PUBLIC PRIVATE PARTNERSHIP IN AN EMERGING ECONOMY: EVIDENCE FROM INFRASTRUCTURAL AND MANUFACTURING SUBSECTORS OF NIGERIA

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Abstract: In recognition of Public –Private Sector nexus, this paper examines the implications of Public-Private Sector participation on infrastructural development and manufacturing sub-sector of Nigeria. The Public Sector is associated with the management of societal affairs and the need to partner with Private Sector becomes eminent as this fosters satisfactory infrastructural development and the development of the manufacturing sub-sector. Public-Private Partnership (PPP) in Nigeria is beset with infrastructural challenges which impact on manufacturing sub-sector and economic development. These imbalances include but are not restricted to increase in population, inadequate planning, political instability, corruption, transaction cost, poor socio-economic structures and high incidence of poverty. This paper therefore sets out to investigate in empirical terms, the relationship between PPP in the area of infrastructural developments and manufacturing sub-sector of Nigeria using Nigerian data. In the analytical methodology, a two step model is specified in line with appropriate ordinary least square(OLS) techniques. These cover two equations and with the empirical modeling the study unveils a functional and respectable linkage between the dependent and independent variables. The paper advocates that for effective and efficient functioning of PPP in the area of infrastructural development and manufacturing, constant energy supply and availability, technological development and financing, effective transportation and communication facilities should be provided as insufficient infrastructure is capable of constituting heavy cost on the economy thereby leading to high cost of doing business and bottleneck in manufacturing.

Keywords: Development, Infrastructure, Manufacturing, Private, Public

INTRODUCTION

A cursory analysis of emerging economies such as Nigeria reveals that infrastructural services has over the years been a public sector affair and has been so over a decade without evidence of substantial achievements. This implies that most governments are weak and bad managers most especially in weak economies. The public sector is that portion of an economy whose activities be they economic or non-economic are strictly controlled and directed by the state. The resources are owned by the state and the state applies these resources towards achievement of goals such as promotion of economic well being of the citizens. The private sector is that part of the economy whose activities are under the control and direction of non-governmental economic units such as household and firms.

Public sector managers therefore do not have all the solutions to the obvious challenges of emerging economies. This lacuna so created calls for private sector initiatives into the reform agenda of the public sector aimed at achieving substantial efficiency and effectiveness. The choice of infrastructural services and manufacturing subsector has its genesis from the fact that this sector dominates all sector of an emerging economy. PPP therefore though viewed as a solution to a proper functioning of the public sector which has remained a disaster in some emerging

economies as a result of poor management is faced with infrastructural imbalances due to increase in population. These imbalances are associated with increase in population thereby requiring federal, state and local government to be in partnership with public and private sectors in other to eschew these challenges in relation to poverty. PPP aims at ensuring the delivery of public infrastructure and services cost-effectively, by leveraging private sector expertise and innovation. Inadequate planning also poses problem to PPP in Nigeria. The success story or failure of PPP could be traced to the initial design of PPP policies, legislation and guidance. Without adequate consideration of the market in the planning stage, the government can create a situation where there are few bidders chasing multiple projects. This is capable of creating non-competitive environment. The challenges of policy making in emerging economies constitute problem to PPP. As popularize by Awotona (1990), Ikejiofor (1999), Aribigbola (2008) and Nnabueze (2009), policies therefore, are associated with lack of political will, institutionalized policy and continuity, corruption, poor funding and inadequacy of mortgage institution and poor socio-economic structures. These have subsequently contributed greatly to the failures of Public Private Partnership in Nigeria.

Reasoning in the same direction, Chukwuemeka (2006) and Ugwu (2009) maintain that failure of leadership equally leads to problem of PPP in Nigeria. Thus implementation of PPPs in the electricity sector has been challenged by protracted negotiations (Ahadzi, 2004). Difficulties in structuring project financing, lack of supportive legal and regulatory framework (Blackman, 1999), high bidding costs and resistance from environmentalists have led to a reduction in private sector interest and investment in the development of infrastructural facilities in emerging countries stemming from the nature of the institutional environment (Akintoye, 2003 and Bing Li, 2005).

However, many challenges also hinder the growth of the manufacturing sub-sector of emerging economies. Due to these infrastructural imbalances, the country is progressing very slowly towards economic diversification in the manufacturing sub-sector. Dipak and Ata (2003) summed up the economic scenario in Nigeria and the role of the manufacturing sector by identifying the main hurdles that mostly hinder its development and growth. These include insecurity, political instability, market-distortion, state-owned monopolies, weak infrastructure and unavailability of finance. Excessive bureaucracy and rampant corruption have also been acknowledged as common problem confronting most public-private partnership and concession projects in Nigeria.

This paper is organized in five sections. Section one is the introduction while section two forms the basis of the theoretical discourse and literature review with evidence on infrastructural services and Public Private Partnership vis-à-vis PPP and manufacturing subsectors. Section three concentrates on methodology and model specification while section four demonstrates data analysis and discussion of results. The paper terminates with policy advocacy and brief concluding remarks in section five.

THEORETICAL DISCOURSE AND LITERATURE REVIEW

This study is anchored on social system theory of management as articulated by Parsons (1960). This is related to the view of Ansoff (1965). Here the entire society is viewed as a social system that interact with component parts so as to achieve specific goals. Ansoff's view focuses on synergy. The whole is greater than one implying that if various sectors of Nigerian economy both public/private sectors cooperate and interact towards the provision of adequate infrastructural services they will become more productive than if each acted in isolation. Therefore, system theory takes a holistic view of the entire manufacturing sub-sector as being an embodiment of different parts. If each of these sectors performs properly then public-private partnership is aided to achieve stipulated goals such as provision of adequate infrastructural services, steady energy supply to manufacturing sub-sectors and total development of the economy. There is need to open partnership option for both Government and private sector investors in the delivery of social goods and services to the public. Thus as opined by Fashola (2007) instead of being the sole provider, government shifts to a facilitator position, an enabler and regulator focusing more on co-ownership, co-responsibility, and equity participation to private investors who are willing to partner with the state. Some state governments such as Lagos state government has started exploring the various public-private partnership options through the strategy of Build, Operate and Transfer (BOT) model arrangement. With introduction of Lekki concession company (LCC); the Lekki Corridor of Lagos is reputed to be African's fastest growing real estate business zone. This project offers exciting potentials of PPP for transformation of the infrastructural landscape in Lagos state. Not only does this strategy reduce the pressure on government but also boosts the transfer of technology and skills through enhancing indigenous capacity especially in growth and development on manufacturing sub-sectors.

This study explores public-private partnership on provision of infrastructural services and manufacturing sub-sector of Nigeria. Thus, Osborne

(2000) maintains that the term partnership, as used in management reforms include contractual arrangements, alliances, cooperative arrangements, and collaborative activities used for policy development, programme support and delivery of government programmes and services. As opined by Carr (1998), a public-private partnership has to do with cooperative venture between the public and private sectors of the economy and built on the expertise of each partner, that best meet stated public needs through the appropriate allocation of resources, risk and rewards.

Put simply, PPP is associated with contract between a public sector (authority) and a private party and the ownership is shared between public and private partners. As at year 2009, energy subsector was the only sector in which public-private investment (PPI) increased across the developing world. This was also the first year since 1997 that energy investment led all other sectors, including telecommunications. Recently, the 12th African Union Assembly (2009) undertook to institute reforms to private sector investment in infrastructure and develop major regional and continental hydroelectric power projects to ensure energy security in Nigeria. Increase in energy availability proportionately stimulates development by having a multiplier effect on the productivity and manufacturing of other service sectors. The National Assembly passed the Electric Power Sector Reform Act in 2005 which allows private companies to invest in and operate power companies in Nigeria. The Act also providers the creation of institutions required to protect consumers and stimulate investment in a power sector market with competing firms. Therefore, efforts to promote economic growth and manufacturing sub-sector depend greatly on adequate supplies of infrastructural facilities such as availability of energy resources. Regional communities in emerging economies such as Nigeria, governments, private sectors, civil society and other stakeholders must contribute to the economic integration. In the light of this, African leaders with the NEPAD's Short-Term Action Plan (STAP, 2002), opine that all sectors must embrace the challenges and vigorously work as partners in progress towards the improvement of infrastructural and manufacturing sub-sectors in the country.

Public-Private Partnerships on infrastructural and manufacturing sub-sector in Nigeria must do with provision of adequate and reliable physical infrastructural services which are important when considering the role played in supporting the growth of economy, manufacturing sub-sectors, industrial production, delivery of health services and technological experts/skills etc. Provision of these infrastructures has long been identified as catalysts for the growth of manufacturing sub-sector and business development.

Allis (2000) maintains that the manufacturing sector could serve as the backbone of the economy. In view of this, the government has decided to ensure that the manufacturing sector receive access to the domestic, regional and international markets. This adds value to the manufacturing sector products thereby making it take advantage of the country's oil and gas sector. Subsequently, the manufacturing industry derives great advantages from the improved infrastructure and the private sector is also encouraged to invest in different productive manufacturing industries.

INFRASTRUCTURAL SERVICES AND PUBLIC-PRIVATE PARTNERSHIP

Infrastructural services development in Nigeria has been a matter of public sector disquiet over the years and has remained so for numerous political administrations without recording significant achievements. This has necessitated a paradigm shift which incorporates private sector initiative into the traditional sector as part of policy reforms aimed at entrenching efficiency into the management of state endowments. As opined by Nigeria (2006) the new institutional arrangement- Public-Private Partnership (PPP) was developed with specific theoretical grounds and was part of an expanded process of policy and institutional transfer. The focus on the infrastructural services and manufacturing sub-sector stems from the fact that it dominates all other sectors of the economy in Nigeria. Public-Private Patnership(PPP) emerged amidst fiscal constraints and limited public sector capacity coupled with the complexity arising from both sectors. This unique marriage of both the private and public sectors is anticipated to facilitate efficiency in the country. It is therefore aimed at reducing public capital investment and entrench risk sharing and delivery of quality projects. In achieving the best from the public and private sectors, the key test of any partnership arrangement is not whether it is classified to the public sector or to the private sector, but ensuring that the needs of the people are delivered.

PUBLIC-PRIVATE PARTNERSHIP IN MANUFACTURING SUB-SECTOR

Manufacturing sub-sector of some emerging countries has failed to undergo the critical structural transformation required to enable it to play a leading role in economic growth and development. This sector is structurally weak thereby making basic industries in the area of iron, steel, and petrochemicals not to be adequately developed. The technological base for manufacturing is lacking. This is greatly as a result of seeming absence or inadequacy of research and development. Efforts and

energy for manufacturing which depend solely on oil for its export and in carrying out all imports for machinery, equipment and spare parts, are hindered. The volatility in oil prices further contribute to the economic instability of the country and poverty is widespread. This is mostly in the rural areas. Thus the above scenario makes development plans to describe the Nigerian manufacturing sector as one of mere assembly plants. Consequently, the sector is unable to attract the basic investment for economic growth and remains an insignificant player in the economy. This dependence has a significant negative impact on other sectors. Manufacturing is the prime move of industrialization of the fully industrialized leading economies of the world. Key economic sectors that generate majority of a nation's wealth are agriculture, mining and quarrying, manufacturing and building and construction. Other sectors, such as services and trade redistribute this wealth, and are built on the products created by the wealth generators. Manufacturing plays a unique role than others to some extent. Unlike agriculture and mining, it is not directly limited by natural resources. Equally, while building and construction, most manufacturing products are easily transferable across national and international boundaries. Furthermore, the manufacturing sector has significant linkages with all other sectors of the economy. As a result, manufacturing is and will continue to be the fundamental base for economic health and growth of emerging economies. In order to appreciate the manufacturing sector, the role of oil sector and its corresponding effects on manufacturing sub-sector and entire economy become essential to note. The importance of the manufacturing sector is also realized from the fact that private consumption and expenditure are significantly increasing in the country up to the rate of 15 to 20 per cent per year. As articulated by Nishimizu and Robinson (1991), Nigerian manufacturing sector has been in great need of reform for many years. In view of great challenges, the manufacturing sector strongly deserves private sector-friendly policies, in order that the entire manufacturing process can be boosted to a private sector magnitude. This enhances economic growth and capacity utilization in the sector. The infrastructural sector equally requires improvement including the railways, road and other communication systems. This requires the Nigerian research institutions to be adequately funded by the government, private, and even multinational organizations. With these institutions, they will engage in purposeful researches capable of reviving decaying manufacturing sectors. Sever inadequate infrastructure is identified as a factor hindering the manufacturing growth. This is because organizations and agencies related to the provision of different infrastructures often fail to adequately perform. This affects the flow of work in the manufacturing sector. At the same time the manufacturers and the investors equally desire motivation and encouragement in order that investors can become open towards investing in the different manufacturing firms. The government has recognized the fact that the manufacturing sector can act as the backbone of the economy. Thus the manufacturing sector should have access to the domestic, regional and international markets. This sector therefore remains to achieve advantages from the improved infrastructure and the private sector would also be encouraged to invest in different productive manufacturing industries. The role of the government is important in increasing the industrialization, manufacturing businesses and entire economic growth in Nigeria. A strengthened public-private partnership is needed in Nigeria manufacturing sub-sectors. With successful public-private partnerships (PPP), it will induce skills, core competencies and best practices to assist government in delivering high standard of services, products and other public goods. Manufacturers can partner with Federal, State and Local Governments, as well as syndicated private investors to leverage the indigenous contributions of small and medium enterprises (SMEs) and upgrade manufacturing capacity thereby contributing to the economy meaningfully.

Table 1 highlights the stylized facts associated with the contribution of infrastructure to Gross Domestic Product (GDP) in an emerging economy of Nigeria. The infrastructural sector has failed to meet the expectations of Nigerians in terms of contribution to GDP. A cursory look at the transportation, communication and utilities sub-sectors reveals significant reduction in percentage level of contribution by these subsectors to GDP. Utilities here embrace electricity and water. As popularized by the ASIAN Development Bank, a country's infrastructural development should amount to a minimum of 6 per cent of GDP in order to attain a reasonable level of sustainable development. The Nigeria case is at variance with this proclamation and is below the apriori expectation. This signifies that PPP should be vigorously pursued in order to improve the situation which has been abysmally low for a period of 1990 to 2011.

The manufacturing sector has equally failed the nation not only in inadequate provision of unemployment but also in expected contribution of Nigerian society. This sector has been a serious consumer of foreign exchange instead of serving as a paramount factor for socioeconomic transformation. This sector depends on foreign raw materials and making low contribution to GDP as recorded in the table above the growth rate of manufacturing is very low ranging from 1970 to year 2012.

Table 1: Selected infrastructural services contribution to GDP (1990-2010)

Year	GDP	Transport	% Contribution	Comm..	% Contribution	Utilities	% Contribution
1990	267550.0	5438.8	2.0%	247.9	0.9%	1178.0	0.4%
1991	265379.1	5620.7	2.1%	229.9	0.9%	1192.7	0.4%
1992	271365.5	5880.5	2.2%	258.8	0.9%	1310.1	0.5%
1993	274833.3	6143.8	2.2%	266.9	1.0%	1355.0	0.5%
1994	275450.6	6179.3	2.2%	269.2	1.0%	1433.9	0.5%
1995	281407.4	6289.5	2.2%	279.2	1.0%	1422.1	0.5%
1996	293745.4	6457.6	2.2%	291.9	1.0%	1447.8	0.5%
1997	302022.5	6685.9	2.2%	308.8	0.1%	1448.2	0.5%
1998	310890.1	6974.3	2.2%	326.9	0.1%	1387.4	0.4%
1999	312183.5	7256.7	2.3%	347.0	0.1%	1413.7	0.5%
2000	329178.7	7508.1	2.3%	370.3	0.1%	1448.9	0.4%
2001	356904.3	7585.4	2.2%	2574.5	0.7%	12172.9	3.4%
2002	433203.5	9226.4	2.1%	3269.8	0.8%	13842.7	3.2%
2003	477533.0	9338.0	1.9%	4048.8	0.8%	16166.6	3.4%
2004	527576.0	13993.7	2.6%	6307.8	1.2%	18881.9	3.6%
2005	561931.4	14882.1	2.6%	8175.2	1.5%	20135.3	3.6%
2006	595821.6	15911.5	2.7%	10926.7	1.8%	21115.8	3.5%
2007	634251.1	17017.6	2.7%	14624.6	2.3%	22156.6	3.5%
2008	674889.0	18206.3	2.7%	19597.4	2.9%	23081.0	3.4%
2009	717967.0e	19472.0e	2.7%	26227.8e	3.6%	24155.9e	3.4%
2010	763794.7e	20825.6e	2.7%	35101.4e	4.6%	25280.9e	3.3%

Source: Central Bank of Nigeria (CBN) Statistical Bulletin (2011)

Table 2: Demonstrates selected indicators of the manufacturing subsector

Year	Percentage level of manufacturing industries	Growth rate of manufacturing
1970	7.2	34.3
1975	5.6	77.0
1980	8.3	6.6
1985	8.6	20.5
1990	8.1	7.6
1995	6.6	-5.5
1996	6.5	0.9
1997	6.3	0.3
1998	6.2	0.3
1999	6.3	5.0
2000	6.0	3.6
2001	5.9	4.2
2002	6.0	4.4
2003	6.5	4.6
2004	5.8	4.6
2005	8.2	4.7
2006	8.4	4.8
2007	7.2	4.2
2008	7.6	4.0
2009	6.7	5.0
2010	6.5	5.6
2011	6.6	4.4

Source: Central Bank of Nigeria Annual Report and Statement (various issues)

METHODOLOGY

In addition to the above and econometric approach is adopted in the empirical analysis of the relationship between PPP in the area of infrastructural development and manufacturing sector of Nigeria. Infrastructure is captured in two fold. These are physical or economic infrastructural component such as water, energy resources, means of transportation, telecommunication, and buildings. These are essential for economic growth and development of a country and are otherwise known also as physical capital.

The other fold of infrastructural component is the social component of infrastructure which covers education, training and health etc. The data used in this study are basically secondary data sourced mainly from Central Bank of Nigeria statistical bulletin and federal government of Nigeria Bureau of statistics (various issues). The period spans from 1990 to year 2011.

SPECIFICATION OF EMPIRICAL MODEL

The empirical model specified in this study recognizes the two components of infrastructure in the variables as selected and modeled below:

Energy Equation

Eq (1) $ENG = f(GDP, HELTH, TECH, INDP, MANU, TRAN)\ e_t$
…… *(i)*

Econometrically, we have it modeled as stated below:

Eq (2) $ENG = a_0 + {}_{a1}LGDP + a_2LHELTH + a_3LTECH + a_4LINDP + a_5LMANU + a_6LTRAN + e_t$
……*(ii)*

Restating this in line with manufacturing we have:

Eq (3) $MANU = b\ (ENG, GDP, HELTH, TECH, INDP, TRANS)\ e_t$
……..*(iii)*

The above could be modelled thus:

Eq (4) $MANU = b_0 + b_1LENG + b_2LGDP + b_3LHELTH + b_4LTECH + b_5LINDP + b_6LTRANS + e_{t\ldots\ldots}$
……..*(iv)*

Where:

a_0 *to* a_6 *represents parameter estimates*

b_0 *to* b_6 *represents parameter estimates for equation*

e_t *represents stochastic/error term with usual normality properties*

LGDP - Log of Economic Growth (GDP)

LHELTH - Log of Health (social infrastructure)

LTECH - Log of Technology (physical infrastructure)

LINDP - Log of industrial production

LMANU - Log of manufacturing

LTRANS - Log of transportation

LENG - Log of energy/electricity (physical infrastructure)

DATA ANALYSIS AND DISCUSSION OF RESULT

Model: OLS using observations 1 -22

Dependent variable: ENG

Table 3: Impact of infrastructural and manufacturing subsector on economic development

Mean dependent var	295723.3	S.D dependent Var	259349.9
Sum squared result	4.21e+11	S.E. of regression	167610.5
r-squared	0.701666	Adjusted R-squared	0.582333
F(6,15)	5.879879	P – value (f)	0.002522
Log-likelihood	-291.6505	Akaike criterion	597.3010
Schwarz criterion	604.9383	Hannan – Quinn	599.1001

	Coefficient	**Std error**	**t-ratio**	**P-value**
Const	93775.0	271398	0.3455	0.7346
ΔGDP	4.91181	2.21072	2.222	0.0421
ΔHELTH	0.00160631	0.0181484	-2.6252	0.3901
ΔTECH	0.167402	0.0527232	3.176	0.0036
ΔINDP	-14.8635	5.63068	-2.640	0.0186
ΔMANU	0.0364783	0.0141683	2.575	0.0211
ΔTRANS	-554.134	2271.68	-0.2436	0.8106
$R^2 = 0.701666$		F = Statistics (6, 15) = 5.879879		

Energy (Electricity) is presented here as a dependent variable. There is a functional relationship existing between energy, and health services, technology, industrial production, manufacturing and transportation. Deriving inspiration from the regression result above the following facts associated with the implications of public private partnership (in relation to infrastructural and manufacturing sub-sector) on economic development emerged. In this equation energy subsector covering electricity and gas is regressed on Economic Growth (GDP), health sector (social infrastructural), technology, industrial production, manufacturing and transportation subsector.

The estimated coefficient of the constant term is positive. This implies that at zero performance of the independent variable the infrastructural and manufacturing subsectors improved by 93775.0 million. The result is statistically not significant at 0.7 per cent level. The coefficient of economic growth is positive and is statistically significant at 0.04 per cent level implying that increase in energy and electricity supply facilitates economic growth greatly. This moves in concert with apriori, economic expectation. The coefficient of health services is positive and is statistically significant 0.4 per cent meaning that an increase in energy supply leads to subsequent improvement in health care delivery services and agrees with management expectation. The coefficient of technology and industrial production are positive and negative respectively while technology is statistically significant at 0.006 per cent level. Industrial production is statistically significant at 0.02 per cent. Increase in energy leads to subsequent improvement in manufacturing as confirmed by the coefficient of manufacturing which is statistically significant at 0.02 per cent level. The converse is the case with transportation which is statistically not significant and with negative estimated coefficient. An R^2 of 0.701666 indicates that there is no case of autocorrelation.

POLICY RECOMMENDATION AND CONCLUDING REMARKS

This study reveals that there is linkage between Public Private Partnership in the area of infrastructural development, manufacturing sub sector and economic development. The econometric model is of great significance as it has productive power for the explanation of the relationship. This paper therefore maintains that for effective and efficient functioning of PPP in the infrastructural and manufacturing subsectors. Stable and constant energy supply and availability coupled with technological development, effective transportation and communication facilities should be provided as insufficient infrastructure is capable of truncating business development and economic growth.

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