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Unlocking the potential of the power sector for industrialization and poverty alleviation in Nigeria

Abstract

Nigeria is the biggest economy in Africa, and now, has the potential to play a more active role in the global economy than in the past. Actualizing this potential will depend largely on the degree to which it can achieve industrial development and create the conditions for long term sustained growth and poverty reduction. So far, Nigeria has made very modest progress in terms of manufacturing development due to domestic policy failures, structural and infrastructural constraints and a challenging global economic environment. This paper examines the role of poor power supply services in the challenge of industrialization in Nigeria. It also reviews recent reforms implemented by the Nigerian government to address the power problem and makes policy recommendations on what needs to happen for the power sector to play a more supportive role in the industrial development process.

Key words: Poverty, energy, power sector, industrialization, Nigeria.

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1. Introduction

The advent of civilian rule in Nigeria in 1999 heralded a new wave of optimism that Africa's most populous country had finally put behind it the frequent instabilities caused by military intervention in politics, and could now focus its attention on addressing the core development challenges; namely: the eradication of poverty and unemployment, reduction of inequality, and transformation of its production and export structure to reduce dependence on oil. To some extent, the economic performance of Nigeria over the past two decades suggests that this optimism was justified. Unlike in the 1980s, the country has had a relatively good economic growth performance since 2000, with an average growth rate of real output of 9.5 per cent in the period 2000-2007 compared to a negative growth rate of 1.4 per cent in the period 1980-1989. While the global financial and economic crisis of 2008-2009 had a significant negative impact on Nigeria, it has nevertheless grown at a reasonable rate of about 6 per cent since the crisis, which is much better than its growth performance in the 1980s (Table 1). As a result, real per capita income increased from $1,447 in the 1980-1989 period to $2,344 in the 2008-2014 period. There has also been an increase in foreign capital flows into Nigeria. Foreign direct investment (FDI) inflows increased from 1.7 per cent of GDP in 1980-1989 to 2.3 per cent in 2008-2014, and personal remittances received rose from 0.03 per cent of GDP to 6.1 per cent over the same period. Substantial progress has also been made in the area of macroeconomic stability, with average consumer inflation falling from about 21 per cent in 1980-1989 to about 11 per cent in 2008-2014.

Table 1. Selected macroeconomic data for the Nigerian economy, 1970-2014

	1970-79	1980-89	2000-07	2008-14
GDP per capita (constant 2010 US$)	1878.05	1446.61	1632.23	2344.44
GDP growth (annual %)	7.00	-1.42	9.51	5.99
Population (millions)	63.21	83.11	134.60	164.01
Population growth (annual %)	2.67	2.63	2.57	2.68
Urban population (% of total)	19.60	25.31	37.80	44.34
Life expectancy at birth, total (years)	43.18	46.13	48.02	51.66
Unemployment, total (% of total labor force) (national estimate)		3.90	12.50	14.20
GINI index (World Bank estimate)		38.68	40.06	42.97
Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)		45.27	53.46	53.47
Services, value added (% of GDP)		30.08	23.59	44.71
Industry, value added (% of GDP)		33.59	41.06	29.66
Agriculture, value added (% of GDP)		36.32	35.34	25.62
Trade (% of GDP)	35.58	37.22	65.01	46.93
Export volume index (2000=100)		108.25	114.88	132.91
Gross fixed capital formation (% of GDP)		18.75	7.73	13.70
Final consumption expenditure, etc. (% of GDP)		74.98	79.37	76.95
Inflation, consumer prices (annual %)	15.81	20.89	12.40	10.92
Net ODA received (% of GNI)	0.45	0.32	2.32	0.60
Personal remittances, received (% of GDP)	0.03	0.03	5.92	6.08
Foreign direct investment, net inflows (% of GDP)	1.58	1.68	3.10	2.31
Current account balance (% of GDP)	-3.19	-1.55	15.24	5.14

Source: Computed based on data from World Development Indicators online (http://data.worldbank.org/data-catalog/world-development-indicators).

Notwithstanding the progress that has been made over the past few decades, poverty and inequality are still high in Nigeria. The poverty headcount ratio increased from 45 percent in 1980-1989 to 53 per cent in 2008-2014. Similarly, the Gini index (a measure of inequality) rose from 39 to 43 over the same period. These stylized facts on poverty and inequality imply that Nigeria's recent economic growth has not been inclusive and that the government has to strengthen efforts to foster social inclusion to enhance prospects for achieving the Sustainable Development Goals (SDGs) by 2030. Another striking feature of Nigeria's recent growth experience is that output growth moved in tandem with an increase in both the export volume and unemployment rate. The export volume index increased from an average of 108 in 1980-89 to 115 in 2000-07 and 133 in 2008-14. During the same period, the unemployment rate rose from 4 percent to 13 and 14 percent respectively. These facts are interesting because economic theory suggests that export is an engine of growth, and an important source of employment creation. Yet, the Nigerian experience has been one of export growth co-existing with both higher output growth and higher unemployment, indicating that export should be regarded as a means and not an end in itself. Exports are useful to the extent that they enable a country to achieve its broad development goals. A major reason why Nigeria's recent export and output growth have not had the desired impact on unemployment and poverty is that the country has not fostered economic diversification and transformation. Nigeria is still heavily dependent on oil, reflecting the fact that it has not had much success in transforming its production and export structure.[1] In this regard, a major policy challenge which policymakers have to address in the short to medium term is how to diversify the production and export structure of the economy to reduce vulnerability to external shocks and engender sustained growth.

Since independence in 1966, Nigerian policymakers have emphasized the need to diversify the economy and reduce dependence on oil, as evidenced by the fact that industrialization has been an important component of existing national development plans. Between 1966 and 1986, Nigeria promoted industrialization through a policy of import-substitution, which involved protecting and supporting domestic industries. While the subsidies and other forms of support provided under this policy resulted in an increase in manufacturing activities in the country, it also led to a debt and foreign exchange crisis in the early 1980s forcing the government to abandon it and introduce Structural Adjustment Programs (SAPs) from 1986 to 1993. Under the SAPs, efforts were made to deregulate and liberalize the economy, and several support provided to domestic industries were removed. This had a significant negative impact on manufacturing and was a key factor in the deindustrialization observed in the country in the second half of the 1980s and 1990s (Osakwe 2013). At the dawn of the new Millennium efforts were made by the government to revive the industrialization agenda within the framework of the National Economic Empowerment and Development Strategy (NEEDS) unveiled by President Olusegun Obasanjo in 2004 and the Transformation Agenda launched by President Goodluck Jonathan for the period 2011-2015 (NPC 2004). Building on these initiatives, in the first quarter of 2017, President Muhammadu Buhari launched the Economic Recovery and Growth Plan (ERGP) for the period 2017-2020 (FRN 2017). The ERGP is a medium-term plan with three strategic objectives: restoring growth; investing in people; and building a globally competitive economy. It is expected that industrialization will play a crucial role in achieving these strategic objectives. The evidence indicates that these renewed efforts have led to some gains in industrial development. For example, manufacturing value added as a percentage of GDP increased from 3.7 per cent in 2000 to 9.5 per cent in 2015. But there is also the recognition that the level of manufacturing development is still below the peak value of 10.4 per cent achieved in 1983 and, more importantly, also below Nigeria's manufacturing potential.

Against this background, this paper suggests that Nigeria can realize its vision of becoming one of the leading economies in Africa, and playing a significant role in the global economy; but, this would require an effective approach to lifting the binding constraints on industrial development imposed by poor access to affordable and stable power supply. The rest of the paper is organized as follows. The next section examines the structure and performance of the Nigerian manufacturing sector, followed by a discussion of the linkages between power and industrial development, and the evolution, reform and challenges of the Nigerian power sector. This is followed by policy recommendations on how to power Nigeria for transformative development, and concluding remarks.

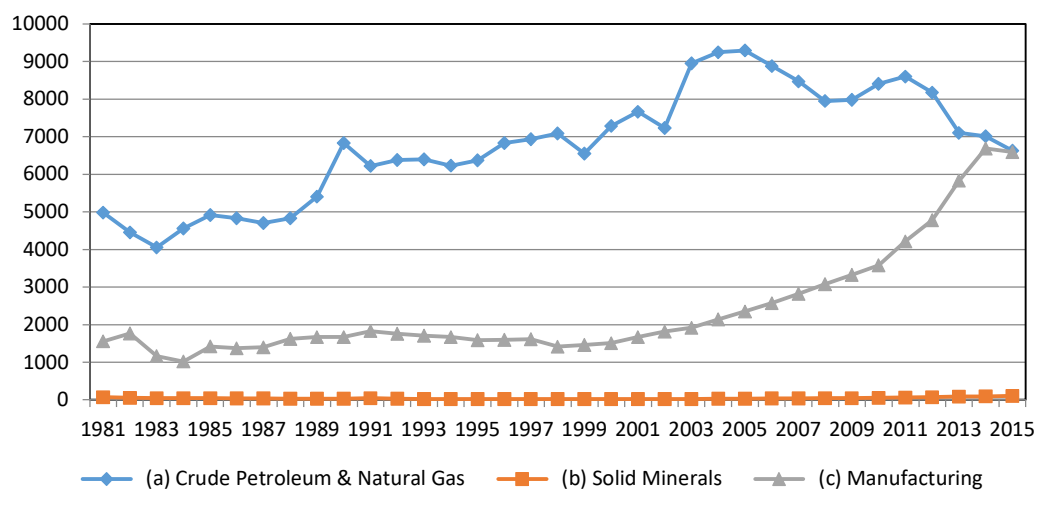
[1] There are other weaknesses in the structure of the economy. For example, it is heavily import dependent and consumption has been the main driver of growth in the economy, reflecting the fact that it is the dominant component of aggregate demand. In the period 2008-2014, consumption accounted for 77 per cent of GDP while investment accounted for 14 per cent.

2. The Nigerian industrial sector: structure and performance

In the medium to long term, developments in the industrial sector will, to a large extent, determine whether Nigeria achieves its development vision, and play a more active role in the global economy relative to its past. Economic theory and evidence suggest that achieving sustained growth and development requires structural change and that industry is the key driver of structural change (Page 2012). Nigeria has a rapidly growing labor force, most of which is currently employed in the agricultural sector. Given the constraint on expansion of agricultural employment imposed by the use of a fixed factor (land) and the need to improve agricultural productivity, labor has to move from agriculture into other sectors of the economy. This resource shift should lead to growth enhancing structural change – assuming that these resources move to more productive activities in manufacturing, agro-industry and tradable services.

Over the past few decades, some structural changes have taken place in the Nigerian economy. For example, the share of agriculture in total value added fell from 36 percent in 1980-89 to 26 percent in 2008-14, but the share of industry also fell from 34 percent to 30 percent over the same period. By contrast, the share of services rose from 30 percent to 45 percent; indicating that the services sector is now the most dominant sector of the economy. These facts suggest that Nigeria is deindustrializing at an early stage in the development process when the industrial sector should be expanding to generate additional employment, and absorb the growing labor force. The decline in the industrial sector's contribution to output over the past few decades has gone hand in hand with a change in the composition of industrial output (figure 1). The share of crude petroleum and natural gas in industrial output declined over the past three decades, while that of manufacturing increased significantly. For example, over the 1981-89 period, crude petroleum and natural gas accounted for 76 percent of industrial output while manufacturing accounted for 23 percent and solid minerals for about 1 percent. However, in the 2010-15 period, the contribution of crude petroleum and natural gas fell to 59 percent while that of manufacturing rose to 41 percent.

Figure 1. Industrial output by sub-sectors, 1981-2015 (in billion Naira at constant 2010 prices)

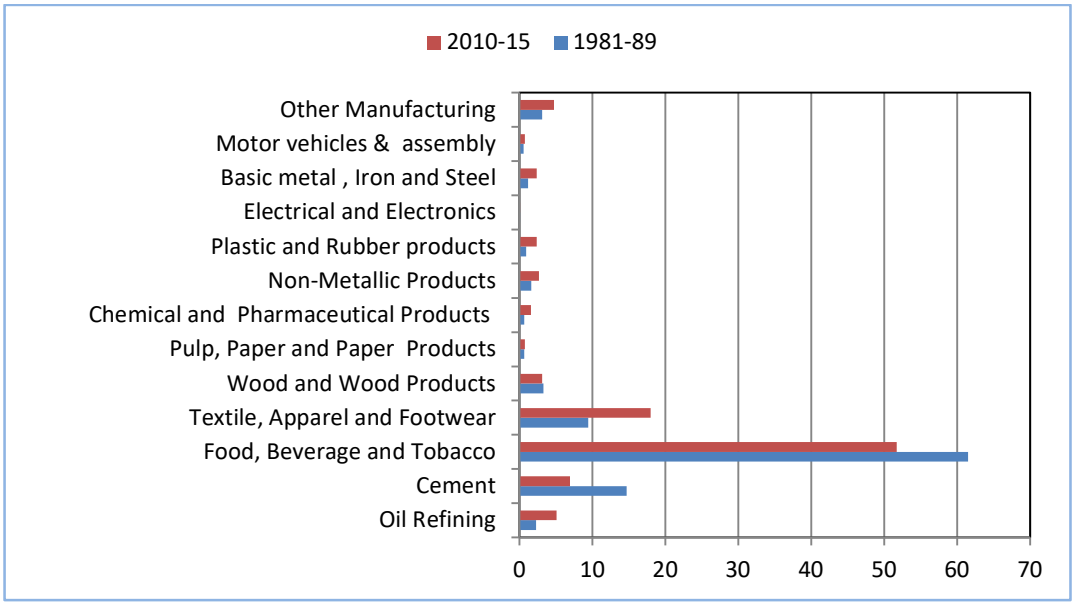


Source: Compiled using data from CBN (2015).

Within the manufacturing sub-sector, the category "Food, Beverages and Tobacco'" is the most dominant component of manufacturing followed by "Textiles, Apparel and Footwear" (figure 2). In terms of changes taking place in the manufacturing sub-sector, there are both positive and negative developments. For example, manufacturing has experienced significant growth over the past few decades. The average annual growth in

manufacturing value-added increased from 1.6 percent in the 1980-89 period to 13.2 percent in the 2008-14 period (figure 3). Another positive development is that the share of manufactures exports in total merchandise exports increased from 0.1 percent in 1980-89 to 4.4 percent in 2008-14. Notwithstanding these positive developments, the contribution of manufacturing to total value added remains very low and this should be of concern because Nigeria depends heavily on manufactures imports, which indicate that there is a huge domestic demand for manufactures that is not being met through domestic production. Figure 3 shows that over the past three decades, the share of manufactures imports in total merchandise imports has been above 70 percent. The high dependence on manufactures imports has serious negative consequences for foreign exchange, the development of local industries, and employment creation. In this context, there is the need for the Nigerian government to make the reduction of dependence on manufactures imports a key item on its priority list in the medium term. There is also the need for the government to recognize that addressing this issue will require novel policy measures to effectively tackle the perennial challenges facing manufacturing and the private sector in general.

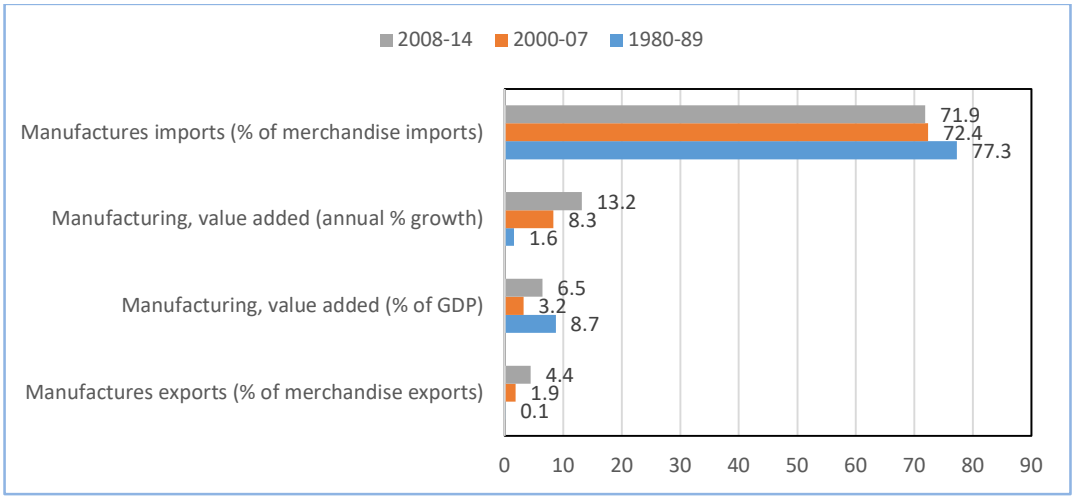
Figure 2. Share of sub-sectors in manufacturing output (%), 1981-2015



Source: Compiled using data from CBN (2015).

One of the main challenges facing manufacturing and the private sector in Nigeria is lack of access to stable and affordable power supply. Power supply is difficult to access, unstable and expensive. The power problem is a challenge and is an important factor militating against the ability of producers and consumers to effectively participate in the growth and development process. Relative to other developing countries, access to electricity in Nigeria is very low. For example, in 2013, the electrification rate in Nigeria was 45 percent compared with the developing countries average of 78 percent, and the North African average of 99 percent (IEA 2015). The Manufacturers Association of Nigeria estimates that in 2014 an average manufacturer experienced power outages 5 times per day, and was supplied electricity for just 6 hours per day (Jacobs 2015). A study by the World Bank found that power outage is a more serious problem in Nigeria compared to countries such as: Brazil, China, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Russia and South Africa. An average manufacturing firm in Nigeria losses about 17 percent of its sales due to power outages compared with less than 1 percent for firms in China and Russia, 1 percent for those in South Africa and 5 percent for those in Ethiopia (World Bank 2016).

Figure 3. Manufacturing Sector Performance, 1980-2014



Source: Computed based on data from World Development Indicators online (http://data.worldbank.org/data-catalog/world-development-indicators).

Poor access to affordable finance is also an important factor that militates against manufacturing development in Nigeria. In a 2014-15 enterprise survey, 33 percent of firms reported access to finance as the main obstacle for the private sector, while 48 and 45 percent reported electricity and corruption, respectively, as major obstacles. The survey also indicates that small firms are more affected by poor access to finance relative to large firms (World Bank 2016). One indicator of the degree of access to finance by domestic enterprises is domestic credit to the private sector as a percentage of GDP. Table 2 shows that in the 2008-14 period, domestic credit to the Nigerian private sector as a percentage of GDP was about 20 percent. This is very low compared with the average for Sub-Saharan Africa (51 percent), Latin America and the Caribbean (43 percent) and East Asia and the Pacific (136 percent). In addition to the low level of credit provided to the private sector in Nigeria, there is also the issue of the high cost of finance. In the period 2008-14 the average domestic lending rate was about 17 percent and the risk premium on lending was about 8 percent (table 2). The high domestic interest rates faced by domestic enterprises deter investment and is not conducive to the promotion of private sector development.

Table 2. Financial indicators for the Nigerian economy, 1970-2014

	1970-79	1980-89	2000-07	2008-14
Domestic credit to private sector (% of GDP)	7.23	15.10	15.07	19.85
Domestic credit provided by financial sector (% of GDP)	11.81	36.97	14.31	24.15
Risk premium on lending (lending rate minus treasury bill rate, %)			6.94	8.14
Real interest rate (%)	-7.85	-6.49	4.82	2.86
Interest rate spread (lending rate minus deposit rate, %)	3.61	2.42	7.38	7.76
Lending interest rate (%)	6.83	11.75	20.15	16.79
Domestic credit to private sector by banks (% of GDP)	6.79	14.96	14.96	19.82

Source: Computed based on data from World Development Indicators online (http://data.worldbank.org/data-catalog/world-development-indicators).

Another factor that has had a negative impact on manufacturing development is exchange rate volatility. Over the past decade, there has been a significant depreciation of the Nigerian Naira against most major currencies. For example, on the 13th of April 2010, the Naira was being exchanged for the US dollar at I47 Naira to the dollar and by the 13th of April 2017 it had depreciated to 305 Naira to the dollar. Big exchange rate changes of this magnitude present problems for domestic enterprises because they depend heavily on imported

intermediate inputs. In 2014, about 54 percent of the raw materials used by manufacturing firms in Nigeria were imported (Jacobs 2015). When imported intermediate inputs represent a large percentage of the inputs used by domestic firms, big depreciations of the exchange rate result in a significant increase in production costs and have a negative impact on investment decisions.

The other challenges of manufacturing in Nigeria include industrial disputes and the dumping of fake, counterfeit and smuggled goods in the domestic market. The manufacturers in the country have to grapple with the challenge of dealing with frequent industrial disputes. In 2014, Nigeria had 234 industrial disputes out of which 175 resulted in strikes. About 1,610 workers in the manufacturing sector were involved in these disputes and the sector lost about 355,128 man-days (NBS 2016). Nigerian manufacturers have also raised serious concerns about the issue of fake, counterfeit and smuggled products dumped on the domestic market thereby displacing locally produced goods. In 2015, the Manufacturers Association of Nigeria called upon the government to address this issue because it negatively impacts local initiative and makes it challenging for domestic firms to compete and thrive (Jacobs 2015).

3. Power and industrial development in Nigeria: linkages and impact

The history of industrial development in both advanced and emerging economies indicates that power plays a vital role in the industrialization process. Energy was a major driver of the English Industrial Revolution, and no country has been able to initiate and sustain an industrialization program without access to good, stable and affordable power supply (Wrigley 2013; Stern 2004).[2] Against this backdrop, success in promoting industrialization in Nigeria depends largely on the extent that the government can effectively deal with the energy challenge, which has and continues to constrain the development of domestic enterprises. There are at least three principal channels through which the poor access, unstable supply, and the high cost of electricity in Nigeria has had a deleterious impact on industrialization. This includes: low manufacturing capacity utilization rates, low competitiveness of manufacturing firms, and lack of firm growth, particularly for small and medium enterprises (SMEs). One of the main effects of lack of access to stable and affordable power supply in Nigeria is its impact on the ability for firms to operate at full capacity. It also results in underinvestment in the sector, thereby, limiting the ability of domestic firms to expand capacity when need arises in the future.

Low rate of capacity utilization has been a major feature of manufacturing in Nigeria despite the high demand for manufactured goods in the country (figure 4). Between 1981 and 2010, the annual average rate of capacity utilization in the manufacturing sector fell from a peak of 73 percent in 1981 to a low of 29 percent in 1995. Since 1998 the manufacturing capacity utilization rate has displayed an upward trend, increasing from 32 percent in 1998 to 56 percent in 2010. It is worth noting that the upward trend in the average manufacturing capacity utilization rates masks the fact that there are several sub-sectors of manufacturing that have experienced significant declines in utilization rates relative to the 1980s. For example, in the "Saw Milling" sub-sector, capacity utilization rates fell from 57 percent in 1981-90 to 36 percent in 2001-08 (table 3). Over