profit.

2. ***The Law of Increasing Concentration and the Centralization of Industry:*** The increase in production capacity would lead to overproduction, therefore, driving prices down. The less efficient firms will be displaced out of business, as a result, a collection of firms would turn out to be more centralized, and income will be concentrated in the hands of a few, leading to income inequality.

3. ***The Law of a Growing Industrial Reserve Army***: Technological invention and capital-labour changeover has a severe consequence on the unemployment. Introduction of technology (machines) brings about shift of workers, hence a "growing industrial army of unemployed." Marx classified this kind of unemployment into two types: technological unemployment and cyclical unemployment, as a result of overproduction.

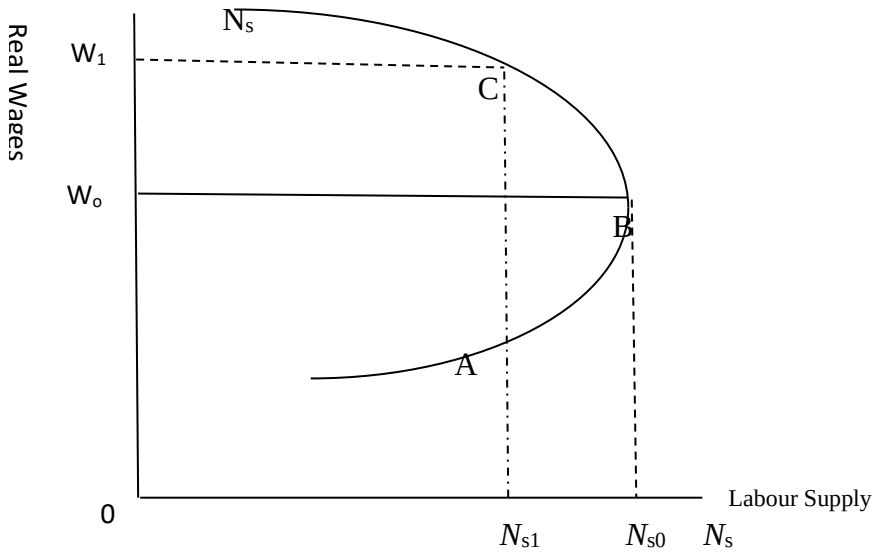
4. ***The Law of Increasing Misery of the Proletariat:*** This law holds that as unemployment grows, alongside the misery of the proletariat.

5. ***The Law of Crises and Depressions:*** According to Marx in Ekelund and Hebert (1975), increasing misery is related to unemployment. In his description, when unemployment

grows, and wages fall, capitalists will tend to hire additional labour and invest less in capital.

Mercantile Theory of a Backward-Bending Supply Function for Labour

The Mercantilist focused on the sustenance of low wages and a growing population. This was initiated in a bid to sustain a lopsided income distribution in addition to the mercantilists' credence in a backward-bending supply curve of labour. Edgar Furniss in his work, argued that, it incomes (wages) were past subsistence, the pursuit for physical satisfaction would lead to ethical decay. However, poverty prepared employees to be hardworking. Therefore, the mercantilists be scared that after wages stretch to a definite point, labourers would have a preference for an added leisure to added income. This may be described in the figure 1 below;



Source: Ekelund and Hebert (1975)

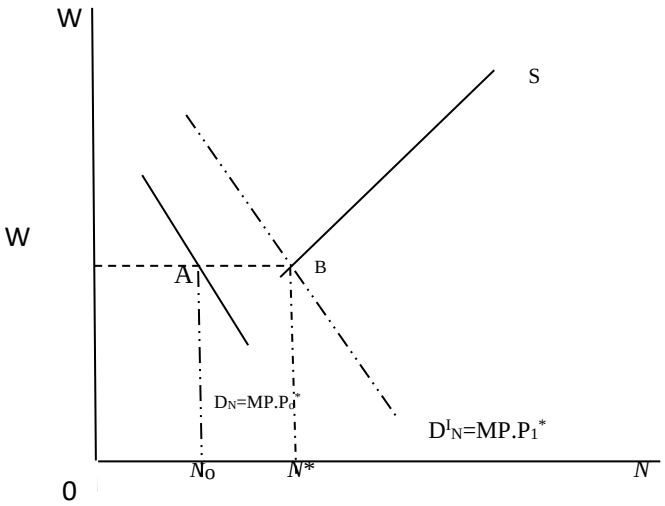
The above figure 1 reveals that as wages increased from W_o to W_1, supply of labour hence reduces from N_{so} to N_{s1}, followed by a decline in output.

The Keynesian Proposition

Keynes' (1936) pioneering work on the general theory of employment, interest and money; on the aspect of unemployment, he argued, that unemployment may powerfully be confronted only by influencing aggregate demand. Therefore, labour would be eager to accept rises in prices that rose after a rise in demand, assuming there is an even income wage rates. This would reduce incomes, in that way boosting employment.

Keynes, however, argued that labourers could be involuntarily unemployed. In the Keynesian perspective, labourers did not supply labour as regards to the real wage, but rather pertaining to the money wage. Keynes, on the other hand, advocated for income equality. In this line, Jhingan (2006) advocates that, the decrease of inequalities and rising income of the meager earners would increase productive efficiency and the whole economy.

This is also depicted in the figure 2 below;

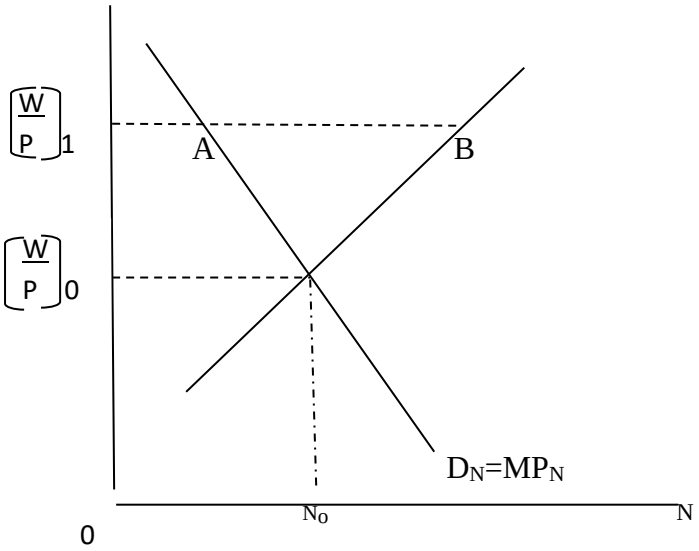


Source: Ekelund and Hebert (1975)

From the above figure 2, they illustrated that labour would supply quantity N^* at money wage W_o, but demand might be such that only a lesser quantity would be demanded. Labour was involuntarily unemployed in the amount *AB*.

The Classical Proposition

The Classicalist recorded that at point $[w/p]_o$, in the diagram below, voluntary and frictional unemployment tend to occur. According to this viewpoint, unemployment might be voluntary in the logic that some quantities of workers would voluntarily be relieved from the workforce at a wage rate of $[w/p]_o$.



Therefore, an all-inclusive equilibrium could be realized at any use of labour. According to the Classicalist, the labour market spontaneously corrects the situation to full employment; this differs from the Keynesian conviction that the labour market does not correct spontaneously, hence, he recommended compensatory government expenditures and fiscal policy instrument of taxation to get rid of unemployment and underproduction.

At equilibrium real wage, for instance at $[w/p_o]$, voluntary and frictional unemployment may perhaps occur. From the Classicalist' sermon, it thus gives the impression that they support income inequality, as they believe it depresses savings. Therefore, in their view, income inequalities indicate an increased income for labour and consequently increase in consumption.

Adam Smith Theory of Income (Wage) Distribution

In his famous book, *An Inquiry into the Nature and Causes of the Wealth of Nations*, he developed the argument of inequalities of incomes and profits that stems from the nature of the employments. According to Smith's (1776) theory in Ekelund and Hebert (1975), hinges on the following points:

1. Wages vary in inverse proportion to the agreeableness of the employment
2. Wages vary in direct proportion to the cost of learning the business
3. Wages vary in inverse proportion to the constancy of employment.
4. Wages vary in direct proportion to the trust that must be placed in the employee
5. Wages vary in inverse proportion to the probability of success.

The Kuznets Hypothesis

According to Kuznets (1955), in his inverted U-shaped hypothesis of income distribution, he stated that at the early stages of economic growth, comparative income inequality increases, become stable for a while and then deteriorates in the later periods.

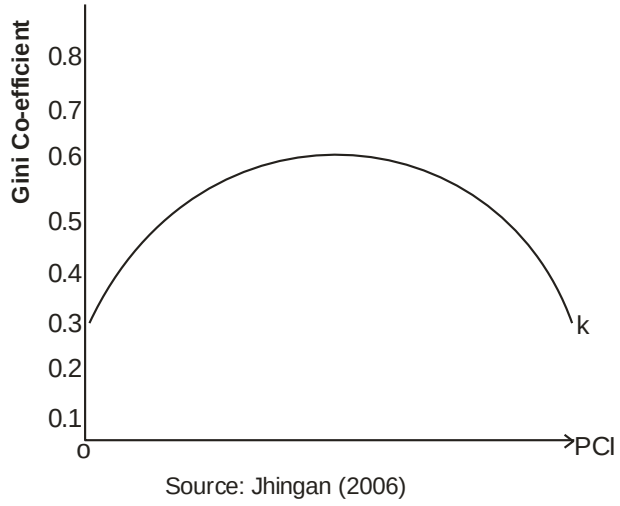
From his empirical analyses of developed and developing economies, he concluded the extent of income inequality distribution is higher in developing economies, compared to developed economies.

Kuznets further used the Gini Coefficient to show that developing economies were characterized by higher income inequalities, than in developed economies.

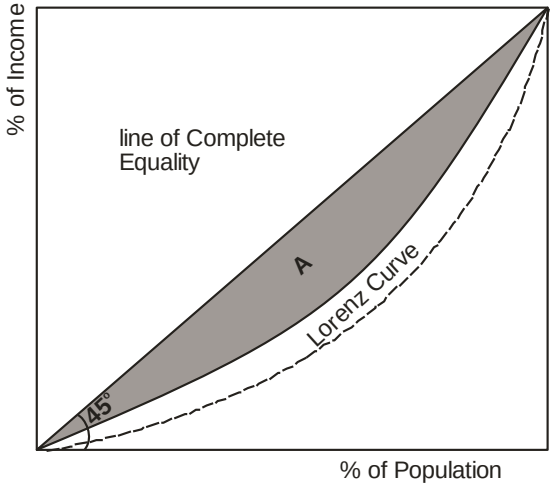
According to Jhingan (2006), the Gini Coefficient of income inequality thus, ranges from 0 to 1. The closer the coefficient to 1, the more unequal is the distribution of income.

Figure 4: **The Kuznets Inverted U-Shaped Curve**

The more the Lorenz Curve falls below the 45^{o} line, the higher the income inequality.



Source: Jhingan (2006)



In the words of Bakare (2012), the Lorenz curve is an instrument to analyze personal income statistics.

Empirical Literature

A number of recent literatures have focused on income inequality as it relates to poverty. Scarcely has the connection between unemployment and income inequality been explored. However, from the theoretical treatise, we have seen a fitting together of the duo. For instance, Sandmo (2013) of the Norwegian School of Economics only focused on the distribution of income between wages, profits and rents. His study was merely doctrinal without experimental evidence. Even Bakare (2012) that tried to use empirical approach could not connect income inequality to unemployment. In his work, he used the traditional Lorenz curve and Gini coefficient to ascertain the degree of income inequality. He used the OLS and found that the Gini Coefficient of Nigeria lies between 0.46 and 0.60. He showed that a 1% rise in literacy rate increases the Gini coefficient by 3%.

Raheem, Oyeleye, Adeniji and Aladekoyi (2014) assessed the causes and consequences of regional imbalances and inequalities in Nigeria. They listed the following as factors responsible for income inequalities are uneven distribution of natural resources, administration of the Royal Niger Company and British Colonialism, regionalism and State creation and institutional policies. In addition, they stated that inequalities have caused unemployment, weakness of development potentials, and overpopulation of the developed regions, environmental degradation and pressure on infrastructural development.

According to Rao (2015), with higher unemployment and lower returns from capital, the financial crises unfavorably affected incomes and also increased income inequality distribution.

Agu and Ogbeide (2015) examined the causal link between poverty and income inequality in Nigeria based on the use of Granger causality techniques, they found a direct line of causality between poverty and inequality in addition to indirect channels through unemployment and low life expectancy on inequality which aggravates poverty in Nigeria. They also stated that Sub-Saharan African countries have registered the highest levels of poverty and inequality in income.

Kware (2015) from a historical perspective, noted that unemployment, income inequality and poverty in Nigeria, is unusually high despite impressive economic growth. This situation he attributed to differential access to infrastructure and amenities with resulting impact on high incidence of poverty.

According to Ukpere (2011), Unemployment accelerates the level of income inequality and poverty within a given society. He strongly hypothesizes that there is a strong connection between globalization, unemployment, income inequality and poverty in Africa. As globalization is attributed to the alarming problem of unemployment with widespread income inequality and mass poverty.

Ayiinde *et al* (2012) examined income inequality and its general effect on agricultural production in rural and urban area of Ekiti state, Nigeria. Their study was based on primary and secondary data, methodology utilized were Descriptive analysis, Gini coefficient and Regression analysis. They showed that income inequality is higher in urban than in the rural areas and that income level, farm size and household size are the factors that contribute to inequality in both rural and urban areas. They recommended improvement in production technology, infrastructural facilities, access to credit and land to enhance income distribution of large household and thus increase agricultural production.

Yumna et al (2014) analyzed the impact of different forms of inequality on economic growth and unemployment in Indonesia based on a panel data for the period 2000 to 2012. They utilized the OLS methodology, hence found that expenditure inequality have a negative influence on growth; whereas, education inequality badly affects successive unemployment.

Saunders (2002) provided evidence that unemployment upturns the risk of poverty and inequality. He thus recommended the need for welfare reform with emphasis on employment generation.

3.0 Methodology

The study used data from General Household Surveys, carried out by the Annual NBS/CBN collaborative survey in the National Bureau of Statistics. The survey frame includes National Integrated Survey of Households, National Integrated Survey of Establishments and system of Administrative Statistics. Also, data were collected from the World Bank Development Indicators, Various issues of Central Bank of Nigeria Annual Reports. The Gini Coefficient

Index originally designed by Italian Statistician and Sociologist- Corrado Gini (1912) was adopted as a reliable measure for income inequality, and the new methodology for unemployment was employed taking cognizance of the various physiognomies in its distribution across gender, geographical placement and Nigerian prefectures. The study also took a broad descriptive and inferential approach.

The Model

The study estimated an OLS model, partly adopted from Yumna *et al* (2014) as specified thus;

$$GINI\ INDEX = \beta_o + \beta_1 UNEMP + U_t \quad - - - - - - \quad (1)$$

Where:

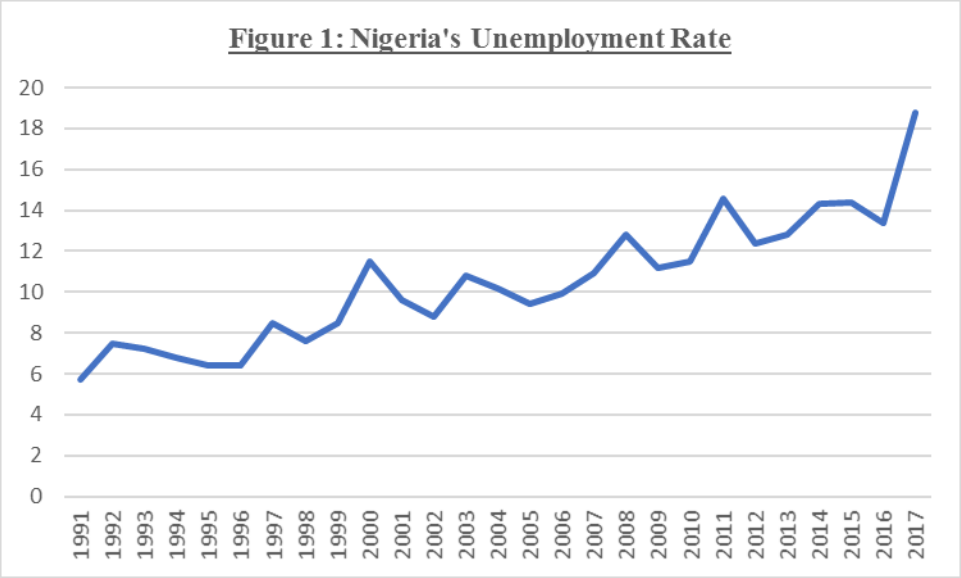
UNEMP= Unemployment Rate

GINI= Gini Index as a measure of Income Inequality

U_t= Stochastic term

4.0 Analyses of Data and Results

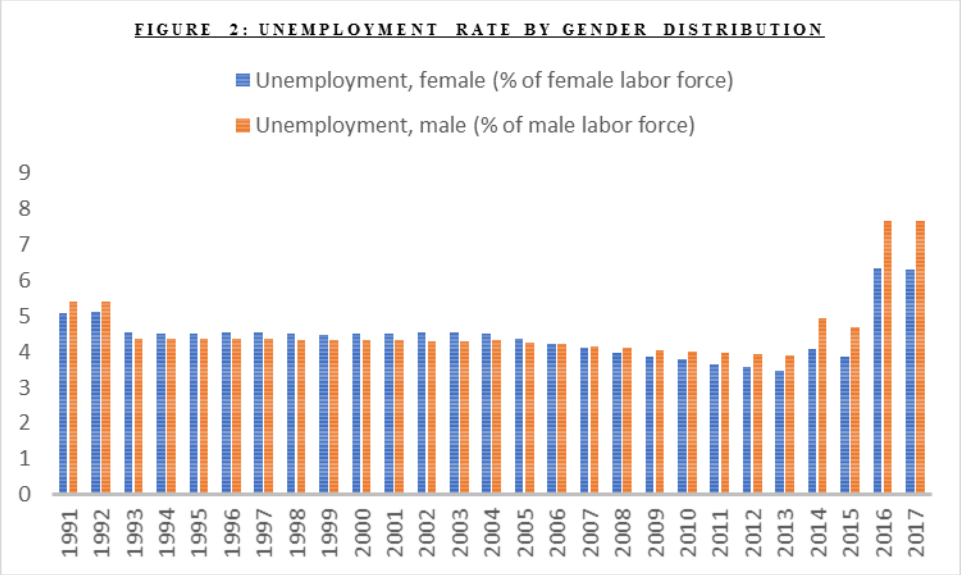
In line with NBS (2011) and Corredera (2005), unemployment has been a major problem for most countries across the world. On a national basis, we presented a graphical line trend of Nigeria's unemployment rate since 1991 till 2017. The figure 1 shows the nature of Nigeria's national unemployment rate, as it reports a persistent increase from 5.7% in 1991, to 7.5% in 1992; it declined and then rose to 8.5 in 1997. In year 2000, it stood at 11.5% as its peak, until in 2008 it grew as high as 12.8%, this fact was largely attributed to the global economic crises, that adversely affected economies of developed and developing countries of the world. In Nigeria, there was an exodus labour movement into Nigeria, without adequate employment capacity. National unemployment rate exacerbated again in 2011 and became worse since 2015 till date, owing to Nigeria's economic recession. This trend is expected to continue. In other words, the population of Nigerian labour force that is not employed has increased by nearly 8% in the last decade. This may indicate economic retrogression, which increases with rising unemployment figures. It further suggests that government macroeconomic objective of achieving full employment have suffered *kwashiorkor*.



Source: *Data obtained from NBS*

Shares of Unemployment Rate across Gender

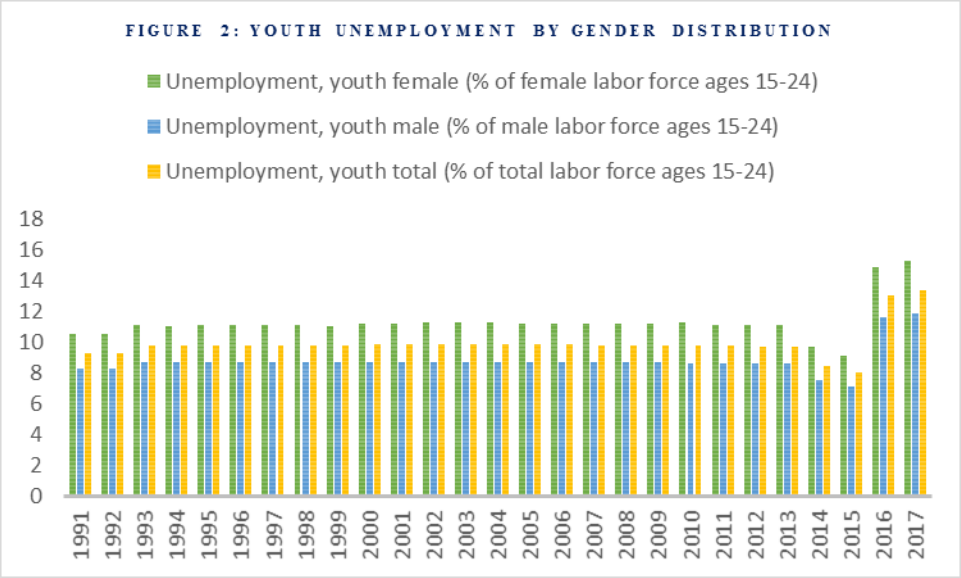
In addition to the above, we also describe the distribution of unemployment rate across gender. From figure 2, it reveals that the male labour force have a higher unemployment rate in 1991/1992, and in a successive period since 2007 till 2017. This can be explained by the dominant population of male in the labour market, compared to female. On the other hand, the female labour force registered a slightly higher unemployment rate from 1993 till 2006. It is important to note that the Nigeria economic environment is recording a continuous growth in the participation of women in the labour force, alongside their male counterpart. However, this statistic should be taken with caution, as the problem of unemployment is macroeconomic in nature and not a gender phenomenon.



Source: *Data obtained from NBS*

Share of Youth Unemployment by Gender Distribution

Further to the analysis above, available statistics suggests that unemployment is higher among the youths, especially those between 15-24 years age bracket. This is also perpetuated among the male youths, especially since 2008 till 2017, with significant disparity from the female unemployment proportion.



Source: *Data obtained from NBS*

Table 1: Comparison of Socioeconomic and Demographic Characteristics of Unemployment

Unemployment by Educational Group	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Never Attended	4.26	6.72**	11.35	9.80	6.77	10.61	14.33	18.56
Below primary	5.62	*NA*	6.93	8.31	4.09	16.76**	17.62	23.20
Primary	5.18	5.35	7.57	6.77	4.55	7.26	10.12	13.46
Secondary	5.65**	6.65	10.82	10.97	6.91	11.27	12.21	16.16
Post Secondary	5.26	4.42	13.21**	12.40**	7.02**	12.37	23.67**	31.78**
Unemployment by Region								
Urban	9.12**	4.50	8.91	10.74**	6.43**	12.75**	18.45**	23.45**
Rural	4.17	6.75**	11.24**	9.62	6.40	9.46	12.30	16.42
Unemployment by Age group								
15-24	10.19	14.29	13.47	17.92	11.69	18.95	25.17	33.12
25-34	4.97	4.58	11.29	11.01	6.92	11.39	15.37	20.15
35-44	3.28	3.53	8.08	6.52	4.21	6.85	8.79	11.67
45-54	4.82	5.79	7.80	6.13	3.98	6.47	8.93	11.95
55-64	3.42	4.25	7.85	6.76	4.40	7.14	9.79	12.75

Source: *Data obtained from NBS*

Note: The 2014 New Measurement of Unemployment Rate is adopted

Education of the Unemployed Household

Socioeconomic and demographic characteristics of the surveyed households were investigated with respect to Nigeria's unemployment status. Evidence from other studies (Mincer, 1991; Zimmer, 2016 and Wolbers, 2000) tends to describe the link between unemployment across educational group. It is hypothesized that, the higher the educational level, the higher the wage income. There is a popular notion that educational level has a negative association with the level of unemployment. Contrary to Mincer (1991) and Wolbers (2000) that higher educational levels, lowers the risk of unemployment, we found that, post-secondary qualified labour force is the dominant class of unemployed. This is followed by the population without basic formal level of education. However, the prevalence of unemployment is spread across educational levels. Although, the incidence of unemployment is higher in the post-secondary educational level labour force during economic recession.

Unemployment by Rural-Urban Residence

The above table provides evidence that unemployment is more pronounced in urban areas, as labour force tends to be concentrated in urban areas. Table 1 shows successive dominance in percentage of the unemployed labour force that are residents in the urban areas. Nevertheless, there appears to be no significant deviation in the spread of unemployment between urban and rural residence. This clearly reflects the general prevalence of unemployment spread across regions.

Unemployment by Mean Age Group

The age group considered in this study is the 15-64 years age bracket generally acceptable in Nigeria computation of unemployment rate. Table 1 shows that the unemployment rate varies significantly between age group, with dominance in the youth population of 15 to 34 years. This result justifies the rationale to direct government policy towards providing employment for the youths. It is worthy to note that youth unemployment is prime in several economies of the world, for instance, in South Africa, the EU and America (Corredera, 2005; Tregenna and Tsela, 2008; Egunjobi, 2014).

Table 2: Income Variability

Indicator Name	1985	1992	1996	2003	2009	2017
Income share held by fourth 20%	23	23.4	19.8	22.5	21.6	NA
Income share held by highest 10%	28.2	31.4	40.7	29.8	32.7	NA
Income share held by highest 20%	45	49.3	56.5	46	49	NA
Income share held by lowest 10%	2.5	1.3	1.3	2.1	2	NA
Income share held by lowest 20%	6	4	3.7	5.7	5.4	NA
Income share held by second 20%	10.4	8.9	7.7	10.4	9.7	NA
Income share held by third 20%	15.5	14.4	12.3	15.4	14.4	NA

Source: *Data obtained from NBS*

Inequality in the distribution of income is measured in the proportion of income held by a proportion of the population. The above table 2 reveals the proportionate distribution of income across population. Clearly, it shows that the disparity is wider across periods. This trend appears to persist. Galasso and Fuentes-Nieva (2014) in developing countries report, confirmed the presence of rising levels of inequality in five middle-income countries [Indonesia, China, India, Pakistan and Nigeria]. According to this report, the middle-income countries, except China. Have the richest 10% of the population acquired a much greater proportion of national income than the poorest 40%, and the trend appears to linger. By implication, there is a growing trend of income/wealth in few hands. That is, the rich keeps getting richer, while the poor get poorer. However, some political economy views income inequality has ascribed it to political rigging and electoral malpractices. This from my view, is not largely unconnected to the political recycling of the political class that holds the bulk of national income and the inequity in resource distribution.

A Micro Panel of Unemployment and Income Inequality for 36 States and FCT

Table 3: Nigeria's Unemployment and Income Inequality by States Distribution

States	2006	2007	2008	2009	2010	2012/2013 Gini	2015/2016 Gini
Abuja FCT	16.4	**47.8**	8.7	21.5	11.8	0.32623	0.33191
Abia	13.5	25.1	11.9	14.5	22.8	0.36468	0.35383
Adamawa	17.9	21.5	13.5	29.4	24.6	0.38024	**0.44901**
Akwa Ibom	15.3	18	11.1	34.1	27.7	0.39287	**0.45632**
Anambra	10.8	14.9	7.3	16.8	10.8	0.2697	0.30417
Bauchi	**23.9**	20.5	6.9	**37.2**	27	0.27922	0.35229
Bayelsa	16	21.9	**67.4**	**41.5**	27.4	0.32567	0.35614
Benue	10.8	7.9	7.8	8.5	6	0.28549	0.36523
Borno	5.8	12.5	11.8	27.7	26.7	0.3278	0.41209
Cross River	16.9	32.8	18.9	14.3	27.9	0.42609	**0.45324**
Delta	13.8	22.9	11.5	18.4	27.9	0.33609	0.34268
Ebonyi	10.9	7.9	5.1	12	25.1	0.39562	0.33524
Edo	8.6	14.8	15.6	12.2	27.9	0.27432	0.33037
Ekiti	8.7	11.4	11.5	20.6	28	0.35842	0.35048
Enugu	20	14.1	10.5	14.9	28	0.47135	0.4331
Gombe	15.6	16.9	7.6	32.1	27.2	0.2427	0.39544
Imo	21.5	28.3	17.4	20.8	**28.1**	0.34972	0.31113
Jigawa	21.6	27	5.9	26.5	14.3	0.30316	0.33904
Kaduna	14.1	8.7	12.7	11.6	12.4	**0.55832**	0.35768
Kano	19.4	10.1	5.8	27.6	14.7	0.32899	0.35179
Katsina	19.3	10.9	11.8	37.3	11	0.3171	0.40531
Kebbi	15.2	1.3	16.5	12	10.7	0.35712	**0.44414**
Kogi	12.5	14.6	16.4	19	9.5	0.25745	0.29061
Kwara	7.5	17.7	10.2	11	2.7	0.28409	0.301
Lagos	15.5	13.7	7.6	19.5	27.6	0.25973	0.35093
Nassarawa	8.1	11.8	17	10.1	3.4	0.32973	0.3932
Niger	3.6	4.2	3.9	28	11.7	0.3066	0.36041
Ogun	2.3	3.6	5.8	8.5	27.8	0.35099	0.27709
Ondo	6.7	6.7	6.3	14.9	28	0.33615	0.34965
Osun	2.7	7.2	6.5	12.6	27.6	0.35745	0.33118
Oyo	4.3	8.1	8.7	14.9	27.7	0.43812	0.37364
Plateau	2.9	6.8	4.7	7.1	10.4	0.282	0.4032
Rivers	25	**66.4**	12.1	27.9	27.8	0.35264	0.34454
Sokoto	6.4	12.3	5.9	22.4	15.9	0.31344	0.38644
Taraba	14	15.2	**19.9**	26.8	24.7	0.26475	0.34357
Yobe	13.6	24.4	12.8	27.3	26.2	0.32131	0.3791
Zamfara	**50.8**	19.1	16.4	13.3	14.5	0.21052	0.22815

Sources: *National Bureau of Statistics and Aigbokhan (2017)*

At a prefecture (state) level, table 3 above presents the decomposition of Nigeria's unemployment and income inequality across the 36 states and Federal Capital Territory (Abuja). From the above table 3, there is rising unemployment and income disparity between states. It is also observed that there is a noticeable rising unemployment rate as well as income inequality within regional clusters. A noticeable observation in the year 2006, Bauchi and Zamfara States (Northern Nigeria), respectively, registered the uppermost unemployment rate in Nigeria. In 2007 and 2008, Rivers and Bayelsa states (Niger Delta region) recorded the maximum rate of unemployment. This period in history, the region witnessed inland and external shocks, this was the climax of militancy and heated social vices that resulted in huge capital flight and revenue loss. In 2009, Bayelsa and Bauchi recorded high unemployment rate for the second time in the review period. In terms of income inequality, the statistics provides that Akwa-Ibom and Cross-River States, respectively, registered the highest inequality level in the income distribution. This is followed by Adamawa and Kebbi States, respectively. But in 2012/2013, Kaduna state recorded an incredible high-income inequality. On the other hand, Zamfara state consecutively, recorded the least inequality prevalence.

Empirical Results

Table 4: Short Run-Estimated Result showing the effects of Unemployment on the Index of Income Inequality in Nigeria

Dependent Variable: Gini Index as proxy for Income Inequality

Variable	*Coefficient*	*t-Statistic*	*Prob.*
C	42.20886	9.638546*	0.0000
UNEMP	0.045225	0.143361	0.8896
R-squared			0.002562
F-statistic			0.020552
Durbin-Watson stat			1.866131

Source: EViews 10 Computation

**indicates significance at 5%*

The above computed model reveals a positive relationship between unemployment and income inequality. This supports the Harris and Todaro (1970) model, also Cysne (2004) and Nolan (1986) that holds for a positive relationship between inequality and unemployment. The positive intercept provides significant argument for the growth of inequality distribution of income that is insensitive to unemployment level. This means, that income disparity in Nigeria, tends to grow significantly, regardless of the presence of unemployment. The DW-stat of 1.866 indicates evidence of no serial correlation.

Table 5: Unit Root Stationarity Test

A time series yt is integrated of order d, denoted I(d), if Δdyt is stationary. Then the series yt has d unit roots. To further ascertain the the stationarity of the data series, hence;

Table 5: Augmented Dickey- Fuller (ADF) Unit Root Test of Stationarity Results

Test	Variables	Levels		Differences		Order of Integration
		t- statistic	Critical	t- statistic	Critical	
ADF	UNEMP			-8.151917	-3.403313	I(1)
	GINI			-2.484795	-1.995865	I(1)

*Note: * Implies significance at 5%*
Source: Author's EViews 10 Computation

The summarized result presented in table 5 above shows that at 5 % level of significance, the variables were stationary, put differently, they are integrated of order one, I (1), hence, all the variable in this study are stationary.

Table 6: Granger Causality Test

Null Hypothesis:	***F-Statistic***	***Prob.***
GINI does not Granger Cause UNEMP	0.87594	0.5016
UNEMP does not Granger Cause GINI	0.85152	0.5095

Source: EViews 10 Computation

An analysis of the above granger test for causality shows that there is no significant causal relationship between unemployment rate and level of income inequality in Nigeria, during the period.

Table 7: Engle-Granger Test for Cointegration

	Value	Prob.*
Engle-Granger tau-statistic	-12.59526	0.0002
Engle-Granger z-statistic	-55.25534	0.0000

Source: EViews 10 Computation

The above table 7 shows the computed Engle-Granger cointegration tau-statistic value of -12.59526 (ρ=0.0001). This indicates that a long run relationship exists among dataset.

5.0 Conclusions and implications for policy

In this paper, we have presented an in-depth descriptive analysis and inference on the incidence of unemployment rate and income inequality in Nigeria. The study showed the persistent rise in Nigeria's national unemployment rate, with evident variability at some periods, this fact has been connected to the global economic crises and recession. This is believed to persist or even worsened, if caution is thrown to the wind. This finding suggests that government policies aimed at economic restoration should focus on providing sustainable employment.

It also reveals that the male labour force have a higher unemployment rate. This is not surprising, giving the existing dominance of male in the labour market. This calls for an increase in the participation of women in the labour market in a manner that does not *crowd-in* employment of their male counterpart. In addition, the result further suggests that unemployment is higher among the youths, especially those between 15-34 years age bracket. This startling finding requires the attention of policy makers, to adequately capture the youths in its fiscal operations. The issue of drastically reducing youth unemployment has become a global policy focus.

We also looked at the socioeconomic and demographic characteristics of the surveyed households with respect to unemployment status. It is hypothesized that, the higher the educational level, the higher the wage income. Our analysis provides evident that, post-secondary qualified labour force is the dominant class of unemployed. However, the prevalence of unemployment is spread across educational levels. From this, the current government N-Power programme for young graduates of post-secondary institutions should be supported in an effort to reduce unemployed post-secondary labour force. However, this programme should be fortified to ensure full participation. Also, the result provides that urbanization policies should also consider job creation as key in its agenda.

The analysis further reveals the income disparity is wider across periods, with growing trend of income in *few hands*. There is also rising unemployment and income disparity between Nigerian states and regional clusters. This again, calls for true fiscal federalism (restructuring as widely clamored).

The empirical result reveals that rising unemployment accelerates income inequality but no significant causal relationship was found. However, a long run relationship appears to exist among the two.

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Appendix I: OLS Estimates

Dependent Variable: GINI INDEX				
Method: Least Squares				
Date: 07/28/18 Time: 21:34				
Sample: 1985 2017				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	42.20886	4.379173	9.638546	0.0000
UNEMP	0.045225	0.315459	0.143361	0.8896
R-squared	0.002562	Mean dependent var		42.79000
Adjusted R-squared	-0.122117	S.D. dependent var		4.946031
S.E. of regression	5.239332	Akaike info criterion		6.327122
Sum squared resid	219.6048	Schwarz criterion		6.387639
Log likelihood	-29.63561	Hannan-Quinn criter.		6.260735
F-statistic	0.020552	Durbin-Watson stat		1.866131
Prob(F-statistic)	0.889550			

Appendix II: Unit Root Test for Unemployment

Null Hypothesis: D(UNEMP) has a unit root				
Exogenous: Constant				
Lag Length: 1 (Automatic - based on SIC, maxlag=1)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-8.151917	0.0005
Test critical values:	1% level		-4.803492	
	5% level		-3.403313	
	10% level		-2.841819	
*MacKinnon (1996) one-sided p-values.				
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 7				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(UNEMP,2)				
Method: Least Squares				
Date: 07/27/18 Time: 20:24				
Sample (adjusted): 4 10				
Included observations: 7 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(UNEMP(-1))	-1.985611	0.243576	-8.151917	0.0012
D(UNEMP(-1),2)	0.753427	0.165491	4.552679	0.0104
C	-1.362429	1.125470	-1.210542	0.2927
R-squared	0.944838	Mean dependent var		-0.571429
Adjusted R-squared	0.917258	S.D. dependent var		10.24886
S.E. of regression	2.948082	Akaike info criterion		5.297714
Sum squared resid	34.76475	Schwarz criterion		5.274532
Log likelihood	-15.54200	Hannan-Quinn criter.		5.011197
F-statistic	34.25708	Durbin-Watson stat		1.117282
Prob(F-statistic)	0.003043			

Appendix III: Unit Root Test for Income Inequality Measure

Null Hypothesis: D(GINI) has a unit root				
Exogenous: None				
Lag Length: 0 (Automatic - based on SIC, maxlag=1)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-2.484795	0.0206
Test critical values:	1% level		-2.886101	
	5% level		-1.995865	
	10% level		-1.599088	
*MacKinnon (1996) one-sided p-values.				
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 8				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(GINI,2)				
Method: Least Squares				
Date: 07/27/18 Time: 20:30				
Sample (adjusted): 3 10				
Included observations: 8 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GINI(-1))	-1.004555	0.404281	-2.484795	0.0419
R-squared	0.465585	Mean dependent var		0.550000
Adjusted R-squared	0.465585	S.D. dependent var		7.730274
S.E. of regression	5.651118	Akaike info criterion		6.418052
Sum squared resid	223.5459	Schwarz criterion		6.427983
Log likelihood	-24.67221	Hannan-Quinn criter.		6.351077
Durbin-Watson stat	1.857357			

Appendix IV: Granger Test for Causality

Pairwise Granger Causality Tests			
Date: 07/27/18 Time: 20:33			
Sample: 1 10			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
GINI does not Granger Cause UNEMP	8	0.87594	0.5016
UNEMP does not Granger Cause GINI		0.85152	0.5095

Appendix V: Engle-Granger Test for Cointegration

Cointegration Test - Engle-Granger				
Date: 07/27/18 Time: 20:19				
Equation: UNTITLED				
Specification: UNEMP GINI GINI(-1) C				
Cointegrating equation deterministics: C				
Null hypothesis: Series are not cointegrated				
Automatic lag specification (lag=1 based on Schwarz Info Criterion, maxlag=1)				
		Value	Prob.*	
Engle-Granger tau-statistic		-12.59526	0.0002	
Engle-Granger z-statistic		-55.25534	0.0000	
*MacKinnon (1996) p-values.				
Warning: p-values may not be accurate for fewer than 20 observations.				
Intermediate Results:				
Rho – 1		-1.846792		
Rho S.E.		0.146626		
Residual variance		1.588704		
Long-run residual variance		29.02415		
Number of lags		1		
Number of observations		7		
Number of stochastic trends**		3		
**Number of stochastic trends in asymptotic distribution.				
Engle-Granger Test Equation:				
Dependent Variable: D(RESID)				
Method: Least Squares				
Date: 07/27/18 Time: 20:19				
Sample (adjusted): 4 10				
Included observations: 7 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-1.846792	0.146626	-12.59526	0.0001
D(RESID(-1))	0.766040	0.105299	7.274913	0.0008
R-squared	0.969844	Mean dependent var		-1.012864
Adjusted R-squared	0.963813	S.D. dependent var		6.625864
S.E. of regression	1.260438	Akaike info criterion		3.535752
Sum squared resid	7.943518	Schwarz criterion		3.520298
Log likelihood	-10.37513	Hannan-Quinn criter.		3.344740
Durbin-Watson stat	0.160184			