INDUSTRIAL POLICY AND MANUFACTURING SUBSECTOR PERFORMANCE IN NIGERIA: An Assessment of Two Regimes

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Abstract

Recently, the Nigerian government signalled a return to an explicit industrial policy regime by prioritizing the growth of selected manufacturing subsectors, such as the textile, apparel and footwear subsector through several support interventions and incentives. This study empirically investigated if this new industrial policy regime has significantly improved performance of the manufacturing sector, especially comparing prioritized sectors with less-prioritized sectors. Using the manufacturing subsectors' performance data panel compiled by the National Bureau of Statistics and applying rigorous policy impact evaluation approaches, the study found no significant performance difference between prioritized subsectors and less prioritized subsectors or between the earlier regime of implicit industrial policy and the new explicit industrial policy regime.

JEL classifications: L78, L88, O55

1. Introduction

SINCE 2013, industrial policy has resurfaced fully on Nigeria's development agenda after decades of several pendulum swings beginning from independence. In fact, the industrial policy episodes during these swings can formally be characterized into two main regimes[1]. The first is the 'implicit (or de facto) industrial policy regime (1962-2006), when industrial strategies and plans were mainly mainstreamed into the national development plans, rolling plans and government economic blueprints. The second is the 'explicit' (or formal) industrial policy regime (2007-2016), when stand-alone strategies, plans and policies were developed for either small enterprises, selected sectors or for all industry groups.

Surprisingly, efforts at quantifying the causal impact of these various industrial policy regimes on firm/ industry level performance and productivity in Nigeria have been very limited. Earlier studies by Udo (2014) and Aza and Dodo

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[1] Other African Countries have also embraced a return to industrial policies. In a recent 2017 survey of 42 African Countries by the African Economic Outlook, 26 countries have developed industrial policies between 2010 and 2016 (AfDB, OECD, UNDP (2017: 160)

(2014), even though insightful, have focused on the aggregate manufacturing performance and, therefore, unable to link the trend of firm growth and performance to industrial policies. Chete et al. (2014) appears to be the only real attempt at linking industrial policy to manufacturing subsectors performance but use only single year data (World Bank investment climate survey of 2006 on textiles, garments, food, wood/ furniture, other manufacturing). Interestingly, this lack of conclusive and micro-economic evidence of the causal impact of industrial policies on firms and industries is not limited to Nigeria alone (Griliches et al., 2000). The main constraint to credible empirical analysis of industrial policy impact is mainly estimation issues, such as the lack of a clear identification strategy and absence of counterfactual (Harrison and Rodrigues-Clare, 2009). This often renders arguments on either side of the age old theoretical debate on the relevance or otherwise of industrial policy less convincing.

For Nigeria, changes in the performance of the manufacturing subsectors since recent efforts to re-engage with industrial policy warrant the need to assess whether the new explicit industrial policy regime would have contributed to the growth of some firms more than others. For instance, the contribution to manufacturing GDP of the food, beverage and tobacco subsector, which has been the dominant subsector, declined from 98% in 2006 to 56.5% in 2012 and further to 48.8% and 47.8% in 2014 and 2015 respectively. In contrast, the contribution of the textile, apparel and footwear subsector increased from 9.8% in 2006 to 16.6% in 2012 and 20.9% in 2014. Similarly, the cement subsector's contribution increased from 5.6% of manufacturing GDP in 2006 to 8.3% in 2014.

A key question is, therefore whether instruments under the new industrial policy regime are better suited for growth and performance of some manufacturing subsectors, as compared to the earlier regime? Even at the aggregate manufacturing sector level, are there noticeable changes within the different industrial policy regimes? Estimating the microeconomic effect of industrial policy on either targeted or non-targeted firms/industries have always been fraught with various methodological and factual problems especially the difficulty of achieving credible identification and linkages. Chang et al. (2013) review the three common approaches and the associated challenges but recommend the use of a plurality of both quantitative and qualitative methods in quantifying the impact of industrial policy. In practical terms, it is easier to characterize the pattern of industrial policy in Nigeria into various regimes and to compute the performance of the manufacturing subsectors during the same period

but not to establish causality between both. Nevertheless, a cross-period comparison of movements in these focus variables will help some inference on linkages. Our empirical implementation approach is, first, to use simple statistical tests to gauge the impact of industrial policy on the manufacturing subsector's performance in Nigeria and, second, to estimate a model using the difference-indifference approach. The 13 manufacturing subsectors are based on the International System of Industrial Classification (ISIC) revision 4.0 now adopted in Nigeria. While these two approaches may not completely resolve all the estimation challenges observed in literature, the results will surely provide good information on the causal effects of industrial policy in Nigeria.

The rest of this paper is structured as follows: Section 2 describes the rationale and theory of industrial policy based on extant literature. Section 3 is a historical review of industrial policy across the two regimes in Nigeria, while section 4, presents the methods of evaluating the impact of industrial policy regime on the manufacturing subsectors, as well as the discussion of empirical results. Section 5 provides the strategies for making industrial policy process more effective in Nigeria, and section 6 comprises the conclusion and recommendations.

2. Rationale and Theory of Industrial Policy

Despite its current widespread use in many countries, the critical question of 'why do countries need an industrial policy in the first place' remains controversial. Apparently, the lack of a consensual definition of industrial policy for several years appears to have also contributed to this unending historical controversy surrounding the rationale for industrial policy. A recent broad definition of Industrial policy, which appears to be gaining wide acceptance, is by Warwick (2013:16) who defines industrial policy as 'any government policy that attempts to improve the structure of economic activity toward sectors, technologies or tasks that are expected to offer prospects for economic growth or societal welfare than would occur in the absence of such intervention'. Two strands of the theoretical debate (in favour of industrial policy and against industrial policy) dominate the literature (Pack and Saggi, 2006; Peres and Primi, 2009; Chang et al., 2013). According to the standard neoclassical theory, the most widely accepted argument in favour of industrial policy is based on the notion of market failure whereby a competitive market system does not yield the socially efficient outcome. State intervention in the form of industrial policy is therefore justified because of the presence of externalities, market imperfections and economies of

scale. The theories in the 1950s and 1960s, such as Rosenstien-Rodan's 'big push,' recognized the need for massive investments by the government to exploit returns to scale, not only through financing heavy industries, but also through the provision of necessary complementary investments.

Somewhat related to the neoclassical view is Schumpeterian evolutionists, revisionist and structuralist economists who consider the market failure only argument as somehow too restrictive. This group thus justifies selective industrial policies and 'picking winners' because of the need to stimulate learning, accumulation of capabilities and innovation which market signals might discourage –referred to system failure which is the failure of market institutions and non-market institutions (Cimoli, Dosi and Stiglitz, 2009). This view which is often the basis for the 'infant industry argument' has also often been used to justify industrial policy in developing countries (Soludo, Ogbu and Chang, 2004), and is now well discussed in literature (Peres and Primi, 2009; Cimoli Dosi and Stiglitz, 2009). According to the 'new structural economics,' although markets are the basic and first-best mechanism for the effective allocation of resources, the state should provide an enabling environment for firms to thrive in (Stiglitz et al., 2013; Lin and Monga, 2011). The second rationale identified in literature for industrial policy is due to the presence of coordination failures (Pack and Saggi, 2006).

The main argument against industrial policy is based on the long-held view of 'government failure' which is often caused by lack of information, excessive bureaucratic corruption, lack of financial resources and weak state technical and administrative capacity (Bhagwati, 1988; Krueger, 1990; Pack and Saggi, 2006; Rodrick, 2004). The belief of this theory is that the 'invisible hand' of the market automatically selects sectors and firms, guaranteeing the efficient allocation of factors of production and industrial policy will only distort the working market mechanism. After three decades, the debate has now shifted away from whether industrial policies should be adopted or not, to the more pragmatic issues of 'how they should be designed', 'how they can be implemented more effectively' and 'what works for each country and context'. This is because evidence and examples of both failed and successful industrial experiments are abundant in Asia, Europe and Latin America (Wade, 1990; Krueger, 1993; Robinson, 2009; Rodrick, 2008; Peres and Primi, 2009; Chang et al., 2013). There are also excellent but limited documentation of the stock-taking of successes and failures of industrial policy in Africa (Killick, 1978; Soludo, Ogbu and Chang, 2004; UNCTAD, 2011; Stiglitz, Lin and Patel, 2013).

The new thinking is that 'well designed and implemented industrial policies can promote industrial (or firm level) growth and employment' and the results vary by country. According to Haque (2007), a firm's performance depends primarily on the drive and entrepreneurship of its managers and owners, whose investment decisions, worker training, marketing, R&D, etc determine the pace of technological improvements. While there is no satisfactory explanation for the factors determining the supply of entrepreneurial talent, it is evident that some national policy environments- encompassing economic, political and social dimensions are more congenial than others to the rise of dynamic firms. As such, the growing belief is that 'no comparison of industrial policy effect will find a silver bullet' (UNIDO, 2013), and the differences in binding constraints or in ideas about what to do can lead to different country level results (Robinson, 2009). The call for 'New Industrial Policies' emphasize interacting the role of governments with the private sector (Rodrick, 2004).

The industrial policy debate is also believed to be more objective by identifying the causal effects and impacts in each country. Based on a panel dataset of large Chinese firm collected for the period 1998-2007, Aghion et al. (2012) show that when subsidies are allocated to competitive sectors (or in such a way as to preserve competition), the net impact on total factor productivity is positive and significant. Similarly, Criscuolo et al. (2012) find that the UK subsidy programme (Regional Selective Assistance) had strong positive effects (increased employment) for smaller firms, but almost zero impact on larger firms.

3. Historical Review of Industrial policy in Nigeria

There are excellent historical reviews of industrial policies in Nigeria since independence (Dauda, 1993; Ikpeze, Soludo and Elekwa, 2004; Amakom, 2008, Uzor, 2010; Iwuagwu, 2011; Chete et al., 2014; and Dagogo, 2014 among others) There are several other studies that have reviewed specific industrial policy phases (Aza and Dogo, 2014; Udo, 2014; Raimi et al., 2014; Amakom, 2008; Usman, 2015), and yet others on industrial policies in Africa (ECA, 2012; UNECA, 2013; Stiglitz et al., 2013; Soludo, Ogbu and Chang, 2004). According to Mbate (2017), the evolution of industrial policy in Africa can be categorized into three distinct phases: the import substitution (ISI) phase, which began after independence in the 1960s, the structural adjustment programme (SAP) era of the 1980s, and the Poverty Reduction and Strategy Papers (PRSP) era of the 1990s. The current paper characterized the different historical episodes into two regimes: the first is the de facto industrial policy phase (according to Perez and Primi, 2009) when there was no formal industrial policy in the form of industrial development plan with goals, instruments and explicit institutional relationships,

but there were policies that called for government actions, such as regulations, subsidies and incentives to develop or strengthen specific activities. This regime has many phases, including the pre-independence (1950-1959), immediate post-colonial (1960-1969), the 1970s oil boom (1970-1979), the 1980s and the structural adjustment era (1980-1989), the period before civilian rule (1990-1999) and the early civilian rule period (2000-2006). The second regime is the explicit industrial policy regime when government-prepared industrial policies and industrial development plans with clear goals, instrument and targets were initiated and implemented. The regime has two phases: The new economic growth inspiring era (2007-2012) and the economic decline and recessionary era (2013-2017).

3.1 The de facto industrial policy regime

a. *The Pre-Independence Era (1950-1959)*
During the colonial era, there was no formal or explicit industrial policy, but as described by Ikpeze et al. (2004) and Uzor (2010), there were incentives, support programmes as well as promotion and protection activities designed to encourage industrialization. During the first half of this era, industrial development was influenced largely by the provision of physical infrastructure such as roads, rail tracts to the hinterland to ensure massive movement of goods and people. In the second half however, some institutional framework for industrial development was established. For instance, the 'Industrial Development (Import Duty Relief) Act of 1957; the Industrial Development (Income tax Relief) Act of 1958 and the Customs Duties (Dumping and Subsidized Goods) Act of 1958 were established to advance Industrial development Programmes. The colonial government promoted industrial development by establishing two agencies; the Nigerian Local Development Board and the Department of Commerce and Industry (Ikpeze et al.).

b. *Immediate Post-Colonial Period (1960-1969)*
The post-independence administration from 1960 prioritized rapid industrialization and, without a formal industrial policy, outlined the strategies in the first National Development Plan (NDP) (1962-1968). A key strategy at this time was the import substitution strategy (ISS) which emphasized the local manufacture of goods that were hitherto imported. The key objectives were to lessen the overdependence on foreign goods, and to save foreign exchange by

producing those goods locally (Dagogo, 2014). During this first NDP (1962-1968), about 14% of government investment was directed at industrial development activities even though the Civil War of 1967-1970 truncated several of the efforts during that time. A significant step during this period was the establishment of the Nigerian Industrial Development Bank (NIDB) in 1964 to ensure the availability of financial resources to indigenous entrepreneurs.

c. *The 1970s' Oil Boom Era (1970-1979)*

The second National Development Plan (NDP) (1970-1975) heralded several new initiatives aimed at industrial development. These include the decree establishing the Industrial Training Fund which was promulgated in 1971 and the Nigerian Enterprises Promotion (NEP) decree of 1972 (also called the Indigenization Decree of 1972), which was later revised as the Indigenization Decree of 1977. The primary focus of industrial development during this second NDP was on capital intensive industries and to protect the new industries, government introduces several types of import restrictions (Uzor, 2013). Another key aspect of the second NDP (1970-75) was the establishment of industrial development centres (IDCs) so as to provide extension services to MSMEs, especially as they relate to product development, entrepreneurial training and technical appraisal of loan applications as well as managerial assistance. Also in 1973, government established the Nigerian Bank for Commerce and Industry (NBCI) to complement the efforts of the NIDB in providing financial resources to indigenous entrepreneurs.

With the oil boom, the third National Development Plan (1976-1980) focused on the fair distribution of industries in all parts of the country so as to ensure rapid expansion and diversification of the industrial sector (Dagogo, 2014). With oil money, the government invested directly in establishment of heavy and capital intensive industries in strategic sectors—the so-called core industrial projects, notably iron and steel, paper, fertilizer, petrochemicals, oil refineries, machine tools, liquefied natural gas and aluminium smelting (Ikpeze et al., 2004). In all these, there was emphasis on the import substitution strategy, the promotion of indigenous manpower development schemes and to indigenous ownership of industrial investments. The Nigerian Enterprises Promotion Board and he Bank of Commerce and Industry were set up to facilitate Nigerian entrepreneurs.

d. *The 1980s and the Structural Adjustment Era (1980-1989)*
The 1980s, even though coincided with the fourth national Development Plan (1981-1985), was a bitter period with the collapse of oil prices in the international market, which necessitated the Economic Stabilization Act of 1982/1983 and subsequently the structural adjustment programme (SAP) in 1986. The Economic Stabilization Act, which yielded no or very minimal results, contained reforms in exchange controls, fiscal and monetary policies including the re-introduction of pre-shipment inspection for spare parts and raw materials, banning the importation of certain items, including frozen chicken, and the removals of 29 other items from general licence to specific import licensees, introduction of import duties or increase in the rates of 49 import items, among others (Dagogo, 2014).

SAP was introduced to roll back government presence and increase private sector presence based on market principles and competition. Thus, the privatization and commercialization programme, the liberalization of aspects of the economy including interest rates and bank credit, as well as exchange rates was all intended to foster a competitive private sector. In addition, the government abolished the import licensing regime under a trade liberalization policy which caused massive importation of all sorts of commodities thus reducing protection of the local industries. In a surprise twist of policy during this era, government for the first time produced a formal and explicit industrial policy in 1988. This policy, titled 'Industrial Policy of Nigeria: Policies, incentives, guidelines and institutional framework,' contained several strategies, including promoting increased private sector participation in the industrial sector, privatizing and commercializing government holdings in the existing industrial enterprises, playing catalytic role in the establishment of new core industries, improving infrastructural facilities, improving regulatory environment, establishing clear set of industrial priorities and harmonizing policies at the federal, state and local government levels (Iwuagwu, 2011). Unfortunately by 1989, the policy was jettisoned by the Federal Ministry of Industry, as many Nigerians were believed to have hated the policy, though it was hailed by some foreign partners (Obikili, 2014).

e. *The Period Leading to Civilian Rule (1990-1999)*
The first National Rolling Plan (1990-1992) had a component of an industrial plan aimed at promoting the development of an efficient industrial system. Also contained in the first rolling plan was the privatization of public enterprises

through the Technical Committee on Privatization and Commercialization. The plan also contained strategies to grow and support small scale industries through the establishment of industrial estates and entrepreneurial development programmes (EDPs) which was aimed at developing a corps of entrepreneurs needed for successful implementation of the small-scale industrialization strategy.

Two significant things for industrial development happened during the second National Rolling Plan. Frist in 1995, the Nigerian Investment Promotion Commission (NIPC) was established to promote, coordinate and monitor all investment in Nigeria. Second, between 1996 and 1997, some industrial and technical research institutes (including the Federal Institute of Industrial Research, Oshodi, Project Development Institute, Enugu and Raw Materials Research and Development Centre, Abuja) were established to provide technological support for industrial activities, especially manufacturing establishments.

f. *The Early Civilian Rule Period (2000-2006)*

The early years of civilian rule in Nigeria, from May 1999, witnessed several new strategies targeted at industrial development. In 2001, the Bank of Industry (BOI) was created as a merger of the Nigerian Economic and Reconstruction Fund (NERFUND), the Nigerian Bank for Commerce and Industry (NBCI) and the Nigerian Industrial Development Bank (NIDB) as a primary development financial institution in Nigerian for lending to industries (Iwuagwu, 2011). Similarly, in the same year, the Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB) was set up to facilitate the availability of primary industrial inputs through the provision of medium to long-term funds for agriculture and agro-allied industries (Dagogo, 2014). In 2002, the government launched the Small and Medium Industry Equity Investment Scheme (SMIEIS) which mandated banks to dedicate 10% of their annual profit to equity investment in small and medium enterprises.

In 2003, another industrial policy (the second formal one) was introduced just four years after the termination of the first one that existed only between 1988 and 1989. The objective of the new policy per the Federal Ministry of Industry was to 'accelerate the pace of industrial development by radically increasing value added at every stage of the value chain'. By this policy, the government proposed to focus on improving total factor productivity by pursing knowledge and skill intensive production on the basis of available best practices. In a bid to embrace free market capitalism and move away from state intervention

policies, the civilian government of Obasanjo produced the National Economic Empowerment and Development Strategy (NEEDS) in 2004. This policy document placed a lot of emphasis on small and medium-scale enterprises, especially the establishment of enterprise clusters (Uzor, 2014). In line with the national development policy (NEEDS), the Small and Medium Enterprise Development Agency was also established in 2004 even though its Act was passed into law by the end of 2003. The agency has the responsibility of promoting and facilitating the development of programmes in the small and medium-scale subsector in Nigeria.

3.2 Explicit industrial policy regime
This phase is an era of full return to industrial policies, strategies and plans. There was thus a plethora of government initiatives (policy and institutional reforms) targeted at the industrial sector. The regime can also be categorized into two episodes; first when the economy was buoyant and oil prices were still high (2007-2012) and the economic recessionary era (2013-2017).

a. *The New Economic Growth Inspiring Years* (2007-2012)
First, early in 2007, there was an institutional restructuring with the merger of the Federal Ministry of Commerce and the Federal Ministry of Industry to form the Federal Ministry of Commerce and Industries mainly to emphasize the business end of industrialization especially for small and medium firms. Second, at the policy level, the firs-ever National Policy on Micro, Small and Medium Enterprises (MSMEs) was developed and launched in July, 2007 and it outlined key objectives, strategies and programmes for influencing the development of MSMEs.

Also in 2007, the Federal Ministry of Commerce and Industry adopted formally the 'Cluster Concept' as part of a new industrial development strategy. The cluster concept is to operate in five planks: Free trade zones; Industrial Parks; Industrial Clusters; Enterprise Zones and Incubators and the central idea is to create a community of businesses located together in which members would seek enhanced environmental, social and corporate performance towards effective global trade competitiveness (Iwuagwu, 2011). According to Dagogo (2014), through the support of UNIDO, four clusters; Nnewi Automobile SME cluster, Aba Shoe and Leather products SME clusters and the Kano leather cluster were established in the first instance. The Federal government also in 2007 adopted the 'National Integrated Industrial Development (NIID) Blueprint' which is a service

framework, while the Lagos, Kano, Aba and Port-Harcourt (LOKAP) Industrial plan was also developed to give further impetus to the cluster enterprises. A Presidential Committee on the 'Revival of the Textile Industry in Nigeria' was set up in early 2007 and submitted its report within the year with several recommendations including the funding by the Central Bank.

b. *The Economic Decline and Recessionary Era (2013-2017)*
Between 2013 and 2017, a plethora of polices and strategies for industrial development have been unleashed by the government. These include; the Nigerian Industrial Policy (2013) by the Federal Ministry of Industry, Trade and investment, the Nigerian Enterprises Development Programme –NEDEP (2014), the Revised National Policy on Micro, Small and Medium Enterprises (2014) by the Small and Medium Enterprises Development Agency of Nigeria, the Nigerian Industrial Revolution Plan – NIRP (2014), the Presidential Advisory Committee on Nigeria Industrial Revolution Plan, the Nigerian Industrial Policy and Competitiveness Advisory Council (2017). First, the Industrial Policy of 2013 was aimed at liberalizing the industrial space by removing constraints to private investment in key industrial activities; reducing the cost of doing business and creating conditions attractive to foreign direct investment in selected sectors of the economy.

The Revised National Policy on Micro, Small and Medium Enterprises of 2014 identified 14 special target enterprises/subsectors as focus. These include; cottage agro and agro allied enterprises, cottage arts and crafts, textiles and clothing, wood processing and furniture, leather and leather products and others. The Nigeria Industrial Revolution Plan (NIRP) (2014) is a five-year plan to rapidly build up industrial capacity and improve competitiveness in Nigeria and has identified as priority, seven industry groups where it is believed the country has comparative advantage: agro-allied and agro processing; metals and solid minerals processing; oil and gas related industries; construction, light manufacturing and services. Similarly, the Nigerian Enterprises Development Programme (NEDEP) is aimed at addressing the barriers to growth in the identified four priority focus subsectors: agro-allied sector, metals and solid minerals, oil and gas industrial activities; bulk consumables and services. As a component of NIRP, the Automotive Development Policy commenced in 2014 with the signing of MOUs between three indigenous vehicle manufacturing companies and their foreign partners for the operation of assembly plants for cars, buses and trucks. The National Sugar Master Plan also received a boost in 2014,

while government also launched the National Cotton, Textile and Garment Policy in 2014 as part of NIRP.

4. Manufacturing Subsector's Performance during Phases of Industrial Policy: Empirical methods

In literature, there have been three main approaches to evaluating the impact of industrial policies on industrial performance—and this is based on the theoretical arguments in favour of industrial policy. The first is to ascertain the effectiveness of selective industrial policy by examining the relative performance of the targeted industries against those of non-targeted industries— the 'with-without' comparison approach which is a post-intervention comparison of treatment and control samples (World Bank, 1993; Lee, 1996). The second is to examine the correlation between several industry performance indicators (labour productivity, total factor productivity, etc) and selected industrial policy instruments, such as tariffs, non-tariff barriers, tax incentives, import quota removal, etc (Kiypot and Okazaki, 2013). The third is to use micro data or industrial surveys to identify the effect of these industrial policy programmes by comparing the 'treated firms' with 'non-treated firms' using the 'differences in difference' technique (Rodrick, 2008). The main challenges with these approaches, as discussed by Chang et al. (2013), have been the problems of identification, linkages and time lags.

This study uses first, the simple 'with and without approach' but complemented by the 'differences in difference approach'. It relies completely on panel level data of each of the 13 manufacturing subsectors as compiled by the National Bureau of Statistics based on the ISIC revision 4.0, given that available firm level survey data were not recent.[2] Neumark and Kolko (2008) and Criscuolo et al. (2012) also use aggregate time series data to empirically estimate the programme treatment effects of industrial policy on employment and total factor productivity growth.

4.1 The simple 'with/without approach'

This approach requires the computation of each subsector's performance indicators (annual growth of output, employment, number of firms or productivity) over several episodes of industrial policy and comparing the direction of change (increase or decrease) during these sub-periods, especially

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[2] The World Bank Investment Climate Survey of 2006 is the last comprehensive survey of manufacturing firms in Nigeria, which covered several subsectors, including those operating in the Export Processing Zones.

between prioritized sectors and less-prioritized sectors. The questions answered using this method are: Has the performance of manufacturing firms improved as a result of the explicit industrial policies in place in Nigeria? Did subsectors targeted by specific industrial policy strategies perform better than others? Apart from the size and direction of change, the study also computed the speed of change of these same industry performance indicators (output, employment, number of establishments or productivity) and compared the results across the different industrial policy regimes. It introduced the speed of change analysis to address the challenge of time lags and time scales noted by Wren (2001) and Chang et al. (2013). For instance, what is the amount of time that firms require to increase output as a result of say and infant industry policy? The assumption introduced in this research is that the speed of change in output growth for subsectors targeted by industrial policy will be higher than for others. Similarly, the speed of change should be higher during the regime of explicit industrial policy than during the de-facto regime.

a. *Size of Change*: First, for the two industrial policy regimes, we conduct cross-industry comparisons on the structure of industry subsector output basic growth rate as a measure of performance. Other performance measures as value added, factor contribution, employment, and productivity are used in literature, depending on data availability. Note that the Nigerian industrial sector was in 2014 reclassified into two GDP activity sectors: (a) mining and quarrying, with four subsectors (crude petroleum and natural gas, coal mining, metal ores, quarrying and other minerals); and (b) manufacturing, with seven subsectors (food, beverages and tobacco; chemical and pharmaceuticals; metal, iron steel and fabricated metals; non-metallic products; electrical and electronics; textile, wearing and apparels). Similar approaches have been used by Broadberry and Leuning (2013) for UK manufacturing subsectors, Kumar (2016) for Indian manufacturing subsectors and Mbate (2017) for the Ethiopian leather sector.

b. *Speed of Change*: Second, the study calculates the speed of change for each of the manufacturing subsectors structure (output growth) in the two industrial policy regimes. Since it has chosen GDP at current prices as its growth variable, it proceeds to measure the speed of change consequently by adding up the changes in the structure of GDP at current prices. This is done at the two digit level (adding changes in the shares of the aggregate manufacturing sector only) or at the 3-digit level (adding changes in the

shares of subsectors). The diagnosis of speed of change of the subsectors structure (output growth) can lead to two different types of analysis and policy conclusions (Aiginger, 2012). First, it can trace the impact of government interference in a sector through either sectoral planning, industrial policy, structural targeting through how the speed of change evolved over time as it is expected that the speed of change will be higher in subsectors that are targeted by the industrial policies than in others. In the analysis, the speed of change (in output growth) should also be higher during the explicit industrial policy regime than the de facto industrial policy regime.

Following Aiginger (2014), this study calculated the indicator for the speed of change in two steps: first, we calculate differences between the share of subsector in total manufacturing over period starting in year (t-n) and ending in the final year (t). Then we sum for each subsector for the period and also sum for all subsectors for the time period. Each change for a subsector's share contributes to the indicator, independent of its direction (plus or minus).

Speed of change $= \sum i \left| ai, t\text{-}ai, t\text{-}n \right|$

Where ai, t, aI, t-n are shares in final year, starting year for subsector i.

The variable we use is the same GDP at current basic prices (also used in calculating growth rate), and the share of each subsector is calculated as part of the 13 subsectors in manufacturing.

4.2 Results and evidence using the simple with-without approach

This subsection presents the average manufacturing subsector's performance during various phases of industrial policy. Table 1 shows the average annual growth rates of the manufacturing subsectors output during six sub-periods, which are varying phases of industrial policy discussed in section 3 (1980-1989 phase *d* is the decade of the 1980s and SAP; 1990-1999 phase *e* is the period leading to civilian rule; 2000-2006 phase *f* is the early civilian rule period; 2007-2012 phase *g* is the new economic growth-inspiring years, while 2013-2016 phase *h* is the economic decline and recessionary era). For the 1980s era, we also separate the period 1980-1987 and 1988-1989, the latter meant to capture the specific period when the first ever explicit industrial policy was introduced and implemented. The earlier phases of a-c, as described in section 3 of this report,

are not covered in this analysis because of the non-availability of data for all manufacturing subgroups.

Table 1: GDP at basic prices for the manufacturing subsectors (annual growth rates)

	1980-1987 (phase d -i)	1988-1989 (phase d- ii)	1990-1999 (phase e)	2000-2006 (phase f)	2007-2012 (phase g)	2013-2016 (phase h)
Oil refining	0.50	1.10	0.45	0.59	0.08	0.07
Cement	0.73	-0.14	0.16	0.25	0.16	0.23
Food, beverage and tobacco	0.06	0.57	0.27	0.14	0.15	0.09
Textile, apparel and footwear	0.09	0.28	0.25	0.14	0.3	0.22
Wood and wood products	0.07	0.28	0.27	0.14	0.14	0.11
Pulp and paper products	0.07	0.28	0.27	0.17	0.15	0.21
Chemical and pharmaceuticals	0.08	0.28	0.27	1.14	0.25	0.30
Non-metallic products	0.09	0.28	0.27	0.90	0.25	0.49
Plastic and rubber products	0.08	0.28	0.25	0.14	0.40	0.25
Electrical and electronics	0.08	0.29	0.46	0.16	0.24	0.05
Basic metal, iron and steel	0.07	0.28	0.15	0.14	0.36	0.12
Motor vehicles and assembly	0.08	0.28	0.26	0.14	0.20	0.10
Other manufacturing	0.09	0.28	0.27	0.14	0.23	0.17
Total manufacturing	0.09	0.30	0.26	0.16	0.17	0.17

Source: Computed from NBS national accounts data

The study obtains data from several complimentary publications of the National Bureau of Statistics (NBS). Its measure of performance is the GDP at current basic prices for the manufacturing subsectors, as provided by NBS (National Accounts Division) for the period 1980- 2016. The employment data for the available years of the manufacturing subsectors are also from NBS manufacturing surveys. Starting from the aggregate manufacturing data, basic growth rate is highest during phase *d(ii)* and phase *e*, which corresponds to the periods 1988-1989 and 1990-1999 and worst in phase *d(i)*, which is the period 1980-1987. The data show that yearly growth rates for aggregate manufacturing (appendix 1) was highest in 1994, 1988, 1993 and 2011. Moving to the subsectoral manufacturing breakdown in table 1, more puzzles show up. During the period, 1980-1987 (phase *d-i*), cement subsector, followed by the oil refining subsector, had the highest average growth rates, while in the 1988-1989 period, oil refining, and food, beverage, tobacco ranked the highest two. In 1990-1999, electrical and electronics, followed by oil refining, ranked the highest in terms of growth rates, while in the period 2000-2006, chemical and pharmaceuticals

subsector, as well as non-metallic products, were well ahead of the other subsectors.

During phase *g* (2007-2012), the average growth rate for all subsectors looks low (just like the 1990-1999 phase) even though the plastic and rubber products subsector and basic metal lead others. The growth rates are also low for the 2013-2016 period, but the non-metallic products subsector and the chemicals/ pharmaceuticals subsector lead others in growth. It is clear from table 1 that five subsectors (textile, apparel and footwear; wood and wood products; pulp and paper products; motor vehicles and assembly; other manufacturing) never ranked in the highest two in all the phases. The yearly basic growth rates in appendix1 seem to corroborate this evidence. For many years the oil refining subsector followed by cement seems to dominate other subsectors in terms of yearly growth rates in the manufacturing sector. This dominance somewhat changed slightly in the years, 2011, 2012 and 2014 when such sectors as textile, apparel and footwear; chemical and pharmaceuticals and non-metallic products showed strong potentials. The question is: Does the performance of the aggregate manufacturing sector or the subsectors in these sub-periods reflect the characteristic of the industrial policy regime in place and did prioritized subsectors perform significantly better than others? The results look mixed as the output growth rate of the manufacturing subsectors do not strictly respond to the industrial policy changes. The evidence in some cases show possible roles of explicit industrial policy in influencing the performance of the manufacturing subsectors but in many other cases, the role of industrial policy is not evident.

First, as shown in table 1, aggregate manufacturing performance looks even better during the de facto industrial policy regime than the explicit industrial policy regime, except for 1988-1989, when a formal explicit industrial policy regime was implemented briefly. Second, some of the focus sectors emphasized by specific industrial policy strategies rarely performed better than others. For instance, the textile, apparel, and foot wear subsector which received support through explicit policies in 2007, such as the 'Presidential Committee on Revival of Textile Industry' and the 2007 cluster policy (Aba shoe and leather products SME clusters and the Kano leather cluster) did not significantly affect the growth of the textile, apparel and footwear subsector from 2008 up to 2010, but surprisingly the subsector experienced high growth rates only in 2011 and 2012. Also as part of the NIRP in 2014, there was an automotive development policy which did not significantly affect the motor vehicles and assembly subsector as its growth rate slumped between 2012 and 2014/ 2015. Similarly, NEDEP 2014

emphasized basic metals as part of the four priority subsectors, but surprisingly, the growth rate shrank between 2014 and 2015/2016.

Leaving the basic growth of GDP as a performance indicator, we now look at employment as another indicator of subsector performance. There were challenges here because the employment data for all the 13 manufacturing subsectors were not readily available for all the years, unlike those of GDP growth and value added. Thus the analysis was restricted to two years with sufficient subsectors' data (1994/ 1995 for the de facto industrial policy regime and 2011/2012 for the explicit industrial policy regime). Using these available data, we compare the performance of aggregate manufacturing over these two regimes as well as the performance of the subsectors in the same sub-periods. Table 2 shows the employment for each subsector for the two regimes.

Labour productivity was computed for each subsector (LPtysi) by dividing each subsector's GDP at naira current market price by the corresponding level of employment for the periods 1994/1995 (the de facto industrial policy regime) and 2011/2012 (explicit industrial policy regime)[3]. Thus:

$$LPty(si) = \frac{GDPA_{si}}{L_{si}} \text{----- --}$$

In Ethiopia, Mbate (2017) also computed the average monthly earnings and average monthly distribution of earnings for each subsector in addition to the number of employment as measure of industrial performance.

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[3]Some other studies measure labour productivity either as real value added, divided by number of workers or total annual sales of the respective subsector, and divided by the number of workers.

Table 2: Employment in the manufacturing subsectors (number of persons)

	Total No of Persons Engaged				Total No of Persons Employed			
	1994 (De facto regime)	1995 (De facto regime)	2011 (Explicit regime)	2012 (Explicit regime)	1994(De facto regime)	1995(De facto regime)	2011 (Explicit regime))	2012 (Explicit regime))
Oil Refining								
Cement								
Food, beverage and tobacco	66,985	55,249	549,267	311,892	63,669	52,409	456,507	205,124
Textile, apparel and footwear	152,717	96,674	69,218	71,587	133,527	86,109	38,157	40,199
Wood and wood products	23,269	12,400	39,165	38,475	19,072	10,708	27,259	27,348
Pulp and paper products	13,329	12,338	219,486	221,944	10,978	11,956	197,204	201,507
Chemical and pharmaceuticals	37,891	26,711	1,245,339	1,397,163	35,719	26,023	1,102,469	1,137,729
Non-metallic products	21,961	21,992	84,070	86,936	21,558	21,709	76,949	74,724
Plastic and rubber products			111,530	122,211			96,643	107,280
Electrical and electronics			11,282	11,838			11,060	11,594
Basic metal, iron and steel	4,730	4,259	112,910	116,292	4,689	4,244	73,178	75,270
Fabricated metal machinery	39,249	21,021			37683	20,618		
Motor vehicles and assembly			280,910	290,849			273,682	282,614
Other manufacturing	3,430	2,566	306,708	311,892	1,658	2,566	202,076	205,124
Total manufacturing	363559	253,210	3,029,884	2,98102	329561	236,33	2,555,184	2,368,514

Source: National Bureau of Statistics (Annual Abstract of Statistics, 1999 and Nigerian Manufacturing Sector Report, 2014)

**Table 3: Labour productivity across two industrial policy regimes**

	De Facto Industrial Policy Regime		*Explicit Industrial Policy Regime*	
	1994	1995	2011	2012
Food, beverage and tobacco	3.93	5.4	5.8	15.4
Textile, apparel and footwear	0.28	0.5	15.9	23.0
Wood and wood products	0.70	1.4	5.1	6.5
Pulp and paper products	0.24	0.2	0.15	0.16
Chemical and pharmaceuticals	0.07	0.1	0.03	0.06
Basic metal, iron and steel	1.0	1.3	1.4	1.8
Other manufacturing	7.6	5.0	0.85	1.1
Total manufacturing	1.4	1.7	1.7	2.3

Source: Computed using National Bureau of Statistics data (national accounts and manufacturing survey)

Tables 2 and 3 provide interesting revelations. First, between 1994 and 1995 and between 2011 and 2012, there were declines in the number of employment but with a larger percentage decline in the latter period (coinciding with explicit industrial policy regime). The striking results are with textile, apparel and footwear, as well as chemicals and pharmaceuticals. In 1994, a total of 133,527 persons were employed in the textile, apparel and footwear subsector; but by 2012, the number had diminished to 40,199 in spite of the priority interventions by government for this subsector. In contrast, for the chemical and pharmaceutical subsector, 35,719 persons were employed in 1994; but by 2012, the number had jumped astronomically to 1,137,729. In 1994 and 1995, textile, apparel and footwear subsector had the highest number of employees followed by food beverages and tobacco as the second highest. This story changed in 2012, when the chemical and pharmaceutical subsector had the highest number of employees with motor vehicles and assembly subsector as the second highest.

The computations of labour productivity in table 3 show that, between 1994 and 2012, average productivity declined for pulp and paper products, as well as chemical and pharmaceutical subsectors while it increased for the other sectors. The aggregate manufacturing only had minimal increases in labour productivity during these same time periods. Kiyota and Okazaki (2013) observed that both real value added, employment and labour productivity increased after the removal of import quota in the Japanese Industrial Policy but noted that the results look insignificant and may simply reflect factors other the removal of the import quota. Is the speed of change in output growth for subsectors targeted by industrial policy higher than other subsectors? Moreover, is the speed of change higher during the regime of explicit industrial policy than during the de facto regime? This study thus compares its computed indicator of the speed of change (which is

the absolute sum of all changes in the GDP shares of each subsector) for each subsector and in each sub-period – Note that the speed of change can also be calculated for other performance measures, such as employment or labour productivity. For the sub-period 1981-1987, the indicator of speed of change is the sum of all available changes in the subsector shares between 1981 (first year) and 1987 (last year). This is repeated for all other sub-periods; 1988-1989, 1990-1999, 2000-2006, 2007-2012, 2013-2016. Figure 1 shows the plotted speed of change for all subsectors and the aggregate manufacturing sector in the six sub-periods.

Figure 1: Speed of change in sub-periods
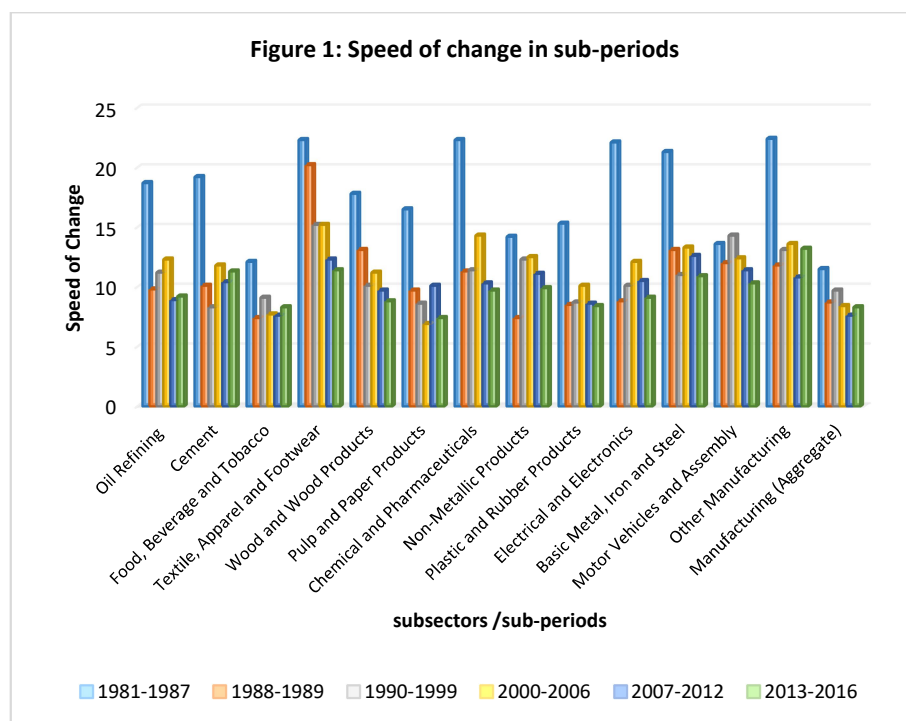
What is clear from figure 1 is that the speed of change is highest in the period 1981-1987, compared to any other period, even the regime of explicit industrial policy (2007-2012 and 2013-2016). A possible explanation for this may be the sudden change in the performance of firms and industries during the structural adjustment era. This is more so since each difference in share is counted when calculating the speed of change whether it is positive or negative.

One other expectation is that the textile, apparel and footwear, as well as motor vehicles and assembly subsectors will be increasing in share at a fast pace when compared to other subsectors, especially during the period when certain industrial policies favoured them (2007-2012 and 2013-2016). Such a speed 'of increases in shares' is, however, not significant as it is difficult to observe major differences in the subsectors. As a check for accuracy, we test the correlation between our computed basic growth rates and the speed of change. The expectation is that subsectors with the highest basic growth rates will be the same as those with the high speed of change. The subsector's pattern of basic growth rates, to some extent, matches the subsectors' speed of change; and where there are differences, such as for oil refining, it still looks very minimal.

4.3 The difference/ indifference method

The simple 'with and without approach' has been severally criticized for some inherent shortcomings, especially the fact that there may be temporal firm performance trends or some confounding factors that occurred between periods. Moreover, there may be asymmetrical exogenous shocks that influence the control group (or subsectors) in a different way from the treatment group (or subsectors). As such, the study compares the results from this simple approach with the third approach, 'the difference-in-difference method,' which perhaps is one of the most widely used impact evaluation method.

The study uses the Aschenfelter and Card (1985) form of difference-in-difference model but modified slightly by adding a vector of sector-specific characteristics to evaluate the impact of MSME's cluster intervention and development support programme, which has been significant between the periods 2007 and 2017, focusing largely on the textile, apparel and footwear subsector as compared to the other 12 subsectors with the manufacturing sector. Since the introduction of the cluster concept in 2007, there have been many support initiatives targeting the treated textile, apparel and footwear subsector. First, the Aba footwear, Kano leather, Oshogbo tie and dye, and Aba garment and fashion clusters have been created officially by government sometimes with the support of international development partners. Second, a two-year duty and VAT waiver for textile manufacturing have been granted between 2015 and 2019, as well as a 4-year tax holiday. Third, in 2016, the government earmarked huge funds for the development of the garment and textile industry, while out of the six special economic zones, three have been dedicated for textiles only. In addition, the Bank of Industry also set aside huge funds for the textile industry at nine per cent

interest rate and payable between three and five years with a moratorium period of six to twelve months. The data for estimation cover the two regimes (1980-2006 and 2007-2016). The benchmark specification is:

$$Y_{it} = \tau_0 d_t + \tau_1 d_i + \tau_2(d_i.d_t) + \beta X_{it} + \epsilon_{it} \; ------- (2)$$

Where Y_{it} represents subsector's value added in the manufacturing sector panel; d_t captures the introduction of the cluster development policy which favours mainly the textile, apparel and footwear subsector, as defined by d_t =1 (year ≥ 2007). The subsectoral treatment is captured as d_i=1 (for the textile, apparel and footwear subsector).

Given that the study uses aggregate manufacturing subsector's data panel Y_{it} as treatment group (the textile, apparel and footwear subsector), the other sectors form the control group. Getahun (2016) used a similar difference-in-difference approach to study the effect of industrial cluster policy on the leather footwear cluster performance in Ethiopia; but he used a list of leather shoemaking firms operating in the spontaneously emerged clusters as control group, while those operating in government-created clusters were used as treatment group. Gebrewolde and Rockey (2016) used a similar treatment group approach but applied a difference-in-difference-in-difference estimate by introducing two treatments, the subsectoral treatment and the geographic treatment. But the current study is restricted to only one treatment, which is the subsector treatment.

X_{it} is a vector of only two control variables (subsector competition measured by the Hirschamn-Herfindahl index, and log of subsector indirect taxes). The Hirschmann-Herfindahl index is computed as $= \sum_{i=1}^{n} S_i^2$ where S_i is the share of GDP by subsector *i* in total sector GDP. The value of the indexes ranges from zero to one. All the data are obtained as published by the National Bureau of Statistics. The coefficient of interest in this estimation is the interactive dummy τ_2, which represents the difference-in-difference estimate of the average effects of MSME's cluster intervention and support programme targeted mainly at the textile, apparel and footwear subsector. If this has been successful, the study expects positive and significant coefficients.

4.4 Results using the difference/ indifference method
The results in table 4 show the fixed effects estimates of the effects of industrial policy on three performance measures as dependent variables, log of value added, log of employment and log of labour productivity. While the available data for

value added are for the period 1980-2016, those of employment and labour productivity are only available for the period 1994-2016.

Table 4: The effect of Industrial Policy (cluster intervention and support programme)

	1 Log of value added (1980-2016)	2 Log of Employment (1994-2016)	3 Log of Labour Productivity (1994-2016)
$\tau_{0:\,Post\,2007}$	0.12	0.09	0.11
	(0.05)	(0.25)	(0.07)
$\tau_1: sub-sectoral\ treatment$	-0.11	0.01	-0.08
	(0.03)	(0.001)	(0.09)
$\tau_2: total\ treatment$	-0.15	-0.11	-0.01
	(0.04)	(0.01)	(0.53)
Competition	-0.06	-0.37	0.13
	(0.02)	(0.14)	(0.09)
Log of indirect taxes	0.35	0.56	0.28
	(0.15)	(0.06)	(0.04)
N	468	286	286

τ_0, τ_1, τ_2 are the difference coefficients. Competition is measured by the Herfindhal index for each sector while the indirect taxes capture other manufacturing sector constraints. The standard errors are in parentheses. Some subsectors have missing employment data.

The result in table 4 shows that the coefficient of interaction of the policy τ_2 is negative (in two estimations) and insignificant, while the coefficient of the sectoral group τ_1, even though positive when log of employment is the dependent variable, remains so small and still insignificant. This looks similar across all three performance measures. The coefficient of time dummy variable τ_0 is positive in all three estimations but small. A key conclusion from the estimations is that the performance of the treatment subsector and the control subsectors are not significantly different, despite the government-implemented specific measures designed to support the treatment subsector (textile, apparel and footwear) since 2007. The combined impact of the policy estimates i.e. $\tau_0 +$ $+ \tau_2$ is still small. Rather than use the performance of the manufacturing sector as a whole to serve as the dependent variable, this analysis is repeated for the treated subsector by using as dependent variable, the values for only textile, apparel and footwear. Yet there is no clear effect of the industrial policy, as shown in appendix 2.

These findings are similar to the evidence and results in section 4.1 based on the 'simple with/without approach, which also fails to find a significant effect of the industrial policy on the treated subsector, as its performance did not differ

significantly from other untreated sectors. Some earlier studies in other countries seem to corroborate the findings. In Gebrewolde and Rockey's (2016) analysis on Ethiopian manufacturing firms, industrial policies that prioritized the growth of particular sectors or regions were unsuccessful in terms of improving productivity of employment. Also using Ethiopia leather footwear cluster, Getahun (2016) reported that industrial cluster adversely impacts micro-leather shoe manufacturing enterprises that moved to government-created clusters. Nishimura and Okamuro (2011), using firm level data in Japan, showed that not every cluster development programme contributes to firm performance and specifically noted that cluster policy will only be effective in improving firm performance if direct policy supports, such as R&D subsidies, are combined with indirect networking and coordination support.

5. Getting Industrial Policy to Work in Nigeria

The foregoing analysis suggests that the impact of industrial policies seems not to have been very significant even for targeted firms and subsectors. Although there may be shortcomings of the methodological approaches used in asserting causality, especially the problem of identification, as noted by Chang et al. (2013), the evidence is copious enough to make sincere deductions. The results and findings seem not to have changed much from the conclusions reached in earlier studies that analysed the impacts of industrial strategies in the 1970s and 1980s for Africa (Soludo et al., 2004) and Nigeria (Ikpeze et al., 2004; Uzor, 2014).

The questions are: How can industrial policy be more effective in Nigeria? Can industrial polices be designed and implemented in a way to spur firm level performance in Nigeria? The literature is rich with suggestions on how industrial policy can be more effective in Africa, especially learning from several advanced and developing countries that have successfully implemented industrial policies[4]. As UNIDO (2013) suggests, 'the industrial policy process can look very different in one country than in another, and industrial policy should not follow a universal blueprint'. There are also useful lessons from Robinson (2009), UNCTAD (2011; 2016) and UNIDO (2013), among others. For Nigeria, two key areas need to be re-emphasized if industrial policies are to be transformed into benefits for firms and industries: strengthening the current tools of industrial policy in Nigeria, and

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[4] The International Economic Association roundtable conference of 2012 was fully focused on 'Suggestions for Africa on the New Thinking about Industrial Policy'.

integrating and aligning industrial policy with other policies (macroeconomic, structural, etc).

5.1 Strengthening the current tools of industrial policy in Nigeria

Four main areas which have also been identified in literature as weaknesses of current industrial policy in several developing countries also apply to Nigeria. These include ensuring a combination of vertical and horizontal industrial policies, strengthening learning and skill formation capabilities, strengthening political leadership and industrial policy management capabilities. Usually, vertical policies target firms, sectors or activities, while horizontal policies aim at improving the larger economic-enabling environment, including transport, energy, financing, security and access to educated workforce. The combination of these policies is critical for success in sub-Sahara Africa, given the fact that most of the countries are still predominantly poor and rural, with less developed markets and institutions and these are where most of the small industries operate. But the policy mix and sequence of reforms will be tailored to individual country conditions, considering resource endowments, geography and level of institutional development (UNCTAD, 2016). There are several past studies that have documented the limitations often posed by horizontal policies for manufacturing performance.

The strengthening of political leadership is key to industrial policies to work, especially for sub-Saharan African countries where governance and institutional deficits are pervasive. Robinson (2009) noted that 'the successful promotion of industry requires change in the political equilibrium in such a way as to align the incentives of the political powerful with those of the society'. The successful industrial policy of East Asian countries, according to him, reflects the very different political equilibrium which emerged historically in this part of the world, compared to Latin America or sub-Sahara Africa. These views corroborate earlier arguments by Rodrick (2004) and Lall (2004). According to Rodrick (2004), it is absolutely essential for high-ranking government officials to be responsible for industrial policy so that they can be held accountable if these policies fail. In the 1970s, the president of the Republic of Korea took the lead role in championing the country's industrial policies and strategies. According to Lal (2004), the importance of industrial policy in East Asia was partly reflected in the power vested in the ministries' responsible for the sector. In Singapore, for instance, 'the management of industrial policy and FDI targeting has been centralized in the powerful Economic Development Board'. Recent developments

in Nigeria seem to suggest a critical move towards strong political leadership for industrial policy. For instance, the Presidential Advisory Committee on Nigeria Industrial Revolution Plan and the Nigerian Industrial Policy and Competitiveness Advisory Council are good indicators of evolving political leadership. However, the consistency of such initiatives, especially in the long run just like in the Republic of Korea is critical.

Closely related to the issue of political leadership is the capacity gaps which are often of two forms: the industrial policy management capabilities of the public sector, and the human capital shortfall of the manufacturing firms. On the first one, Altenburg (2011) highlighted that 'the key problem of industrial policy in poor developing countries is that, while the need to correct market failures is much greater than it is in highly developed societies, the ability of the public sector to tackle such failures is also much more limited'. The capacities often needed in the public sector, according to Altenburg (2011), include analytical capacity to thoroughly diagnose industrial performance, constraints and potentials; decision-making capacities and implementation capacities. The second form of capacity gaps involves those inherent in the manufacturing firms. UNCTAD (2011) recommends that manufacturing firms should have reliable access to labour with appropriate skills to produce high quality goods that can survive competition in international markets. As such, policies aimed at increasing human capital should be designed so as to improve the quality of human capital as well as respond to the needs of the industry.

5.2 Integrating and aligning industrial policy with other policies

UNCTAD (2011) noted clearly that 'industrial policy is likely to be ineffective in the absence of complimentary polices'. Such complimentary policies may include trade policy, exchange rate policy, foreign direct investment policy, monetary and fiscal policies and sometimes competition policy. According to UNIDO (2013), successful countries with industrial policy, such as China and Republic of Korea, previously used trade policy instruments to restrict imports but, at a much later time, replaced it with non-tariff barriers. Similarly, macroeconomic policy involving interest rates and exchange rates should be critical components of an integrated industrial policy package. As is well described in the literature, low interest rates and an undervalued exchange rate can in many cases support the development of domestic manufacturing firms. In Rodrick's (2008) analysis, closely monitoring the real exchange rate and keeping it undervalued to support the tradable sector, primarily manufacturing, have featured in almost all

successful catch-up countries. Zalk (2015) noted that even when South Africa embraced a proactive industrial policy regime through a 'national industrial policy framework' and an industrial action plan, both of which were aimed at structural transformation, it was frustrated by the existing tight monetary policy.

The challenge for policymakers in Nigeria is to ensure that these complementary policies align with the current 'Nigeria's industrial revolution plan.' Expectedly, the new 'economic growth and recovery plan' should align the trade, labour and macroeconomic policies with the new industrial polices. This interconnection is not fully present and may be limiting severely the performance of manufacturing firms.

6. Conclusion and Recommendation

This paper analysed the impact of industrial policy on the performance of the manufacturing sector in Nigeria. Specifically, it isolated the textile, apparel and footwear subsector, which has been prioritized since the government cluster development policy of 2007 through several support packages. It used the 'simple with/without' and 'difference-in-difference fixed effect estimation' approaches and found that the industrial policy has not been significantly effective in raising performance of the subsectors. The challenges of establishing causality and identification are not completely erased by this analysis, especially since a firm's performances are not only affected by industrial policy when they exist, but by other key economy-related policies.

In sum, the findings based on a simple statistical 'with and without analysis,' did not show any significant improvement in firm performance when explicit industrial policy is used to target certain subsectors. The differences in performance between targeted and non-targeted subsectors were generally not significant, though in a few cases, targeted subsectors' performance seem to respond to the industrial policy. The rate of growth of most manufacturing subsectors, even those that were targeted did not change much positively with the implementation of industrial policy and, in some cases, firms performed better under a de facto industrial policy regime than in explicit industrial policy regime. The findings on the causal effects of industrial policy also did not show any significant difference between the treated subsector (textile, apparel and footwear) and other subsectors within the manufacturing sector.

These findings do not in any way diminish the role and importance of industrial policy on manufacturing growth. As Rodrick (2008) stated, the debate has moved beyond whether industrial policies should be considered or not at all,

to how these policies should be designed and implemented for good performance of firms. In this regards, the use of complementary horizontal polices, as well as other macroeconomic policies to complement industrial policies, is critical.

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Appendix 1a: Real output of the manufacturing subsector (annual growth rates)

	1982	1983	1984	1985	1986	1987	1988	1989
Oil Refining	-0.02	0.30	0.07	0.66	-0.56	3.2	0.24	1.97
Cement	0.31	-0.63	-0.34	4.83	0.35	-0.11	-0.86	0.57
Food, Beverage and Tobacco	0.06	0.13	-0.12	0.26	-0.09	0.14	0.48	0.09
Textile, Apparel and Footwear	0.06	0.13	-.12-	0.26	0.09	0.14	0.48	0.09
Wood and Wood Products	0.06	0.13	-0.12	0.26	0.09	0.14	0.48	0.09
Pulp and Paper Products	0.06	0.14	-0.12	0.21	0.07	0.14	0.48	0.09
Chemical and Pharmaceuticals	0.06	0.14	-0.12	0.26	0.01	0.14	0.48	0.09
Non-Metallic Products	0.06	0.14	-0.12	0.26	0.07	0.14	0.48	0.09
Plastic and Rubber Products	0.06	0.13	-0.12	0.26	0.01	0.14	0.48	0.09
Electrical and Electronics	0.05	0.14	-0.12	0.28	0.03	0.14	0.48	0.10
Basic Metal, Iron and steel	0.03	0.13	-0.12	0.26	0.03	0.14	0.48	0.09
Motor Vehicles and Assembly	0.06	0.13	-0.12	0.26	0.03	0.14	0.48	0.09
Other Manufacturing	0.06	0.13	-0.12	0.26	0.08	0.14	0.48	0.09

Appendix 1b: Real output of the manufacturing subsectors (annual growth rates)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Oil Refining	0.02	0.36	1.02	-0.03	-0.08	2.63	0.57	-0.10	-0.33	0.50
Cement	-0.24	0.20	0.22	0.29	0.140	0.27	0.09	0.13	-0.02	0.06
Food, beverage and tobacco	0.21	0.32	0.39	0.45	0.63	0.15	0.15	0.14	0.15	0.15
Textile, apparel and footwear	0.21	0.32	0.39	0.45	0.63	0.14	0.15	0.15	0.14	0.16
Wood and wood products	0.21	0.32	0.39	0.45	0.63	0.15	0.15	0.15	0.15	0.14
Pulp and paper products	0.21	0.32	0.39	0.45	0.63	0.15	0.15	0.14	0.14	0.14
Chemical and pharmaceuticals	0.21	0.32	0.39	0.45	0.63	0.14	0.15	0.15	0.15	0.14
Non-metallic products	0.21	0.32	0.39	0.45	0.63	0.14	0.15	0.15	0.14	0.15
Plastic and rubber products	0.21	0.32	0.39	0.45	0.63	0.15	0.15	0.14	0.15	0.14
Electrical and electronics	0.21	0.32	0.40	0.45	0.64	0.15	0.14	0.14	0.14	0.15
Basic Metal, iron and steel	0.21	0.32	0.39	0.45	0.62	0.15	0.14	0.15	0.15	0.14
Motor vehicles and assembly	0.21	0.32	0.39	0.45	0.63	0.15	0.14	0.15	0.14	0.15
Other manufacturing	0.21	0.32	0.39	0.45	0.63	0.15	0.14	0.15	0.14	0.14

Appendix 1c: Real output of the manufacturing subsectors (annual growth rates)

	2000	2001	2002	2003	2004	2005	2006
Oil Refining	0.90	2.1	0.06	0.25	0.29	0.29	0.28
Cement	0.06	0.25	0.09	0.19	0.29	0.55	0.38
Food, Beverage and Tobacco	0.15	0.14	0.15	0.14	0.15	0.14	0.14
Textile, Apparel and Footwear	0.15	0.14	0.14	0.15	0.14	0.14	0.15
Wood and Wood Products	0.15	0.15	0.14	0.14	0.15	0.14	0.15
Pulp and Paper Products	0.15	0.15	0.15	0.14	0.15	0.15	0.15
Chemical and Pharmaceuticals	0.15	0.15	0.14	0.14	0.15	0.15	0.14
Non-Metallic Products	0.15	0.14	0.15	0.14	0.15	0.15	0.15
Plastic and Rubber Products	0.15	0.15	0.15	0.15	0.14	0.15	0.15
Electrical and Electronics	0.14	0.15	0.28	0.15	0.14	0.15	0.14
Basic Metal, Iron and steel	0.15	0.15	0.14	0.15	0.14	0.15	0.14
Motor Vehicles and Assembly	0.15	0.15	0.14	0.15	0.14	0.15	0.14
Other Manufacturing	0.15	0.14	0.15	0.15	0.14	0.15	0.15

Appendix 1d: Real output of the manufacturing subsectors (annual growth rates)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Oil Refining	0.10	0.15	0.13	0.13	0.14	-0.12	0.61	-0.06	-0.35	0.11
Cement	0.26	0.15	0.13	0.13	0.13	0.19	0.49	0.34	0.24	-0.13
Food, Beverage and Tobacco	0.15	0.15	0.15	0.12	0.16	0.18	0.20	0.11	0.11	-0.04
Textile, Apparel and Footwear	0.14	0.15	0.15	0.12	0.72	0.52	0.40	0.39	0.03	0.08
Wood and Wood Products	0.14	0.15	0.14	0.12	0.12	0.28	0.14	0.16	0.08	0.06
Pulp and Paper Products	0.14	0.14	0.15	0.12	0.25	0.10	0.50	0.18	0.10	0.06
Chemical and Pharmaceuticals	0.14	0.15	0.14	0.12	0.73	0.23	0.56	0.41	0.22	0..03
Non-Metallic Products	0.14	0.15	0.14	0.12	0.73	0.22	0.43	0.42	0.21	0.90
Plastic and Rubber Products	0.14	0.14	0.14	0.12	1.42	0.46	0.34	0.37	0.20	0.09
Electrical and Electronics	0.15	0.14	0.15	0.12	0.90	0.01	0.07	0.10	0.04	0.02
Basic Metal, Iron and steel	0.15	0.14	0.14	0.12	1.38	0.28	0.18	0.20	0.05	0.05
Motor Vehicles and Assembly	0.15	0.15	0.14	0.12	0.27	0.40	0.30	0.31	0.04	-0.24
Other Manufacturing	0.14	0.14	0.15	0.12	0.48	0.37	0.37	0.33	0.07	-0.09

Appendix 2: The effect on log of value added, employment and labour productivity for the treated sector (textile, apparel and footwear)

	1	2	3
	Log of value added (1980-2016) for treated Sector	Log of Employment (1994-2016) for treated Sector	Log of labour productivity (1994-2016) for treated sector
$\tau_{0:\,Post\,2007}$	0.34	0.21	0.13
	(0.23)	(0.43)	(0.16)
$\tau_1:\,sub-sectoral\,treatment$	-0.03	-0.23	-0.14
	(0.44)	(0.33)	(0.45)
$\tau_2:\,total\,treatment$	-0.08	-0.67	-0.55
	(0.87)	(0.34)	(0.05)
Competition	0.15	0.06	0.01
	(0.23)	(0.35)	(0.18)
Log of indirect taxes	-0.25	-0.08	0.01
	(0.07)	(0.11)	(0.09)
N	468	286	286