

Return on Capital Employed of Listed Manufacturing Companies and Government Spending on Infrastructures in Nigeria (1990 -2015)

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Abstract: Government spending on infrastructures in various subsectors of the economy such as power, roads, education for human capital development and security is often directed towards increase in the production of goods and services and creating environment that will enhance the welfare of the citizens. However poor state of infrastructure in Nigeria, have been noted to be affecting the financial performance of manufacturing companies in the country. Our focus in this study was to link government spending on Power, Roads, Security and Human Capital Development with the micro variables of firm performance in the area of Return On Capital Employed (ROCE). 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 1990 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 have no joint significant effect on ROCE ($F(4, 21) = 0.523$, the P-value associated with the F-value as is 0.720, this is greater than 0.05 indicating that there was no significant relationship between the independent and the dependent variables. $\text{adj } R^2 = -0.083$. Coefficients of the independent variables show that Government spending on Power had positive but insignificant effect on ROCE ($t=0.524$, $p>0.05$). Roads had negative, insignificant effect on ROCE ($t=-0.498$, $p>0.05$) Security had negative but insignificant effect on ROCE ($t(26) = -1.221$, $p>0.05$), HCD had positive but insignificant effect on ROCE ($t(26) = 0.823$, $p>0.05$). The study concluded that government spending on infrastructural development in the areas of power, road, security and education did not impact on the Return On Capital Employed of manufacturing companies in Nigeria within the period of study. Sustainable industrial development requires adequate funding of infrastructures in Nigeria to reduce cost of operations and increase profitability level of manufacturing companies.

Keywords: Financial Performance, Government spending, Human Capital Development, Power, Roads, , Return On Capital Employed, Security

I. INTRODUCTION

Transparency and accountability in government spending on infrastructures covering 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 Return On Capital Employed Gorton (2017). ROCE is a financial ratio that indicates the nature of profit earning capacity of a firm in response to its long-term sources of capital employed in the acquisition of its assets (Dhanawade & Geadekar, 2017).

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 such as power, roads, security and human capital development On the Return On Capital Employed of listed manufacturing companies in Nigeria

Research question: To what extent does government spending on power, roads, security and human capital development impact on the Return On Capital Employed of listed manufacturing companies in Nigeria?

Hypothesis: Government spending on power, roads, security and human capital has no significant effect on Return On Capital Employed (RCOE) of listed manufacturing companies in Nigeria.

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

II. LITERATURE REVIEW

Theoretical Framework

There are a number of accounting theories applicable to the public sector which seeks to explain reasons for the adoption of a particular method in the appropriation and distribution of public funds by the managers of public finance. Among these relevant theories is the normative theory adopted for this study.

Normative theory of accounting developed by MacNeal in 1939 is based on a priori concepts and deductive reasoning that prescribe the accounting procedures and policies that should be followed rather than describing those that are followed in practice. Normative theory of accounting in the public sector therefore, attempts to prescribe the best practices for accounting for government spending in the public sector (Schick, 1998). The theory requires both budgeting and spending process to be transparent in such a way that information about the government spending and the budget, and what they set out to achieve flows to all stakeholders including the bureaucrats, the investors and the public (Meyers, 1996).

According to this theory, if government financial resources are properly deployed, government expenditure will have positive and significant effect on the activities of individual and corporate economic agents; hence its adoption for this study

Empirical Review

Report of the Institute for Energy Research in 2015 on power generation and distribution in the world shows that Nigeria with a population of about 177 million in 2015 has the lowest power generation per head of 135kW while South Korea has the highest figure of 19,800kW per head. All the African countries performed better than Nigeria. Ghana was 354kW, Zambia 733kW, Mozambique 461kW and South Africa 3,855kW. The poor quality of electricity reflected by the voltage fluctuation and power outages in Nigeria has been perceived to be impediment to the contribution of manufacturing companies to employment generation and national output (Andrew, Emily, Alberto and Juan-Pablo, 2014). Voltage fluctuation and power outages halt production, damage equipment and affect product quality. These ultimately have effect of frustrating business and increasing

operational cost (Wee, 2017). More than 800 companies which were both local and multinational have closed down due to erratic power supply in the country (Chinedum & Nnadi, 2016).

Road infrastructure was identified by Holodny (2015) as a key factor in the competitiveness of any economy in the world. Countries with very good performance of the manufacturing companies incidentally are the countries with best road infrastructure in the world. They include, the US, 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 million. In 2014, Nigeria spent about N92 billion on roads equivalent to \$600 million (Central Bank of Nigeria,2015). Incidentally in terms of the quality of roads in low income countries in the world, Nigeria occupied 121st position in the ranking as shown in the World Road Statistics and the World Bank's World Development Indicators (2014). In 2017, Nigeria was ranked 126th out of 138 countries by the World Economic Forum showing that road infrastructure is poorly developed.

Security issues which are on the increase in nations of the world include; robbery, terrorism, burglary, trespassing, harassment, juvenile delinquency, unauthorized living, and other inappropriate social behavior such as kidnapping (Rothbard, 2013). Business organization will only want to operate in an environment where these threats to their operations are reduced significantly (Rothbard, 2013). For this reason, government spending on defence and public order among nations of the world has continued to rise. In 2015 Greece expenditure on security was 2.7 % of the Gross Domestic Product (GDP), United Kingdom recorded 2.1 % of GDP, Estonia 1.9 % of GDP and France 1.8 % of GDP. On the average expenditure on defence in EU-28 was 1.4% of GDP in 2015 while it was 1.2 % of GDP in 2014 (Eurostat Information, 2017). The defence include; military, civil, foreign military, Research and Development (Eurostat Manual, 2015).This increase in government spending on security was also reemphasized by Dunne and Perlo-Freeman (2003). In Nigeria, government expenditure on defence and internal security rose from N1.348 billion in 1986 to N779 billion in 2015 (CBN, 2016) to ensure safety of lives and properties and reinforce the confidence of the investors in the business environment where they operate.

Human capital includes the stock of knowledge, habits, social and personality attributes, skills, abilities; experience, intelligence, training, judgment, with creativity, possess by individuals or a people which are instrumental to the production of economic value (Poepsel, 2017). These attributes are the resources which constitute the human assets used in the creation of wealth needed to transform the

production capacity of any nation (O'Sullivan, 2003). The human capital is required for capacity building in the manufacturing sector and success of any organization (Crook, Todd, Combs, Woehr and Kethchen, 2011); human capital increases through education and experience (Crook et al., 2011). The emphasis across the globe is now on knowledge economy; knowledge acquired through high quality education produces human skills that support high level of productivity

(Rahmah, 2009). Incidentally countries all over the world now focus more on the development of manufacturing sector as a key driver of change in the economy (Zalk, 2014). Gorton (2017) said, ability of a manufacturing company to continue in business is evaluated through the financial ratios that provide stakeholders with necessary information for critical decision. It was in the light of this that this study was carried out.

Manufacturing Firms' Return On Capital Employed and Government Expenditure

Years	Return On Capital Employed %	Power Spending % of total expenditure	Roads Spending % of total expenditure	Security Spending % of total expenditure	Human Capital Development Spending % of total expenditure
1990	19	3	1	5	4
1991	16	4	1	6	2
1992	2	3	1	5	2
1993	24	1	1	4	4
1994	26	1	1	6	6
1995	24	1	1	3	5
1996	2	0.03	0.03	8	5
1997	15	0.02	0.04	6	4
1998	15	0-06	7	7	6
1999	16	0.07	2	6	3
2000	16	0.05	0.7	8	10
2001	19	8	0.7	11	6
2002	17	7	0.07	20	11
2003	16	4	1.38	11	6
2004	11	4	1.04	12	7
2005	11	5	10	12	7
2006	11	4	1.04	11	9
2007	9	4	3	12	8
2008	30	4	3	11	7
2009	29	3	2	10	5
2010	16	5	1.4	12	6
2011	16	2	4.2	13	8
2012	11	2	1.8	16	9
2013	17	1	2	11	8
2014	11	1	3	12	8
2015	14	0.02	2.3	16	10

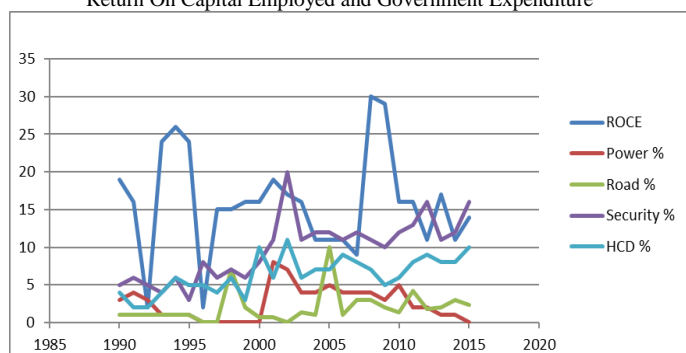
Source: Researcher's Field Survey

Government spending on infrastructures such as power, roads, security and human capital development is expected to have a significant positive effect on Return On Capital Employed through the reduction of operating expenses of manufacturing companies in Nigeria between 1990 and 2015. In the table, ROCE of the manufacturing companies in 1990 was 19%, it rose to 24% in 1993.

It fell consistently from 24% in 1994 to 9% in 2005. In 2007 attained a peak of 30% and decline again to 14% in 2015. In the same way the percentage of government spending on Power to total expenditure dropped from 3% in 1990 to 1% in 1995 and ultimately to 0.02% in 2015 this decline could be attributed to the privatization of the sector. The table also shows that percentage of government spending on Roads

fluctuated between 1% and 4%. It was 1% in 1990, attained the peak in 2011 when it recorded 4% and fell to only 2% in 2015. Expenditure on security recorded better performance with 5% in 1990 and consistently rose to 16% in 2015. Human Capital Development (HCD) recorded 4% in 1990 and then fluctuated between 5% and 10%. The peak of 10% was achieved in 2015. These figures are shown in Chart below. In order to ascertain extent of the impact of government spending on the Manufacturing companies Return On Capital Employed, regression analysis was carried out on the variables. Our Hypothesis as stated above was tested as shown using the regression model

Return On Capital Employed and Government Expenditure



Source: Researcher’s field survey

The Chart shows that when all the variables are combined together, the curve depicting trend of Return On Capital Employed depicts irregular movement within the period. ROCE attained peak levels of 29% in 2008 and 30% in 2009. Security expenditure curve lye above all other curves followed by Human Capital Development expenditure curve between 2006 and 2015. Power and Roads curves interlock.

Model Specification: $Y = f(X)$

$Y =$ Return On Capital Employed (ROCE)

$X =$ 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

ROCE = $\beta_0 + \beta_1POWEXP_{it} + \beta_2RODEXP_{it} + \beta_3SECEXP_{it} + \beta_4HCDEXP_{it} + \epsilon$ Model	Unstandardized Coefficients		Standardized Coefficient	t-statistics	Sig.
	B	Std. Error	Beta		
Constant	17.088	4.182		4.086	0.001
Power	0.398	0.759	0.133	0.524	0.606
Road	-0.321	0.644	-0.105	-0.498	0.623
Security	-0.830	0.680	-0.508	-1.221	0.236
HCD	0.860	1.044	0.310	0.823	0.420

Source: Researcher’s Field Survey

a. Dependent Variable: ROCE

b. Predictors: Constant, Power, Road, Security, HCD

$$ROCE = 17.088 + 0.398POWEXP_{it} - 0.321RODEXP_{it} - 0.830SECEXP_{it} - 0.860HCDEXP_{it} + \epsilon$$

The study found that government spending on Power, Roads, security and human capital development have no joint significant effect on ROCE ($F(4, 21) = 0.523$, the P-value associated with the F-value as is 0.720, this is greater than 0.05 indicating that there was no significant relationship between the independent and the dependent variables. $adj R^2 = -0.083$. In the co-efficient table, the value of constant was 17.088 representing the value of manufacturing ROCE when Government Expenditure is zero. Coefficient of the independent variables; Power was 0.398, Road was -0.321, Security was -0.830 and Human Capacity Development was 0.860. The t-statistics associated with these coefficients are; 4.086 for constant with 0.001 significant level, 0.133 for Power with 0.606 significant level, -0.498 for Road at 0.623

significant level. Others are Security with t-statistics of -1.221 and 0.236 significant level and finally HCD with t-value of 0.823 and a significant level of 0.420. These results show that no component of government expenditure has a significant relationship with the ROCE, the insignificant relationship revealed that government spending did not stimulate profitability level in the manufacturing sector.

Implications of the Findings

Implication of this is that investment in equity of manufacturing companies in the country is discouraged. The results also revealed that ROCE which relates profit earning capacity of a firm to its long-term sources of capital employed used in the acquisition of its assets was negatively

related to government spending on Power, Roads, Security and Human Capital Development implying that government spending on infrastructure has not impacted positively on the financial performances of the manufacturing companies in Nigeria within the period of the study, contrary to our a priori expectations. The findings also contradict the assumptions of normative theory of public spending on which this study was based. You need to elaborate on your discussion of findings

III. CONCLUSION

Public sector spending in Nigeria, therefore requires high level of accountability for the objectives of the government as articulated in the budget to be achieved and for it to impact positively on firm's financial performance.

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] Central Bank of Nigeria Statistical Bulletin and Annual Reports Various Issues
- [3] Central Intelligence Agency Fact Book 2017
- [4] Chinedum, E. M. & Nnadi, K. U. (2016). Electricity Supply and Output in Nigerian Manufacturing. Retrieved 23/2/2018 www.researchgate.net, 7(6) 154
- [5] Crook, T. R., Todd, S. Y., Combs, J. G., Woehr, D. J., & Ketchen, D. J. (2011). Does human capital matter? A meta-analysis of the relationship between human capital and firm performance. *Journal of Applied Psychology*, 96(3), 443–456. Sector. *Journal of Economics and sustainable development* (7)6, 2222-2855
- [6] Dunne, P. & Perlo-Freeman, S. (2003). The demand for military spending in developing Countries *International Review of Applied Economics* 17(1):23-48
- [7] Dhanawade, M.S. & Geadeka, A. B. (2017). An analysis of Return On Capital Employed and Enhanced Return On Capital Employed as a tool for appraisal of financial performance of pharmaceutical companies in India. *Journal of Advances in Business* 3(3), 155-158
- [8] Deger, S. & Sen, S. (2013) Defence, innovation and development: the case of Israel. *Journal of Innovation Economics & Management* 2(12),37-57
- [9] Eurostat data (2015)
- [10] Eurostat data (2017)
- [11] Federal Government of Nigeria Publications
- [12] Gorton, D. (2017). Key financial ratios for manufacturing companies. www.investopedia.com International Energy Outlook, (2016)
- [13] Holodny, E (2015). The eleven countries with the best infrastructure around the world. *Business Insider*, www.ntu.eu
- [14] Institute for Energy Research. Electricity Generation (2014)
- [15] Institute for Energy Research. Electricity Generation (2015)
- [16] 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
- [17] Meyers, R. T. (1996). Is there a key to the normative budgeting lock? Netherlands, Kluwer Academic Publishers.
- [18] National Planning Commission Report (2015)
- [19] 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
- [20] 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
- [21] O'Sullivan, A. & Sheffrin, S. M. (2003). *Economics: principles in action*. Upper saddle River. New Jersey, Pearsonv prentice hall.
- [22] Poepsel, M. (2017) Major human capital trends that will shape the coming year. *The Predictive Index* www.predictiveindex.com
- [23] Rahmah, I (2009). The impact of human capital attainment on output and labor Productivity of Malaysia firms. *Journal of international management studies* 4(1),221-222.
- [24] Rothbard, M. (2013). *Man, Economy, and State, with Power and Market*. www.mises.org/library/man-economy-and-state-power-and-market
- [25] Schick, A (1998). *An inquiry into the possibility of a budget theory.* Washington, DC: The urban institute.
- [26] Wee, R. Y. (2017). Countries most prone to power outages financial loss. *World Facts*, 2017
- [27] World Bank (2011). *World development indicators: electricity production, sources, and access* wdi.worldbank.org/table/3.7
- [28] World Bank Report (2014)
- [29] World Bank Report (2017)
- [30] World Fact Book (2017)
- [31] World Facts (2017)
- [32] World Bank Enterprise Survey of Business (2017)
- [33] World Development Indicator (2015)
- [34] Z alk, N . (2014). *South Africa Infrastructure*