

Globalisation and Employment Generation in Nigeria's Manufacturing Sector (1990-2006)

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Abstract

In this paper, we examined the effects of globalisation on employment level in the manufacturing sector in Nigeria. The manufacturing sector is considered very important as it is expected to be one of the key sectors absorbing the surplus agricultural labour as they are released from the rural sector in the development process. Given the set of reforms embarked upon since the mid-1980's in Nigeria which are expected to lead to structural and institutional changes such as an enhanced private sector participation in the economy and higher employment generation, among others, we have designed this study to examine the employment effect of globalisation in the Nigerian manufacturing. Using time series data for the period 1990-2006, we have carried out an analysis of the impact of these reform policies, especially those related to globalisation and employment. In addition, we have formulated and estimated an employment model to examine the influence of several globalisation variables used on the employment level. The result of our analysis showed that several employment and globalisation-related variables are positively related in the Nigerian manufacturing. Based on our findings, we have proffered some recommendations that are capable of enhancing the employment level in the manufacturing sector of Nigeria.

Keywords: Competitiveness, Employment, Globalisation; Manufacturing

JEL Classification Codes: F16; F49; J23

1.0. Introduction

Economic globalisation and its attendant global competitiveness are aimed at increasing the level of interconnectedness among countries for the purpose of bringing about greater economic integration through trade and other exchanges. These are expected to create improved economic restructuring across the globe. Evidences abound that this phenomenon has led to shift in patterns of production and other economic activities in different countries of the world. For instance, the extent of global outsourcing is growing and thereby creating new set of jobs for one part of the globe while certain types of jobs are lost in others (Gereffi and Sturgeon, 2004). With globalisation there is growing interdependence between countries of the world. While both the developed and developing countries face global competition; the nature of a country's competitiveness varies with the ability of such countries to adapt to the required changes. For instance, Fosu (2003) and Obadan (2003) are of the view that poor developing countries have very weak capacities to take advantages of a global market. This has generated some form of debate on issues such as employment generation, wages and salaries of workers, job re-structuring, among others.

Theoretically, the process of trade liberalisation across countries of the world is expected to bring optimum allocation of resources, leading to improved global welfare (Collier and Gunning, 1999; Bamidele, 2005). In practice, however, the nature of competition that has ensued across the global space following the globalisation process has resulted in some countries benefiting more than the rest, while others are bearing some costs. The exposure to foreign competition could lead to a major industrial restructuring, which may be underscored by the wide differences in the ability of economies to compete in the world market. The globalisation-competitiveness debate involves how individual firms perform in the market place, which determines a country's overall economic strength. However, some key national characteristics such as how human capital is utilized, managerial practices and government policies, among other factors, also influence global competitiveness (Brown and McNaughton, 2002; Krugman and Obstfeld, 2003).

In sum, globalisation affects economies in different degrees, and it can have both negative and positive effects on employment and output, economic growth, among others. To our knowledge, not much has been done in terms of empirical research into the possible impacts of globalisation on employment generation in the manufacturing and this paper is intended to fill this gap. This is considered to be important because the challenge of globalisation on the level and type of employment generated can be multifarious. The purpose of this paper therefore is to examine the impact of globalisation on the level of employment in the manufacturing sector in Nigeria. The rest of the paper is organized as follows: Section 2 reviews some literature around the issue. In Section 3, the empirical model was formulated while the analysis of data was carried out in Section 4. Section 5 gives the conclusion and recommendations from our findings.

2.0. Literature Review

Globalisation has produced both challenges and opportunities to different countries of the world. Shifts in economic policies leading to more integrated global communities has had profound changes in the level and structure of jobs as demand for goods and services move beyond national boundaries at a terrific rate compared with pre-globalisation years. Changes in international trade rules have had an enormous influence not only on the creation and distribution of jobs in developing economies but also on transportation and communication as well as speed at which business transactions are carried out. A noticeable trend in many globalising developed countries in both manufacturing and services is the shift of activities to an increasingly competent set of suppliers, contract manufacturers, and intermediaries. Thus, this gives the opportunity of the producer/supplier gaining economies of scale by pooling resources across a broad customer base. In addition, the existence of highly competent independent suppliers lowers the barriers to globalisation for firms especially small and medium scale firms that have not yet shifted any activities offshore thus affecting their competitive advantage. A review of several countries' experiences with respect to the changes in output and employment is undertaken in this section.

China's economic growth averaged 8% annually since 1978 and has become the single largest export market for Japan and the East Asian newly industrializing economies. China's demand for intermediate components from its East and Southeast Asian regional trading partners, which supplied China with more than half of its total imports in 2003, has grown tremendously thereby leading to a significant rise of China's exports of final goods to non-Asian industrial economies. According to Yeung, Liu and Dicken (2004), the impact of trade on labour was found to be positive but small. They also established that trade had little impact on wages and the distribution of income, but that foreign-owned and export-oriented firms paid higher wages. Kletzer (2004) reviewed some studies that provide a rich description of trade-displaced workers in the United States for the period 1979 to 1999. The author observed that manufacturing industries were high import-competing and were characterised by an increased import share exceeding 13% points. The author concluded that the dramatic increase of U.S. imports has led to trade-related job losses. In an earlier study, Kletzer (2001) obtained samples of

trade-displaced workers who lost jobs in U.S. industries facing increased import competition. In contradiction to the U.S. case, Singapore doubled the share of manufactures in its total exports from 43% to 86% between 1980 and 1998. During the same time period, Thailand tripled the share of manufactures in its total export from 25% to 74%, Malaysia quadrupled its manufactured export ratio from 19% to 79%, and Indonesia had the most dramatic gains with manufactures soaring from 2% of exports in 1980 to 45% in the 1998.

In 1998 Mexico was the only non-Asian economy with a transformation of similar magnitude reported above. Its manufactured exports grew from just 10% of total exports in 1980 to an astonishing 85% at the close of the 1990s (Dicken, 2003). Chakraborty and Nunnenkamp (2008) used cointegration and Granger causality approach to examine the relationship between FDI and economic growth in India. They found that for the Indian economy, FDI and output are co-integrated in the long-run, but output growth has a higher Granger-causality impact on FDI. However for different sectors of the economy different impacts were obtained. Between 1990 and 2000, the share of developing economies in world manufactured exports increased from 16.6% to 26.8%, while that of industrialised economies decreased from 80.3% to 69.2%; and for economies in transition, manufactured exports grew from 3.1% to 4%, within the same period (UNIDO, 2005). In terms of composition, about 42% of East Asia's manufactured exports were in the high-tech category in 2000, and almost one third of Mexico's exports are in the same group. These growths in exports were accompanied with appreciable growth in employment.

In general, for Asian countries, employment and globalisation are positively related but for most African nations like Nigeria, the result is not as clear cut. For instance, Rodrik (1999) acknowledges that trade openness may lead domestic producers to seek relief from costly labour standards by employing less labour. Also, workers in a globalizing poor economy face more wage, price and employment fluctuations. Thus, governments in such nations should play a risk-reducing role for labour either through expenditures-reduction strategies or act as employers of last resort when the level of unemployment rises as a result of economic adjustment to productive resources re-adjustment consequent on globalisation and competitive pressures.

Much of the views of the relationship between trade (an important proxy variable for globalisation) and employment conditions generally was the result of the emerging consensus among trade economists that globalisation was not a significant factor in explaining trends in labour markets in the late 1990s. For instance, Feenstra and Hanson (2003) maintained that out-sourcing, which is a characteristic feature of globalisation, accounts for half of the decline in unskilled to skilled relative wages for workers in the United States between 1979 and 1990. Aitken, Harrison and Lipsey (1996) using OLS estimation established that foreign owned firms pay a wage premium of 38% in Mexico, 18 % more in Venezuela and in the United States (with a 12% premium). Velde and Morrissey (2003) found wage premia of between 8% and 23% for Cameroon, Ghana, Kenya, Zambia and Zimbabwe. The above studies made use of manufacturing survey data and controlled for worker- and plant-characteristics that might account for differences in productivity and wages. Furthermore, the study discovered that, trade (a proxy variable for globalisation) may have any or all of the following consequences: weakening union control of a labour market, weakening control of a monopsonistic employer on a labour market, undermining legislated or enforced labour protections or strengthening the hand of labour in the domestic political arena. Rama (2003) using annual wage data assessed the impact of trade openness on wages. He used different measures of openness such as the ratio of trade to GDP; effectiveness of openness policy as indicated by revenues from tariffs, limited non-tariff barriers (NTBs), absence of marketing boards, low level of central planning, low black-market foreign exchange premium; and ratio of FDI to GDP. His result indicated a negative and statistically significant effect of trade and trade policies on wages and employment.

Spieza (2004) formulated and estimated a model in which employment was a function of exports, import and non-tradables to examine the effect of trade on employment. He found no significant relationship between FDI (the proxy variable for globalisation) and employment. In a

similar study, Sen (2004) analyzed the effects of globalisation on manufacturing employment in Bangladesh and Kenya using three approaches: the factor content approach, the growth accounting approach and the regression based approach. The regression based approach was very similar to those of Hines and Wright (1998), Orbeta (2002), Tavera (2007), Patterson and Okafor (2006) and Olayinka (2006), where varying results were found. For example, Patterson and Okafor (2006) established that higher propensity towards openness (a measure of globalisation) affects aggregate labour demand negatively in Nigeria, while Olayinka's (2006) study found a positive relationship between openness of the economy and employment level in Nigeria. On the other hand, Tavera (2007) tested the role that FDI (his proxy for globalisation) plays in the creation of employment using panel data of ten sub-sectors of manufacturing sector for the years 1980-2003; divided into three sub-periods of 1980-1989; 1990-2000 and 2001-2003. The result of the study showed that FDI had a positive though very small effect on the creation of employment. Aryeetey (2006) observed that the slow growth of formal employment was one of the features that have characterised Ghana's reform effort of the last two decades. The author noted that employment increased from 208,000 in 1981 to 464,000 in 1985 and thereafter declined steadily up to 186,300 in 1991. However, his empirical analysis showed a positive relationship between globalisation proxied by the degree of openness of the economy and employment.

In Nigeria, some attempts have been made to examine the effect of globalisation on employment. However, few empirical studies (e.g. Olayinka, 2006 and Patterson and Okafor, 2006) that exist on effects of globalisation on employment looked at it an economy-wide basis with divergent findings. Though the study of Aigbokhan (2004) was on the manufacturing sector but his was not on the level of employment but on the wage determination process in the sector. This study is therefore undertaken in an attempt to bridge the existing gap in knowledge with respect to the impact of globalisation on manufacturing employment in Nigeria. Besides contributing to the literature on employment and globalisation, it would equally provide recent empirical discourse to a key sector in Nigeria-the manufacturing sector, given the global train of globalisation and its attendant competitiveness that is sweeping across the world.

3.0. Model Formulation

The methodological approach used in this study follows from the works of Lall (2002), Orbeta (2002), Spieza (2004), Patterson and Okafor (2006), and Olayinka (2006). The theoretical construct of the model is rooted in the Hechsher-Ohlin-Samuels-Stolper (HOSS) framework which discusses the sectoral and factoral effects of increased cross-border trade on the structure of employment and output of a country. According to the theory, greater interconnectedness among countries is expected to expand the sector that specialises in the production of goods using intensively that factor that is abundant in the country and contract the sector that produces commodities using the relatively scarce factor. Similarly, the factor effect argues that increased trade flow would increase the use of relatively abundant factor to the detriment of the relatively scarce factor. Thus, according to the HOSS model, a country that is rich in capital is expected to export capital-intensive commodities while those rich in labour, on the other hand, would export labour intensive commodities. Various models have been formulated and estimated to examine the thesis of the HOSS model. For instance Spieza (2004) posits a positive relationship between employment level and investment which is decomposed into Foreign Direct Investment (*FDI*) and Domestic Investment (*DI*). Furthermore, the effect of FDI on employment is further assumed to be dependent on the factor intensity of FDI relative to the DI. Thus, if FDI is more labour intensive than the DI, the employment impact is expected to be positive and vice versa. Spieza's models are of the form:

$$L = f(E, D, M) \tag{1}$$

$$L = f(FDI, DI) \tag{2}$$

Where:

L is the level of employment; E is the rate of export; D is the output of non-traded goods; M is the level of imports; FDI is the Foreign Direct investment.

Specifically, his equations (3) and (4) below were formulated from (1) and (2) respectively for the purpose of estimation:

$$\frac{\Delta L_t W_t}{L_t} = \beta_1 + \frac{\Delta E_t}{Y_t} - \beta_M \frac{\Delta M_t}{Y_t} + \beta_D \frac{\Delta D_t}{Y_t} \quad (3)$$

$$\frac{\Delta L_{ij}}{L_t} = \alpha_1 + \alpha_D \frac{FDI_{ij}}{GDP_{ij}} - \alpha_D \frac{DI_{ij}}{GDP_{ij}} \quad (4)$$

Where for equation (3) the term on the LHS is the labour intensity and on the RHS, we have the export, import and non-traded goods production multiplied by their labour intensities rates respectively; while for equation (4), we have employment change on the LHS and on the RHS we have FDI and DI as the share of GDP, multiplied by factors that indicate the contribution to the capital accumulation (output-capital ratio) and to the labour-intensity (labour-output-ratio). Using a set of panel data for a sample of 41 countries over different periods within the mid-1980's to mid-1990's; the result showed no significant employment impact of FDI. However, when the sample is disaggregated by income levels, the estimated regression showed a positive and significant employment impact for middle and high income countries; with the low income countries not showing any impact of FDI on employment.

For Ghana, Aryeetey (2006) asked the question: “Does increasing openness generate employment”? In providing an answer to the question, he formulated and estimated a labour demand equation of the form:

$$L_t = \alpha_1 + \alpha_2 W_t + \alpha_3 Y_t + \alpha_4 X_t \quad (6)$$

Where L is total employment, W is the real minimum wage; Y is the real GDP; and X represents the degree of openness of the Ghanaian economy to other countries. The coefficients of the explanatory variables of the estimated labour demand equation conformed to *a priori* expectations and were significant at 10% level. This result thus confirms the positive impact of globalisation on employment in Ghana as a one percent increase in the degree of openness generates a 0.14 percent increase in employment, among other results of the estimated model.

Since Nigeria is a labour-abundant country (Aigbokhan, 2004, CIA, 2008), we are similarly interested in examining the effect of globalisation on employment in the manufacturing sector. Our model formulation for this study therefore is:

$$EMPM_t = f(ROMP, RWG, RCK, Z_t) \quad (6)$$

Where:

$EMPM_t$ = level of employment in the manufacturing sector at a given time, t.

$ROMP$ = manufacturing output

RWG = real wage rate

RCK_t = the employers' cost of capital given that capital and labour are combined in the production process.

Z_t = shows a vector of globalisation variables used in the econometric analyses. In this study, we used two key variables to represent globalisation. The first is a measure of trade openness (OPN) defined as total external trade as a proportion of GDP {i.e. (export+import/GDP)}. The second measure of globalisation adopted in this study is the total annual sum realised from custom and excise duties ($CEXD$). The choice and inclusion of this variable follows the studies of Taymaz (1999) and Olayinka (2006), in which it is argued that the quantum of the customs and excise duties would reflect the volume of external trade in the country.

The model for this study is represented in implicit form as follows:

$$EMPM_t = f(RWG, RCK, ROMP, Z_t) \quad (7)$$

Note that Z_t can be either OPN or CEXD.

The above equation can be expressed explicitly as:

$$EMPM = \alpha_0 + \alpha_1 RWG_t + \alpha_2 RCK_t + \alpha_3 ROMP_t + \alpha_4 Z_t + \mu_t \quad (8)$$

Another form of the model estimated in the paper is the double log form of the model which is specified as:

$$\ln EMPM_t = \beta_0 + \beta_1 \ln RWG_t + \beta_2 \ln RCK_t + \beta_3 \ln ROMP_t + \beta_4 Z_t + e_t \quad (8)$$

Where:

$EMPM_t$ is the employment level in the manufacturing; this is measured by the number of workers in the employment of manufacturing sector. This will give a better proxy than number of workers involved in a trade dispute and vacancies declared as used by Patterson and Okafor (2006). The model represents the level of employment engaged at a given time t , given that at equilibrium, the labour demand would be equal to labour supply at a prevailing real wage rate.

RWG is real wage rate derived from Patterson and Okafor (2006) for the period 1990-1999, while the remaining period 2000-2006 were computed following their approach and deflating with the respective GDP deflator to get the real values.

RCK is the prime lending rate, representing the employers' cost of capital.

$ROMP$ is the real output of the manufacturing sector.

Z is measure of openness which can either be OPN or CEXD as each of the variables is used in the estimation one at a time.

μ_t and e_t are the error terms that capture variables not explicitly included in the model. Each of them is expected to be identically and independently distributed (iid) i.e. $N(0, \sigma^2)$.

The *a priori* expectation with respect to the signs of the estimated coefficients are :

- a. $\alpha_1, \beta_1 < 0$, given that wage is a cost of employing a unit of labour. From the Classical postulate, employers would employ more labour as real wage rate falls and vice versa in order to maximise profit.
- b. $\alpha_2, \beta_2 > 0$, given that interest rate is the cost of using capital. An increase in interest rate would make capital more expensive relative to labour, which would eventually increase the level of employment, *ceteris paribus*. This is based on the principle of substitutability between labour and capital in the production process.
- c. $\alpha_3, \beta_3 > 0$, this is premised on the assumption that if the state of technology and labour productivity are held constant, we expect production increases to call forth more employment.
- d. The coefficients α_4, β_4 are expected to be greater than zero based on the fact that globalisation gives access to better and more broad-based markets. In line with HOSS model, it is expected that Nigeria which is a labour abundant country will increase the production of labour intensive goods for sale in the international market, all other things remaining unchanged. However, the success of this postulate depends on a number of factors; some of which are: the degree of competitiveness of the country's product in the international market and the size of the elasticity of supply of traded goods; among other factors.

The data on employment and output of the manufacturing sector were sourced from Manufacturers Association of Nigeria (MAN). The data available was from 1990, hence we limited our the analysis on this to the period 1990-2006. The data on cost of capital (RCK), measure of openness (OPN) and custom and exercise duties ($CEXD$) were obtained from Central Bank Statistical Bulletin (2005 and 2006). The real wage data was computed following the approach of Patterson and Okafor (2006) as discussed earlier.

4. Data Analysis and Discussion

4.1. Global Competitiveness and Employment

The global competitiveness ranking, compiled by World Economic Forum (2008; 2009) is done using 12 indicators. The indicators show how competitive an economy is in the global economy with respect to maximizing the opportunities in it and the ranks range from one¹. The overall ranking of a country is derived from the 12 indicators aggregates and the higher the positional value, the less the competitiveness of the country and vice versa. For instance, for the year 2009/2010 report, Switzerland and Sweden had the ranks of 1 and 4, respectively out of 133 countries covered. These were far more competitive than Nigeria that had a rank of 199 out of 133 countries in the same period (World Economic Forum, 2009). Using the global rank of Nigeria in the second column of Table 1, we have been able to construct the Global Competitive Index (GCI) for Nigeria using the formula:

$$GCI = \left(1 - \frac{R_N}{C}\right) * 100$$

Where: GCI = Global Competitive Index for Nigeria

R_N = Nigeria's ranking for any given year;

C = Total Number of countries ranked in the year.

The GCI for Nigeria is as shown in column 3 of Table 1 and it is measured in percentages. The GCI increased phenomenally from 1% level in 2001 to 10% and 15% in the years 2002 and 2003 respectively. It dipped slightly to 10.6% in 2004 and has grown steadily since then to 16% and 19% in the years 2005 and 2006, respectively. The Table also shows the trend of openness variables measured with CXED and $\{(X+M)/GDP\}$, for the 2001 to 2006 period. Employment figures for the period 2001 and 2006 are as shown in column 5 of the table.

From an employment level of 122 thousand in 2001, it rose slightly to 149 thousand in 2002, and has fallen steadily since 2003 to 2005. It only rose slightly from 105,000 to 111,000 in 2006. The value for custom and excise duties followed a similar pattern within the same period, showing a dwindling revenue accrued to the government from that source (trade).

Table 1: Nigeria's Global Competitiveness Ranking, Trade and Employment (2001-2007)

Year	Global Rank	Global Competitiveness Index (GCI)	CEXD (Billion Naira)	OPN{(X+M)/GDP}	EMPM
2001	74 out of 75	1.33	170.60	0.55	122,078
2002	72 out of 80	10.00	181.40	0.58	149,428
2003	87 out of 102	14.70	195.60	0.75	135,812
2004	93 out of 104	10.60	217.20	0.45	117,241
2005	88 out of 117	24.79	232.80	0.53	105,146
2006	101 out of 125	19.20	177.70	0.76	111,194
2007	94 out of 132	28.79	241.40	0.87	n.a

Notes: OPN: ratio of trade (export+import) to GDP; EMPM: employment in the manufacturing sector, CXED: Custom and excise duties.

Sources: CBN (2007); Manufacturers Association of Nigeria; World Economic Forum (2008;2009); UNSTAT (2008)

Given the fact that the data that existed for global competitiveness data for Nigeria was only for the period 2001 to 2007, we did not include this variable in our model estimated and interpreted in Section 4.2. However, we computed the extent of correlation between employment in the manufacturing sector and GCI. The Pearson's Correlation coefficient between the two variables is 0.56 and the simple regression analysis shows that:

$$EMP = 109.661 + 2.134GCI;$$

$$(t=4.52) (t=1.351)$$

¹ See World Economic Forum (2008) for details on the various pillars of global competitiveness.

$R^2 = 0.313$ and Adjusted $R^2 = 0.142$; while $F\text{-stat.} = 1.82$

Though not statistically significant, the relationship between GCI and EMP is positive with adjusted R^2 of 14.2 %, which is rather low thus signifying that many other factors qualify as employment determinant in the manufacturing sector in Nigeria, as shown in the foregoing section.

4.2. Model Estimation and Discussion

We started the empirical section of the study with correlation matrix between employment and the chosen dependent variables to examine the pattern of relationships between the variables. The higher the absolute value of coefficient of correlation, the stronger the strength of the relationship (positive or negative as the case may be). The results from the test² indicated that there exists positive relationships between real output of manufacturing (*ROMP*), degree of openness (*OPN*) and employment level (*EMPM_t*). On the other hand, the employers' cost of capital (*RCK*) is negatively related to employment generation.

As it has been noted in most empirical research involving macroeconomic variables that mere relationship between variables do not reflect the true picture of association between them; hence, the use of simple correlation relationship may not be sufficient. There is thus the need for other econometric/statistical technique in order to be able to make informed policy recommendations. However, correlation matrix reveals the magnitude and direction of relationship of one variable and another, and more importantly it shows if there is multicollinearity among explanatory variables of any model of interest.

It has equally been noted in most econometric studies (Engle and Granger, 1987, Kagochi, Tackie, and Thompson; 2007) that it is expedient to carry out stationarity and co-integration test to have meaningful results. These tests are usually done using either Augmented Dickey-Fuller (ADF) or Phillips-Perron (PP) tests for stationarity test of variables. The co-integration test is done using Johansen and Juselius multivariate approach or Engle and Granger two-step method³. However due the small sample size of the study period, we employed the OLS regression technique and carried out some diagnostic tests (such as Jargue-Bera, Breuch-Godfrey (serial correlation LM test, White's heteroscedasticity test, Ramsey's regression specification error test and ARCH test) to ensure that our results are not spurious and could be found reliable for meaningful recommendations. The results from the estimation were presented in regressions I and II. In regression II we added the lagged value of the dependent variable among the regressors in regression I. The results are reported in Table 2, while the diagnostic tests are presented in the sub-section of the same Table.

Regression I shows the relationship between employment level in the manufacturing sector and the chosen explanatory variables. In the regression estimate it is observed that all the variables met their economic criteria with respect to their respective signs in line with our apriori expectations. The real wage rate (*LnRWG*) has its expected negative sign while others had their expected positive sign. The positive sign of employers' cost of capital (*LnRCK*) gives an indication that labour and capital are relatively substitutable in the Nigerian manufacturing sector. With regards to their level of significance, the variables were all significant at either 5% or 10% level except measure of openness. Custom and Excise Duties (*LnCEXD*) as a measure of globalisation indicates that global participation of Nigeria is employment inducing in the manufacturing sector. Using the other measure (trade performance/openness) there is an indication that it could be employment inducing in the as well but such potential has not been very significant. This may be that the country has not properly structured this sector to be positioned in reaping the advantages that may be latent in the process. Regression-I

² Details are not reported for brevity sake.

³ We equally carried out the stationarity test using both ADF and PP and found that all the variables except *RCK* were stationary at first difference. In addition, the co-integration test using Johansen and Juselius multivariate approach, which established that at least two co-integrating series among the variables. But we encountered some challenges when carrying out the speed of adjustment using vector error correction technique, which indicated insufficiency of observations and as a result we dropped the approach.

has a good-fit as indicated by the significant F-statistic. In addition, the value of the coefficient of determination (R-Squared) shows that about 80% of the changes in the level of employment is associated with the changes in the chosen explanatory variables.

Table 2: Regression Results on Employment in Nigeria’s Manufacturing Sector

Dependent Variable	Ln(EMPM)		Ln(EMPM)	
	(I)		(II)	
	Coefficient	t-Stat	Coefficient	t-Stat
<i>Ln(EMPM(-1))</i>	-	-	0.6528*	2.9317
<i>Ln(RWRT)</i>	-0.0529*	-2.1734	-0.1963**	1.9792
<i>Ln(OPN)</i>	0.0297	0.1770	0.0698	0.2172
<i>Ln(RCK)</i>	0.1886**	1.9558	0.0297**	1.8103
<i>Ln(CEXD)</i>	0.9744*	2.6821	0.6658*	2.1830
<i>Ln(ROMP)</i>	0.6760*	2.6677	-0.4151*	1.8489
C	0.3991	0.0875	3.8479	0.9891
R-squared	0.8011		0.8940	
Adjusted R-squared	0.7108		0.8234	
S.E. of regression	0.2595		0.2035	
Sum squared resid	0.7412		0.3728	
Mean dependent variable	11.1338		11.1615	
Schwarz criterion	0.7051		0.2917	
Akaike info criterion	0.4111		-0.0463	
F-statistic	8.8653		12.657	
Prob. (F-statistic)	0.0014		0.0006	
Confirmatory/Diagnostic Test				
J-B Normality test	0.3138(0.3548) ^a		1.7198(0.4232) ^a	
B-G Serial LM Test	0.8525(0.4581) ^a		0.4103(0.6784) ^a	
White Heteroskedasticity	0.5592(0.8012) ^a		3.5601(0.1618) ^a	
Ramsey RESET	1.0294(0.3342) ^a		0.1176(0.7405) ^a	
ARCH Test	0.7437(0.4030) ^a		2.1363(0.1676) ^a	

Notes: * and ** means significant at 5% and 10%. The critical values of two-tailed t-test are 2.101 for 5% and 1.734 for 10%. ^a denotes that the null hypotheses cannot be rejected at 10%.

Sources: Authors’ Computation.

Furthermore, we introduced the lagged value of the dependent variable to examine if current value of employment is influenced by the previous employment level and also to know the speed of adjustment in line with Taymaz (1999). This is shown in regression II in Table 2.0. The equation reveals that the previous level of employment is positively and significantly influencing the current level of employment. Furthermore, Regression II shows an improvement in the value of the R-squared (from 80.1% to 89.4%) as compared to Regression I. The F-statistic in the model also increased from 8.86 to 12.66, while both the Akaike information criteria (AIC) and Schwarz information criteria (SIC) also improved.

Given the use of lagged value of the dependent variable, the Durbin-Watson (D-W) becomes inappropriate in examining the confirmatory test on the error terms (Gujarati, 2003; Patterson and Okafor, 2006). With this understanding we employ some other tests which are reported in the lower part of Table 2.0 as Confirmatory/Diagnostic Tests. The Jargue-Bera (J-B) test of normality indicates that the error terms were identically independently distributed (iid), which means that normality assumption of the OLS was valid. Also the Breuch-Godfrey (B-G) serial correlation LM test emphasizes that the results were free from first order serial correlation. In addition, the White’s heteroscedasticity test revealed that the OLS’ homoscedasticity assumption was not violated, which is supported by the Ramsey’s regression specification error test (RESET) and ARCH test that the null

hypothesis of no variable omission and non-stability cannot be rejected. This implies that the regression model was not mis-specified⁴.

4.3. Summary of Findings and Implications

From the first segment of the analyses, the study found that there exists a positive relationship between global competitiveness and employment level in the manufacturing sector. This was equally corroborated with section 5.2 of the analysis where a positive relationship was found between Employment in the manufacturing sector and globalisation as measured by OPN and CEXD. However, it was equally found that there was a variation in the level of significance between the two proxies used-custom and excise duties, and trade openness. The finding in the present study seems to contradict those of Patterson and Okafor (2006) and supports that of Olayinka (2006) with respect to relationship between employment and globalisation. This points to the fact that a proper and appropriate custom and excise duties, which will have influence on how competitive a country would be, as well as the employment level in the manufacturing sector in Nigeria. This is because the sector depends to an extent on imported inputs and as a result, policies that can enhance the input cost would increase output as well as employment level.

The results from study equally confirmed that the employment in the current period is significantly and positively affected by the previous level of employment. The implication of this is that employers usually based their current employment decisions on the previous level of employment. Similarly, a positive and significant relationship was found between level of employment and output in the sector. This underscores the fact that efforts to improve the level of production in the sector via infrastructural development especially power supply will boost productivity which will in the long-run enhance the level of employment generation in the sector. The study also established the existence of relative substitution between labour and capital in the sector given the significant and inverse relationship between employment and employers' cost of capital. This finding corroborates the submissions Taymaz (1999) and Lall (2002).

5.0. Conclusion

There is an increasing debate on how a country can be globally competitive given the increasing wave of globalisation and economic connectedness across the world. And most studies have related the issue-globalisation/trade openness to economic growth usually on cross country basis with few on country specific basis. In addition, where it is discussed on country specific platform emphasis has been on the general economy. This present study motivated by the above contributed to literature and empirical discourse on the issue by relating global competitiveness to a given sector that is believed to be engine for industrialization and employment generation-the manufacturing.

The study employs time series data between the period 1990 and 2006 which was subjected to empirical analyses. The outcome of the study established that the existence of a positive relationship between global competitiveness and employment level in the manufacturing sector in Nigeria. This suggests that a proper and appropriate custom and excise duties will improve Nigeria's competitiveness on the global platform as well as the employment level in the manufacturing sector. The study equally confirmed that employers in the sector usually base their current employment decisions on the previous level of employment. The study also underscores that efforts to improve the level of production in the sector via infrastructural development especially power supply will boost productivity which will enhance the level of employment generation in the sector.

⁴ See Gujarati, 2003 for details about their procedures and applications.

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