Manufactured Export and Government Spending on Infrastructures in Nigeria (1990 – 2015)

Dr Olajire Aremu Odunlade and Prof Festus Folajinmi Adegbie

School of Management Sciences, Department of Accounting, Babcock University, Ilisan-Remo, Ogun State, Nigeria

***Abstract*: Government spending in every fiscal year is aimed at impacting every sector of the economy through the provision of infrastructural facilities required for the production of goods and services; that will enhance the welfare of the citizens. However, poorly developed and decaying infrastructure has been noted to be affecting the financial and operational capabilities of manufacturing companies in Nigeria. This study examined government spending on Infrastructures which are; Roads, Power, Human Capital Development on Export of listed manufacturing companies in Nigeria..**

The study adopted ex-post facto research design. The population of the study was 83 listed manufacturing companies in Nigeria as at December 31, 2016, from which a sample size of 20 was purposively selected based on availability of data covering the period from 2001 to 2015. Secondary data were obtained from published financial statements of listed manufacturing companies in Nigeria, publications of government and the World Bank. Validity and Reliability of the data were based on the reports of external auditors and other regulatory agencies. The data were analyzed using descriptive and inferential statistical methods.

The study found that government spending on power, roads, security and human capital development; jointly have significant effect on MANUFACTURED EXPORTS. MANEXP $F(4, 10) = 10.07$, P value associated with the F-value was 0.002, this is less than 0.05 indicating that the the independent variables had significant effect on the dependent variables. $R^2 = 0.801$, Adj $R^2 = 0.722$. However, Government spending on Power had negative but insignificant effect on Manexp ($t(26) = -1.57$, $p>0.05$) expenditure on Roads had negative insignificant effect on Manexp ($t(26)= -0.234$ $p>0.05$).. Spending on Security had negative but insignificant effect on Manexp ($t(26) = -0.490$ $p>0.05$). HCD had positive but insignificant effect on Manexp ($t(26) =1.493$ $p>0.05$)

The study concluded that government spending on infrastructures did not influence earning from export of manufactured products in Nigeria. It was recommended that government should restructure its pattern of expenditure to make it industry specific so as to re-engineer ailing Nigerian manufacturing companies.

***Keywords*: Government spending, Human Capital Development, Power, Roads, Security, Manufactured Export**

I. INTRODUCTION

Government spending on infrastructures such as Power, Roads, Security and education for human capital development are very critical to the development of manufacturing industry all over the world. Electricity aids the expansion of manufacturing sector in terms of output and employment (Andrew, Emily, Alberto and Juan-Pablo, 2014), road infrastructure reduces transport cost of raw materials and finished products (Ogwo and Agu, 2016), Human Capital Development (HCD) through education increases productivity (Karim, Al-Huda and Shabbir, 2012) while security of life and properties reduces production cost and encourage investment (Deger & Sen, 2013). These ultimately results in better financial performance of the manufacturing companies which is measured by various ratios including Earning from Export of manufacture goods which is the focus of this study.

However in Nigeria power supply remain grossly inadequate (World Bank enterprise survey ,2017) while a greater part of the network of roads in the country which was about 200,000kms in 2015 are in deplorable condition (National Planning Commission, 2015). Over the years infrastructures in the education sector remain poorly developed while security issues such as; robbery, terrorism, ritual killing and kidnapping have been on the increase in spite of increase in government spending on security (Otto and Ukpere, 2015).

Objective of the study

To examine the effect of government spending on infrastructures which are; power, roads, security and human capital development On the Export of Manufactured goods in Nigeria from 2001 to 2015

Research question: To what extent does government spending on power, roads, security and human capital

development impact on the export of manufactured goods in Nigeria?

Hypothesis : Government spending on power, roads, security and human capital has no significant effect on in Nigeria.

II. METHOD OF DATA ANALYSIS

The study adopted *ex-post facto* research design. Secondary data obtained from published financial statements of listed manufacturing companies in Nigeria, publications of government and the World Bank were analyzed using descriptive and inferential statistical methods

III. LITERATURE REVIEW

Theoretical Framework

The Principal-Agent Model and Budget Theory

The principal-agent relationship arises when one party (agent) agrees to work in favor of another party (principal) in return for some incentives (Schillemans, 2013). Jensen and Meckling (1976) define the agency relationship as a contract in which one party (the agent) is charged with performing a particular activity on behalf of another party (the principal). This theory which was developed by Ross and Mitnick emerged in the 1970s, is based on the assumptions that goal conflict exists between principals and agents and that agents have more information than their principals, which results in an information asymmetry between them (Attila, 2012).

In the public sector, agency relationships are usually discussed from the standpoint of public choice theory, which states that it is the responsibility of the government represented by democratically chosen politicians, to promote public policies that serve the interests of civil society (Lemieux, 2015). In the principal-agent theory of public budgeting, those who perform public functions who are the technocrats and bureaucrats in the public sector are the agents while those on whose behalf the activities are performed are the principals (Lerut & Paul, 2007). The

relationship existing determines who the principal is and who is the agent. In the public sector the Ministry of Finance (MoF) provides public funds to ministries and other government agency. In this case the MoF acts as the principal while other public bodies are the agents which carry out government functions (Lerut & Paul, 2007). The principal (MoF) agrees with the agents to provide services to the public, and the main focus for all those involved in the relationship is the budget. Ministry of finance which represents public interest exercises control over other ministries which are agents. These ministries are expected to produce public goods and services in exchange for their budget appropriation. The objective of the MoF therefore, is to induce the line ministries into implementing their expenditure programs as contained in the ministries budgets

A number of government operations are in form of principal-agent relationships (Oliveira & Filho, 2016). For example, the minister who is the political head of a ministry is regarded as the principal whose objective is to ensure that his agents who are the civil servants implement government objectives. In this same way, the Federal Government acts as the agent of the public in the performance of its fiscal responsibilities. Principal-agent theory therefore focuses on the analysis of incentive structures that will make governments to faithfully reveal their ability to implement national programs (Ahmad, Tandberg & Zhang, 2002). These achievable programs are the main element of the relationship between the principal and the agent. When the agent is the ministry, measuring performance is based on performance variables which are usually with reference to prioritized objectives in the budget. The ministries budget proposals submitted to the Ministry of Finance will include the required activities to be achieved by the ministry (in terms of provision of public goods and services) and the efforts required from the ministry to achieve them (Ahmad etal, 2002).

Relevant to this relationship is Information. Governments at all levels use information, to decide allocation of revenues and expenditures, and to evaluate performance. From the principal-agent perspective, the information is managed by principals and agents to advance their own self-interest or to maximize their own benefits (Forrester and Adams,1987). Because principals and agents often have conflicting interests, each party tends to have different types and amounts of information (information asymmetry), and have different incentives to reveal that information (Stevens, 1993). The existence of this asymmetry of information will lead to sub-optimality where each party in the budget process pursues its own objectives rather than the objective of the system as a whole this will affect the system adversely. The consequence of this is that the public who are the principal in this circumstance will fail to realize its objective of the budget. As much as possible sub-optimality between the two parties must be discouraged.

The focus of this theory is on the performance of political administrations in terms of being able to use the public resources to provide public infrastructures that satisfies individuals and corporate organizations which include manufacturing companies, hence its adoption for this study.

Empirical Review

Government Spending and Manufactured Exports

Manufactured exports are the total value of goods manufactured for export in a country (Joshi, 2005). Production for export requires highly skilled workers. Skilled worker has higher Productivity (Kern, 2009). Manufacturing for export provides wide range of opportunities for a nation, however production level that meets local demand and for export depends largely on a number of factors in addition to the quality of education and level of competence acquired by the labour force. These factors include; power, roads and security. World Bank Report (2017) showed that manufacturing companies contribution to the Nigerian economy was very low in spite of the so much expended by the government on the infrastructure annually. Yahaya, Salisu and Usman (2015), identified power as one of the causes of low level of output of manufacturing companies in Nigeria. Nurre(2012) and Holodny (2015), attributed poor performance of the manufacturing sector to poor road infrastructure while according to Otto and Ukpere (2012) government expenditure on security infrastructure have failed to make significant contribution to output of manufactured goods in Nigeria.

Infrastructures acquired through government spending from taxes, levies and other resources provide good environment for better performance by the manufacturing companies (McCawley, 2010). Proceeds of taxes levies and other resources are allocated through the budget. Countries that allocate a greater percentage of their annual budget to

infrastructures experience significant level of industrialization (Nurre, 2012). For example the United States, even as a developed country, government expenditure on infrastructures was still as high as between 2.3% and 3.6% of Gross Domestic Product (Nurre, 2012). Holodny (2015) identified infrastructures as a key factor in the strength of any economy in the world. He said further that countries with very good performance of the manufacturing companies incidentally are the countries with best infrastructure in the world. Countries that spend more on infrastructures such as roads, power, security and the development of human capital are; The United States, Spain, United Kingdom, France, Germany,

Switzerland and Japan. Others are: United Arab Emirates, Netherland, Singapore and Hong Kong (Holodny,2015). These countries are also part of the top manufacture exporting countries in the world. The Central Intelligence Agency World Fact Book (2017) shows that as at 2014, China's export was about $2 trillion followed by the US with export value of $1.471 trillion Spain occupied the 13th position with export value of $266.300 billion.

However, the developing economies are still far behind in manufacture export because of poor development of infrastructures (McCawley, 2010) These countries still require a higher percentage of their national output to finance infrastructure. The latin America according to Nurre (2012), require 3% of GDP while Africa require about 15% of their GDP to finance infrastructure that will promote industrialization.

Essien, Tordee, Solomon and Felix (2015), in their study on security issues and its relationship with Foreign Direct Investment obtained results showing that national security remains one common and major factor hindering the growth of FDI in Nigeria within the period covered by the study. Every investor they said wants his investment to be secured and therefore will like to assess the situation in a country before investing in such an environment. The security challenges facing Nigeria include the threats to lives, properties and business establishments coming from regional or ethnic agitation for self-determination, crisis in the Niger-Delta, Terrorism in the North, rising cases of armed robberies and kidnapping, ritual killing, (Otto et al, 2015). This insecurity has continued to cripple business activities and frighten investors.

Several empirical studies on security situation in Nigeria show that for many years the level of insecurity in the country has been on the high side and this has impacted very much on production cost by the manufacturing industries. This insecurity did not only increase the unit cost of production for many firms but also resulted in lowering the level of their output with a number of them relocating to other neighboring countries (Otto et al, 2015).

It was in the light of the relevance of infrastructures to output of the manufacturing companies that this study examined impact of government spending on the components of infrastructure as it contributes to export earnings in Nigeria within the period covered.

Manufactured Exports and Government Expenditure On Infrastructures

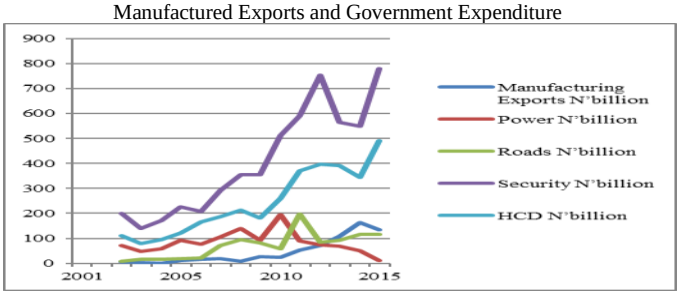
Year	Manufacturing Exports N'billion	Power N'billion	Roads N'billion	Security N'billion	Education N'billion
2001	0.84	80.41	7.20	107.14	59.74
2002	4.74	69.96	7.45	200.30	109.46
2003	1.99	46.68	16.95	138.65	79.44
2004	1.48	58.94	14.90	171.20	93.77
2005	10.38	93.29	17.91	226.47	120.04
2006	14.83	75.85	20.10	206.82	165.22
2007	19.95	104.65	71.50	292.00	185.77
2008	8.29	139.78	94.50	354.00	213.00
2009	26.06	93.44	81.00	356.00	181.00
2010	22.99	194.52	57.00	512.00	259.00
2011	53.64	90.03	197.00	592.00	371.00
2012	70.75	73.42	83.00	755.00	396.00
2013	107.57	67.65	92.00	565.00	390.42
2014	163.08	50.22	116.30	548.00	343.75
2015	134.77	10.22	114.60	779.00	492.03

Source: CBN Annual Reports and Statement of Account 2018

From the table manufactured goods worth about N840 million was exported from Nigeria in 2001. There was a significant increase in the value in 2002, in this year manufactured goods worth N4.7 billion were exported. However this figured declined to N1.99 billion in 2003 and to N1.48 billion in 2004. In 2005, it rose to N10.38 billion and the rise was consistent until 2008 when it fell to N8.29 billion. The peak level of N163.08 billion was achieved in 2014 and thereafter fell to N134.77 billion. This trend appear consistent, however when the values are compared to the total export in terms of what percentage or ratio of total exports, the value is almost insignificant. In 2001 manufactured export was only about 0.3% of total export and in 2002 when the export rose to N4.7 billion, this was only about 5% of total export. In 2010 it was about 6.7% and fell to 2.5% in 2011. The maximum achieved within this period was the 6.7% achieved in 2010. (World Bank Report, 2017).

The Federal government of Nigeria's expenditure on Power in 2001 was only N80.4 billion Naira, it rose to N194.5 billion in 2010 and fell to only N10.2 billion in 2015. The table also shows that the Road expenditure by the government was N7.2 billion in 2001; it increased to N197 billion in 2009 and began to decline. As at 2015, it was only N114.6 billion. Security expenditure was N107.14 billion in 2001; it rose consistently through the years to about N779 billion. The Chart below shows the trend in government expenditure on infrastructures and manufacture exports.

Trend Analysis



Source: Researcher's Field Survey 2018

This Chart shows the combined effect of government expenditure on all the variables on the export of manufactured goods in Nigeria. The deep blue curve represent export of manufactured goods lies below all other curves showing that the variables under study do not impact significantly on the manufactured exports. As these curves were rising showing increase in government expenditure on them, export remain far below all of them.

In order to ascertain extent of this impact of government spending on manufactured, regression analysis was carried out on the variables, results of the regression is discussed below. Model Specification: Y = f(X)

Y = Manufactured Export
X = Government Expenditure on Infrastructures
X = x_1, x_2, x_3, x_4
x_1 = Government Expenditure On Power
x_2 ,= Government Expenditure On Roads
x_3, = Government Expenditure On Security
x_4 = Government Expenditure On Human Capital Development

$MANEXPT = \beta_0 + \beta_1 POWEXPit + \beta 2 RODEXP_{it} + \beta 3 SECEXP_{it} + \beta 4 HCDEXP_{it} + \varepsilon$

Model Summary

Model	R	R Square	Adjusted R^2	Standard Error of the estimate	Sig. F-Change	df 1	df 2	Durbin-Watson
1	0.895	0.801	0.722	27.79	0.002	4	10	2.156

Source: Researcher's Field Survey 2018

a. Dependent Variable: Manufactured Export
b. Predictors: (Constant), HCD, Power, Road, Security

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficient	t-statistics	Sig.
	B	Std. Error	Beta		
(Constant)	-0.951	23.868		-0.04	0.97
POWEXP	-0.312	0.205	-0.251	-1.57	0.16
RODEXP	-0.056	0.240	-0.057	-0.234	0.820
SECEXP	-0.84	0.171	-0.353	-0.490	0.635
HCDEXP	0.458	0.307	1.493	1.493	0.156

Source: Researcher's field survey 2018

a. Dependent Variable: Manufactured Export
b. Predictors: (Constant), HCD, Power, Road, Security

ANOVA

Model	Sum of Squares	Df	Mean Squares	F	Sig.
1 Regression	31099.94	4	7774.98	10.07	0.002
Residual	7720.76	10	772.08		
Total	38820.70	14			

Source: Researcher's field survey 2018
a. Dependent Variable: Manufactured Export
b. Predictors: (Constant), HCD, Power, Road, Security

$MANEXPT = -0.951 - 0.312 POWEXPit - 0.056\ RODEXP_{it} - 0.84\ \beta 3 SECEXP_{it} + 0.458 HCDEXP_{it} + \varepsilon$

IV. DISCUSSION OF FINDINGS

The model summary in the table shows that R which is the correlation of the regression has a value of 0.895 indicating a high positive relationship between government expenditure on Power, Roads, Security and Human Capital Development and manufactured exports. The Pearson correlations however show that the four independent variables have negative correlations with the manufactured export. These results show that increase in government expenditure has over the years followed by a decline in the value of export of manufactured goods in the country.

The value of R^2 in the model summary is 0.80, showing that 80 percent of the variation in the value of the dependent variable is explained by the independent variables. R^2 measures the strength of the relationship between Government Expenditure on Power, Roads, Security and HCD and Manufactured export. It shows that the coefficients β is not zero. Adjusted R^2 of 0.72 is relatively high, this statistics tell us what happens to R^2 when more independent variables are introduced. The standard error of the estimate which is 27.79 is relatively small considering data used in the regression while Durbin Watson statistics of 2.16 shows existence of autocorrelation in the data used. This could be attributed to the number of years covered in the study.

In the coefficient table, value of the constant is -0.95, the t-statistics value is negative 0.04 that is less than 2 with a significant value of 0.97. This shows that the constant value does not have a significant relationship with the manufactured exports. Coefficient of Power that is β_1 is -0.31, indicates that 0.31% of a change in dependent variable is caused by the government expenditure on Power. The standard error of this variable is only 0.21 with t-statistics of -1.58 and the significant value of 0.16 showing that Power expenditure is not significant to the change in manufactured export. Road

expenditure by the government also has a coefficient of -0.06, it means that road expenditure is inversely related to manufactured export to the extent of 0.06%.

The t-statistics associated with it is -1.58 with p-value of 0.82 showing that this independent variable is not significantly related to the dependent variable that is manufactured export. In the same way β_3 which is the coefficient of Security expenditure has a negative value of -0.08, a t-statistics of -0,49 and p-value of 0.64. Security in this case has no significant relationship with manufactured exports. Only expenditure on Human Capital Development shows a positive but not significant relationship with manufactured export. The coefficient of this variable which is β_4 is 0.46. It has a t-value of 1.493 with p-value of 0.16 meaning that this predictor is not a significant determinant of change in the manufactured export in Nigeria.

ANOVA table indicate fitness of the model to the hypothesis tested. F-value which is the Mean Square Regression (7774.98) divided by the Mean Square Residual (772.08) is 10.07, the P-value associated with the F-value as shown in the significance column is 0.002, this is less than 0.05 indicating fitness of the model to the hypothesis. That is there is a significant relationship between manufacturing companies exports and government spending on Power, Roads, Security and Human Capital Development.

V. CONCLUSION

In the same way, export of manufactured products have not been given adequate support in terms of government spending on the infrastructures that will provide good environment both internal and external to the manufacturing sector. Coefficients of all the independent variables except HCD were negative. All these variables are not significantly related to the export of manufactured goods implying that government spending on them is still very much inadequate.

REFERENCES

[1] Andrew, S., Emily, D., Alberto, L. & Juan-Pablo, R. (2014). How does electricity insecurity affect businesses in low and middle income countries? London: Overseas Development Institute

[2] Ahmad, E., Eivind, T & Ping, Z .(2002). On national and supranational objectives: improving the effectiveness of targeted expenditure programs, IMF working paper 02/209, International Monetary Fund, Washington DC

[3] Attila, G. (2012). Agency problems in the public sector. Journal of faculty of economics,university of Oradea 1(1): 708-712.

[4] Central Bank of Nigeria Statistical Bulletin and Annual Reports Various Issues

[5] Central Intelligence Agency Fact Book 2017

[6] Deger, S. & Sen, S. (2013) Defence, innovation and development: the case of Israel. Journal of Innovation Economics & Management 2(12),37-57

[7] Eurostat data (2015)

[8] Eurostat data (2017)

[9] Essien, J., Tordee, B., Abuba S.& Igbara F. (2015). The impact of national security on foreign direct investment(FDI) in Nigeria. Journal of Business and Management 17(5), 69-74 Federal Government of Nigeria Publications

[10] Forrester, J. P & Adams, G. B. (1997). Budgetary reform through organizational learning: Toward an organizational theory of budgeting. Administration & Society: Journals Sagepublication.com

[11] Gorton, D. (2017). Key financial ratios for manufacturing companies. www.investopedia.com International Energy Outlook, (2016)

[12] Holodny, E (2015). The eleven countries with the best infrastructure around the world. Business Insider, www.ntu.eu

[13] Institute for Energy Research. Electricity Generation (2014)

[14] Institute for Energy Research. Electricity Generation (2015)

[15] Jessen, M. C. & Meckling, W. H. (1976). Theory of the firm: managerial behaviour, Agency costs and ownership structure. Journal of financial economics 3(4): 305-360.

[16] Joshi, R. (2005). International marketing. New Delhi: Oxford University Press.

[17] Karim, A. Al-Huda, N & Shabbir, A. (2012). Human capital and the development of manufacturing sector in malaysia. OIDA International Journal of Sustainable Development 4(4):105-114

[18] Kern, A. F. (2009). Human capital development theory. www.personal.psu.edu

[19] Nurre, S. G. (2012). Restoring infrastructure systems: An integrated network design and scheduling problem. European Journal of Operational Research., 223 (3), 794– 806.

[20] Leruth, L & Paul, E. (2007). A principal-agent theory approach to public expenditure management systems in developing countries. IMF Working Paper 06(204)

[21] National Planning Commission Report (2015)

[22] Oliveira, C. B. & Filho, J. R. (2017). Agency problems in the public sector: the role of mediators between central administration of city hall and executive bodies. Brazilian journal of public administration. 51(4):596-615.

[23] Otto, G & Ukpere, W. (2015). The impact of national security on foreign direct investment in Nigeria. IOSR journal of Business and Management 17(5), 69-74

[24] Ogwo, E. O, & Agu, G. A,(2016). Transport infrastructure, manufacturing sector performance and the growth of gross domestic product in Nigeria, (1999-2011). Journal of Business and African Economy 2(1), 1-21

[25] Ross, D. (2018). Assets management. The national business review www.nbr.co.nz/tags/ross- .asset-management

[26] Schillemans, T. (2014). Predicting public sector accountability: from agency drift to forumdrift. Journal of public administration research and theory. 25(1):191-215

[27] Stevens, J. B. (1993). The economics of collective choice. Boulder, West view press.

[28] World Bank (2011). World development indicators: electricity production, sources, and access wdi.worldbank.org/table/3.7

[29] World Bank Report (2014)

[30] World Bank Report (2017)

[31] World Fact Book (2017)

[32] World Facts (2017)

[33] World Bank Enterprise Survey of Business (2017)

[34] Yahaya, Y., Salisu, B. M. & Uma, B. (2015). Electricity supply and manufacturing output In Nigeria: Autoregressive distributed lag bound testing approach. Journal of Economics and Sustainable Development , 6(17):1-14