Structural Youth Unemployment and Productivity in Sub-Saharan Africa: The Nigerian Manufacturing Sector Experience(2000-2013)

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Abstract
This study investigated the effect of structural unemployment on the productivity of Nigerian Manufacturing Sector. Exploratory research design was used. Secondary data were sourced from Central Bank of Nigeria, Statistical Bulletin (Various Issues), National Bureau of Statistics and Annual Report and Statement of Account (Various Issues). Linear regression and correlation analytical tools were employed. Findings revealed that structural youth unemployment rate had significant positive effect on the productivity of the Nigerian Manufacturing Sector. The policy implication is that any transformation of the manufacturing sector must begin with addressing the problem of lack of appropriate acquisition of skills in the schools to ensure that there is no gap between theory and practice of acquired skills in our tertiary institutions and the Nigerian Manufacturing Sector.
Keywords: structural youth unemployment, productivity, sub-saharan African, Nigerian manufacturing sector.

1. Introduction

Unemployment is among the biggest threats to social stability in many countries, putting the global rate at 12.6% (International Labour Organization, ILO 2012). However, structural unemployment is one of the fundamental challenges facing Nigeria at the moment. Structural unemployment is a longer lasting form of unemployment caused by fundamental shifts in an economy (Ford, 2009). In this type of unemployment there exists a mismatch between jobs offered by employers and potential workers (Hornby, 2010). Gbosi (2005) noted that structural unemployment is a serious threat to the Nigerian economy and mostly affected are the youths, who left the rural areas for the urban centres without the required skills, which prospective employers are looking for.

Youth unemployment is the unemployment of the young people between 15 – 24 years old. Furlong (2012) defines youth unemployment as young persons who do not have a job but is actively seeking work. Gough (2013) brings to fore, that a youth is a stage in life between adolescence and adulthood and youth unemployment; historically, doubled more the adult rates in nearly every country of the world.

It is estimated that about 133 million young people (more than 50%) of the youth population in Africa are illiterates. Many young people have little or no skills and are therefore largely excluded from productive economic and social life. Those that have some education exhibit skills irrelevant to current demand in the labour market (Devarajan, 2012).

According to Asaju, Arome and Anyio (2014) and Gbosi (2005), unemployment, large public sector, low wages and poor working conditions are the fundamental developmental challenges facing Nigeria at the moment. However, it has been argued that continuous improvement in productivity is the surest way to breaking vicious circle of poverty. Growth in productivity provides a significant basis for adequate supply of goods and services thereby improving the welfare of the people and enhancing social progress (Obadan & Odusola, 2010). In this vein, the World Bank Report (as cited in Isa, Jimoh & Achuenu, 2013) suggested the need for developing countries, Nigeria, inclusive to concentrate efforts in diversifying their economies from mono-product and natural resource based, towards more sustainable human resource that can also create jobs for the fast population.

Manufacturing sector is one of the top sectors used in measuring the National Gross Capital Formation (NGCF) and the GDP of any country and its effect on every other sectors, makes it a significant front for sustainable development. The job creation potentials of this sector make a connection between productivity and employment (Rynn, 2011).

In view of this, the objective of this study is to determine the effect of structural youth unemployment on the productivity of the Nigerian Manufacturing Sector. Consequently, the directional hypothesis is that, there is a significant positive effect of structural youth unemployment on the productivity of the Nigerian manufacturing sector.

2. Conceptual and Theoretical Issues

2.1 Concept of Unemployment
Udu and Agu (2005) define unemployment as "a situation in which persons capable and willing to work are

unable to find suitable paid employment". Hornby (2010), also defines unemployment as "the facts of a number of people not having a job, the number of people without a job, the state of not having a job. The world is facing a worsening youth unemployment crisis. Several factors account for youth unemployment in Africa, most notably are low economic growth, low economic activity and low investment. These related factors contribute to low job creation and because of sustained population growth, the small labour market is unable to absorb the resulting army of job seekers (Salami, 2013). However, in this study, structural unemployment is operationalized to mean, a situation where the labour market is unable to provide jobs for everyone who wants one because there is a mismatch between the skill of the unemployed and the skill needed for available jobs.

2.2 Concept of Transformation
Transformation implies a basic change that was intended to correct the flaws in a country's drive for development where there is absence of long-term perspective and lack of continuity, consistency and commitment to agreed policies (Nzewi, Nzewi & Okekeotti, 2012). Transformation involves a holistic over haul of the segments of the national life, places emphasis on attitudinal change along the path of patriotic zeal and commitment, to systematically upgrade their national development indices (Anyim, 2012).

2.3 Manufacturing Sector and Youth Unemployment
Manufacturing sector is the key driver of rapid economic growth and associated creation of employment (Nimrod, 2014). Manufacturing creates jobs directly or indirectly and reviving the sector could provide tens of millions of new job (Furlong, 2012). Rynn (2011) opined that without a robust revival in the manufacturing sector, no path to national wealth, power and employment creation developed, for manufacturing sustains jobs in an economy. Manufacturing indeed displays a positive correlation with GDP growth and wider employment base (Dasgupta & Singh, 2005; Millin & Nichola, 2005).

2.4 Theoretical Framework
This study is anchored on Efficiency – Way Theory developed by Harvey Leibenstein in 1960. The theory focuses on the explanation for causes of structural unemployment, which is premised on some markets, setting workers wages above the equilibrium wage level. The consequences in turn balance the supply and demand for labour. It is also the case that wages may be set above their equilibrium level on purpose in order to increase worker productivity, reduce worker turnover, increase worker quality. The idea of the efficiency-wage theory, is that, it may benefit firms to pay workers a wage higher than their marginal revenue product. If firms pay reduced wages to their employees, those workers with higher skills and productivity might look for jobs elsewhere. This would leave the firm with workers who have a lower skill range that could negatively affect production in the manufacturing sector.

2.5 Empirical Review
A number of studies have been executed by scholars on the subject matter. Alao (2010) investigated productivity in the Nigeria manufacturing sector using co-integration and error correction model. The findings from the study revealed that high cost of borrowing and lack of "enabling environment" constrained the manufacturing sector of Nigeria from optimal performance.

In a related development, Ditimi (2013) assessed the impact of unemployment rate on productivity growth in Nigeria. Using error correction modeling approach, their findings showed that unemployment rate has an insignificant influence on productivity growth of the economy.

Isa, Jimoh and Achuenu (2013) indicated that the Nigeria's economic growth over the last decade is high and the contribution of construction sector, along agriculture and manufacturing has been on a steady rise.
Prior study by Obadan and Odusola (2010) investigated productivity and unemployment. Employing Granger Causality Tests found out that productivity and unemployment are inversely related but of all these studies in manufacturing sector of Nigeria, it does appear that none of the research focused on the Nigeria manufacturing sector experience for solving the challenges of structural unemployment. This constitutes the gap this study has filled.

3. Methods
This study employed exploratory research design in order to determine the effect of structural youth unemployment on the productivity of the Nigerian Manufacturing Sector. Exploratory research is necessary for discovering ideas and insights into the natural phenomena (Ezejelue, Ogwu & Nkamnebe, 2008). Linear regression analytical tool was used to examine the linear association between the independent variable (structural youth unemployment) and the dependent variable (productivity).

Time series data were obtained from National Bureau of Statistics, Statistical Bulletin of Central Bank of Nigeria, Annual Report and Statement of Account (Various Issues). The data are stated below:

Table 1: Time Series Data on Unemployment Rates and Manufacturing Gross Domestic Product at 1990
        Constant Basic Prices (₦ million)

	Year	GDP (₦ Million)	Unemployment Rate (%)
1.	2000	14,204.73	13.1
2.	2001	15,191.30	13.6
3.	2002	16,723.71	12.6
4.	2003	17,669.80	14.8
5.	2004	19,436.78	13.4
6.	2005	21,305.05	11.9
7.	2006	23,305.87	12.3
8.	2007	25,535.50	12.7
9.	2008	27,806.76	14.9
10.	2009	29,990.92	19.7
11.	2010	32,260.62	21.1
12.	2011	34,680.54	23.9
13.	2012	37,300.44*	21.6*
14.	2013	34,747.20*	22.2*
15.	2013	35,576.06	22.6*

*Source: National Bureau of Statistics (2012), Statistical Bulletin of Central Bank (Various Issues), Annual
        Report and Statement of Account (Various Issues)*

* Provisional

Model Specification

To determine the effect of structure youth unemployment rate on the productivity of the Nigerian Manufacturing
Sector, the study specified a linear model as follows:

$$Y = \alpha_o + bx + e_t \qquad ….. (i)$$
$$GDP = F(a_o + b_1 SUEMR) e_t \qquad ….. (ii)$$
$$GDP = a_o + b_1 SUEMR + e_t \qquad ….. (iii)$$

Where:

GDP = (Gross Domestic Product) measures productivity in Nigerian Manufacturing Sector

a_o (Alpha) represents the intercept (regression line)

b_1 (Beta) represents the parameter estimate and the slope of the model

SUEMR (Structural Unemployment Rate) represents the Independent Variable (x)

e_t (error term) measures the probability of statistical error encountered

3.1 Hypothesis Testing and Findings

To test the hypothesis which states that there is a significant positive effect of structural youth unemployment on
the productivity of the Nigerian Manufacturing Sector, Statistical Package for Social Science (SPSS) Software
Version 20 was used. The model summary is presented in tables below.

Table 2: Model Summary of Linear Regress Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		df 1
					R Square Change	F Change	
1	.876[a]	.767	.749	2.25895	.767	42.810	1

a.   Predictor (Constant):   SUEMR
b.   Dependent Variable: GDP

Source: Computed from Table 1 Data using SPSS Version 20 Software

        From the table above, it is evident that at one degree of freedom (n-1), the R squared (coefficient of
determination) is 0.77 (77%), which indicated the percentage of proportion of variation in dependent variable
(GDP) accounted by the independent variable (structural unemployment rate). Adjusted R square is 0.75 (75%)
and it represents the real variation in the figures that appeared in the regression model summary.

Table 3: Model Summary (coefficients [a]) of Linear Regression Result

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.111	2.010	-	2.045	.062
SUEMR	.000	.000	.876	6.543	.000

   a. Dependent Variable: GDP

Source: Computed from Table 1 Data using SPSS Version 20 software

        Table 3 above shows that structural unemployment rate is significant at 0.00p value and it is associated

with standardized beta coefficient of 0.876 (88%). The significance level of 0.000 p value implies that an alpha value is less than 5 percent. Therefore, based on the decision rule, the null hypothesis is rejected and the alternate hypothesis which states that there is a significant positive effect of structural youth unemployment on the productivity of the Nigerian Manufacturing Sector is accepted. The t-test statistical level of significance is 0.062 which is associated with t-value of 2.045. The alpha level of 0.06 is not very significant from the regression result.

Table 4: Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted value	11.0610	22.3618	16.6933	3.95016	15
Residual	-3.90517	2.82013	.00000	2.17677	15
Std. Predicted value	-1.435	1.435	.000	1.000	15
Std. Residual	-1.729	1.248	.000	.964	15

Source: Computed from Table 1 data using SPSS Version 20 Software.

The residuals form the basis for measuring the correctness of the estimates and the extent of the model fit. It shows the difference between the actual value and the predicted value. The predicted value is 11.0610, while the residual is -3.90517. There is a significant difference between the values, which is reflected by the high standard deviations of 3.95016 and 2.17677. But when standardized from the table, a lower mean of .000 and standard deviation of 1.000 and .964 is recorded.

Table 5: Correlation of Structural Unemployment Rate and Gross Domestic Product

		SUEMR	GDP
SUEMR	Pearson Correlation Sig. (2-tailed) N	1 15	.876** .000 15
GDP	Pearson Correlation Sig. (2-tailed) N	.876** .000 15	1 15

** Correlation is significant at the 0.01 level (2-tailed)

Source: Computed from Table 1 data using SPSS Version 20 Software.

From table 5 above, the Pearson bivariate correlation indicates that the correlation between structural unemployment rate and gross domestic product is significant at 0.01 level (2-tailed test). It has a strong positive correlation of 0.88, using 15 items (N) of analysis.

4. Discussion of Results and Policy Implications

The linear regression result which reveals that structural unemployment rate is significant at 0.000 p value is fraught with implications. The rejection of the null hypothesis and subsequent acceptance of the alternate hypothesis indicates that there is a significant positive effect of structural youth unemployment rate on the productivity of the Nigerian Manufacturing Sector. This is corroborated by the findings of Isa, Jimoh and Achuenu (2013) which indicated that the Nigeria's economic growth over the last decade is high and the contribution of construction, agriculture and manufacturing sectors has been on a steady rise. Most probably, the increase in the sectors' contribution could be attributed to job creation potentials of the manufacturing sector which makes connection between productivity and employment (Rynn, 2011).

Findings of 77 percent high coefficient of determination (R squared) show that there is a nexus between structural unemployment rate and productivity in the Nigerian Manufacturing Sector. Any variation in the dependent variable (GDP) would affect the independent variable (SUEMR). This result is consistent with the findings of Alao (2010) which revealed that high cost of borrowing and lack of "enabling environment" constrained the manufacturing sector of Nigeria from optimal performance. In addition, the result of Asaju, Arome and Anyio (2014) investigation support this link between structural unemployment rate and productivity in Nigerian Manufacturing Sector.

The correlation result of 0.88 indicates strong positive relationship between structural youth unemployment and productivity. Perhaps, the increment in structural unemployment rate might ignite a corresponding effect on productivity. Given a mismatch between acquired skills and available jobs, it is possible that the increase in productivity could be based on quantity and not on quality of goods and services produced in the country. This development is in tandem with the revelation of Obadan and Odusola (2010) where they stated that growth in productivity provides a significant basis for adequate supply of goods and services. The World Bank Report (cited in Isa, Jimoh and Achuenu, 2010) also supported this finding when it deposed that developing countries need to concentrate efforts in diversifying their economies from monoproduct and natural resource based, towards more sustainable human resource that can create jobs for the population.

5. Conclusion

Sequel to the data collection, hypothesis testing, findings and discussion, we conclude that structural youth unemployment rate has a significant positive effect on the productivity of the Nigerian Manufacturing Sector. The high coefficient of determination between the dependent and independent variables justifies the strong nexus which has characterized the Nigerian Manufacturing Sector Experience.

Recommendations

Following from the findings and conclusion, it is recommended that any meaningful transformation of the Nigerian Manufacturing Sector should address the problem of lack of appropriate acquisition of skills in schools. The Nigerian government should stem the tide of rising unemployment rate by creating programmes where the youths would learn effectively and be self employed. Effective monitoring of school curricula is necessary to ensure that there is no gap between theory and practice of acquired skills in our tertiary institutions and the Nigerian Manufacturing Sector.

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