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THE ROLE OF FINANCE IN NIGERIA'S PREMATURE DE-INDUSTRIALIZATION

Author(s): Richard E. Itaman[1] and Oluwafemi E. Awopegba[2]

Affiliation(s): [1]King's College London, [2] Nigerian Institute of Social and Economic Research

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Email(s): richard.itaman@kcl.ac.uk

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ABSTRACT

This paper examines the role of finance as a potential causal factor for Nigeria's premature de-industrialization. We analyze the impact of the disproportionate allocation of bank credit to services followed by oil and gas sectors relative to manufacturing in the Nigerian economy. We argue that finance has been a causal factor for the decline in manufacturing value added (MVA) and the share of employment in the manufacturing sector in Nigeria, as such, necessary for understanding premature de-industrialization. We further analyze empirically the extent to which bank credit to the private sector might contribute to this phenomenon and find that an increase in bank credit has a significant impact on premature de-industrialization in Nigeria. The location of the Nigerian economy in the oil and gas sector is also found to divert credit allocation to this sector to the detriment of manufacturing. On the other hand, development banks in Nigeria serve to correct the negative effects of commercial bank lending by directing credit to manufacturing.

KEYWORDS

economic development; finance; premature deindustrialisation; manufacturing; Nigeria;

About the GPID research network:

The ESRC Global Poverty and Inequality Dynamics (GPID) research network is an international network of academics, civil society organisations, and policymakers. It was launched in 2017 and is funded by the ESRC's Global Challenges Research Fund.

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THE DEVELOPER'S DILEMMA

The ESRC Global Poverty and Inequality Dynamics (GPID) research network is concerned with what we have called 'the developer's dilemma'.

This dilemma is a trade-off between two objectives that developing countries are pursuing. Specifically:

1. Economic development via structural transformation and productivity growth based on the intra- and inter-sectoral reallocation of economic activity.
2. Inclusive growth which is typically defined as broad-based economic growth benefiting the poorer in society in particular.

Structural transformation, the former has been thought to push up inequality. Whereas the latter, inclusive growth implies a need for steady or even falling inequality to spread the benefits of growth widely. The 'developer's dilemma' is thus a distribution tension at the heart of economic development.

1. Introduction

Developing countries have turned to the services sectors for growth instead of manufacturing, a trend seen in Nigeria where services share of GDP is growing while agriculture and manufacturing share is declining. This reality in which economies are skipping manufacturing without first realizing the benefits of developing their productive base and where manufacturing is no longer the key route for convergence with advanced countries is gradually being accepted in the literature. For example, the IMF's position as expressed in a flagship report is summarized by Gruss and Novta, (2018) as promoting the idea that the decline in manufacturing jobs is "not necessarily a cause for concern". Such acceptance of services as a necessary developmental path and consequently less enthusiasm around manufacturing, has been explained in the literature to be due to ever-increasing changes in technology in manufacturing with the recent rise in artificial intelligence (AI). In addition is the effect of globalization manifested in global value chains (GVCs) and production networks in which manufacturing is located in select areas. This has made production cost in other countries less competitive, especially in Africa with an infrastructure gap that has become the bane of the continent's structural transformation effort.

In this paper, we argue that there remain other drivers of premature de-industrialization, not least for African countries where manufacturing did not emerge before the rise in services as the main driver of growth. Therefore, the drivers of de-industrialization are understood in this paper to be context-specific – depending on space, time and structure of an economy – a point less emphasized in the literature. Our starting premise is that the long run economic structure of a country is largely dependent on its Industrial Policies (IPs), which must include financial development (Haggard, 2018) and labour policies. As Caraballo and Jiang (2016) find in the Chinese experience, IPs play a part in the degree of "erosion" or "hollowing" of the MVA. We focus on finance or the lack thereof for the manufacturing sector, as a potential causal factor, at least in part, for the non-emergence of manufacturing and consequently the shift to the services sector in Nigeria. Notably, it is not that services are in themselves detrimental to the economy. In fact, they emerge to absorb the residual labour force in the absence of a large manufacturing sector and can generate some level of income for the economy. This is evident in the high net contribution of services to Nigeria's revenue.

While the shift to services is deemed "normal" for advanced economies or even a sign of economic success (Penede and Streiche, 2018), it is considered problematic for low income countries since it implies that there is no movement of workers from agriculture to factories which have higher productivity (Dasgupta and Singh, 2006). This has been labelled "missed growth opportunity" (Grabowski, 2017) that has its more salient consequence in the nature of the large informal sector of most developing countries (Rodrik, 2016). Also, legitimate concerns remain around high inequality due to poor remuneration for low- and semi-skilled workers in the services sector. Inequality increases in countries experiencing de-industrialisation because the manufacturing sector has historically been the best safeguard of employment for the labour force (Rodrik, 2013). For Nigeria, services have been found to emerge around low capabilities, as such, uncompetitive abroad.

In analyzing the role of banks in Nigeria's premature deindustrialization, the disproportionate sectoral allocation of bank credit to services around the oil and gas sector at the expense of manufacturing and agriculture is telling of the extent of this phenomenon, as banks seek higher returns for lending. Tellingly, the oil and gas sector provides opportunity for rentier income at the expense of the emergence of a manufacturing sector. This assumption may be made of commodities-based economies in general. A consequence of the shift in bank credit allocation is the increasing removal of the financial sector from the real economy, evident in the decline in real output and worsening economic conditions in the country despite a growing financial sector. It also contributes to the diminishing share of MVA in total output. This is in line with Rowthorn and Coutts (2004) argument that the disproportionately lower allocation of investment to manufacturing is a causal factor of de-industrialization and may arise from a declining rate of investment in the share of MVA in GDP and employment. Also, the link made between premature de-industrialization and the allocation of bank credit to the oil and gas sector in Nigeria resonates with Palma's (2005) location of the causal factors of de-industrialization around the discovery of significant amount of natural resources.

The disproportionate flow of banking credit to services sectors in Nigeria relative to manufacturing as potential contributor to its premature de-industrialization is here analyzed using descriptive data and supported by empirical estimation, to understand the extent to which our argument might hold. The rest of this paper is organized as follows: section 2 is a discussion of some theoretical literature around manufacturing as an engine of growth and the emergent de-industrialization of developing economies and Nigeria. The potential role of finance in the real economy is teased out in section 3. Section 4 analyzes IP in Nigeria, the state of manufacturing and an overview of banking and credit allocation as potential causal factors for the country's premature de-industrialization. This is followed by empirical estimations in section 5 to support the thesis in this paper. Conclusion are drawn in section 6, drawing out implications of our findings for development.

2. Decline in manufacturing (as the engine of growth)

The manufacturing sector is deemed the "engine of growth" because industrial development has been found to spur capital accumulation, economies of scale and the formation of clusters (i.e. agglomeration economies). It also generates positive externalities through economic linkages and technological spillovers for the rest of the economy. This point was made by Szirmai (2012) when he argued that there are no important examples of success in economic development in developing countries since 1950 which have not been driven by industrialization. Neither tourism, nor primary exports, nor services have played a similar role, with the possible exception of software services in India since 2000.

Empirical support for this view is seen in the cross-country analysis of Szirmai and Verspagen (2015) which finds a positive effect of manufacturing on growth. Olney and Pacitti (2017) have also shown that lower levels of manufacturing hinder the process of recovery from a recession. They suggest that it is because manufacturing firms can increase output for inventory holdings in anticipation of an increase in demand, while this is impossible in the services sector. Also, the tradeable nature of

manufactured goods allows industrial businesses more room to respond to demand in international markets.

In spite of the potential of manufacturing, there has been a decline in MVA and share in employment (Palma, 2008; Tregenna, 2011), both in advanced and in developing countries. Palma (2008) reviews the four explanations for deindustrialization: (1) that the outsourcing of processes is creating the statistical illusion of a shrinking manufacturing sector and a bigger service sector; (2) that increasing incomes have modified the consumption and expenditure patterns of households and individuals towards services (see also Penede and Streiche, 2018); (3) that higher productivity of manufacturing sector has led to capital deepening of the sector (i.e. constant or even rising level of output but employment is shrinking); and (4) the global integration of production processes (outsourcing and GVCs) have reduced manufacturing in advanced economies, while locating it in certain developing countries with low labour cost. Saeger (1997) tests empirically the importance of these hypothesis for OECD countries, and find that higher productivity of manufacturing allowed for increasing output with a shrinking industrial workforce. Also, the opening-up of trade with countries of the Global South also had an effect in driving down wages and shifting labour into services. Empirical evidence for this position is also provided by David et al. (2013) who show that one quarter of the decline in US manufacturing employment between 1990 and 2007 is due to exposure to Chinese imports.

Yet, for some, the main driver of de-industrialization process is not exposure to imports or a significant reduction of internal demand, but the declining exports to the Global South (Kucera and Milberg, 2003). In this view, the industrialization process of the developing world reduced the markets for some of the industrial goods produced in the West. Therefore, former manufacturing firms in the West shifted to research, development, design and distribution, allowing them to take advantage of the new information and communication technologies and of their increasingly skilled workforce (Bernard et al., 2017). Similarly, the ease with which technological advancement can codify routine tasks has been put forward as a main reason why less skilled labour is being pushed out of manufacturing and reabsorbed in the service sector (Goos et al., 2015). Given these explanations, the line which divides manufacturing and services is increasingly blurred (Nayyar et al., 2018).

2.1 Premature De-industrialization in the Developing World

For developing countries, de-industrialization has been described as "premature", in the sense that these countries have not achieved the level of per capita income that preceded decline in MVA in the more advanced economies (Tregenna, 2011). According to Dasgupta and Singh (2006) and Stein (1992), this process started between the 1980s and 1990s and should be understood as a consequence of the forced abandonment of industrial policies induced by international financial institutions in the aftermath of the international debt crisis. They add that a re-focusing on the static comparative advantages of developing countries led to a *reprimarization* of their production and export baskets, increasing their vulnerability to external price and demand shocks. Today, the process is characterized by a mixture of trade liberalization and high demand for raw materials from China (Cooney 2016; Lopez, 2017).

A consequence of reprimarization is Dutch-disease (Palma, 2008), which implies that the export of natural resources increases the likelihood of importing manufactured goods and exposes domestic manufactures to greater levels of external competition (Lopez 2017). Primary goods also face diminishing returns to scale, which limits the possibilities of a productivity enhancing growth (Reinert, 2007).

Given the above experience, a shift towards certain services has been recommended, especially Fire, Insurance and Real Estate (FIRE) and telecommunications, as the viable alternative, in the absence of manufacturing in developing countries. Canuto (2018) even recommends adopting a model of productivity that merges services with manufacturing, strategizing on elements that merge both physical and non-physical goods. But it is difficult to see how this model will play out in practice, and whether the kind of products to be created will overcome the challenges faced by the domestic services sectors in the global market. Even the flaunted "interconnected manufacturing" by Hallward-Driemeier and Nayyar (2017), which simply recommends interconnection between machinery and the internet, still demands that the levels of automation in developing countries are raised and adequately linked to domestic production through enhanced capabilities. So, the question remains whether such products deriving from the said melding of services and manufacturing will be as tradeable and competitive in the global market to the extent that they generate income to adequately absorb the legion of low-skilled labour in the domestic economy.

2.2 Industrial Policy and Premature De-industrialization in Nigeria

A look at IP in Nigeria shows that around independence, oil was the main export at 58% to total export in 1958. This increased to 83% in 1973 (National Bureau of Statistics (henceforth NBS), various years). Proceeds from oil was used for infrastructural development on the back of the Nigerian Civil War (1967-1969). By 1973 advances made in the agriculture sector started to be eroded (Walker, 2000) and the contribution from agriculture in the government budget declined. In fact, Ike et al. (2016) find that positive trade balances based on oil exports led to Dutch-disease in Nigeria, adding that the volatility of oil prices has made it difficult to design an adequate and sustainable fiscal policy (around agriculture and manufacturing). Consequently, support for the manufacturing sector had to be funded solely out of increasingly volatile proceeds from oil (Ikpe, 2014).

In 1963, the Nigerian government tried to develop an import substitution industrialisation (ISI) strategy. This included varieties of inward-looking IPs, with the aim to gradually replace all imported consumer goods with locally produced ones. Notably, while ISI gained some steam on both sides of the Atlantic, it had two main flaws: (1) it relied on internal markets, which limited the demand incentive to increase output and productivity, and (2) the rent-seeking behaviour of elites and the lack of state autonomy transformed time-bounded protections and subsidies into a redistribution system that permanently favoured a few monopolies (Reinert, 2007).

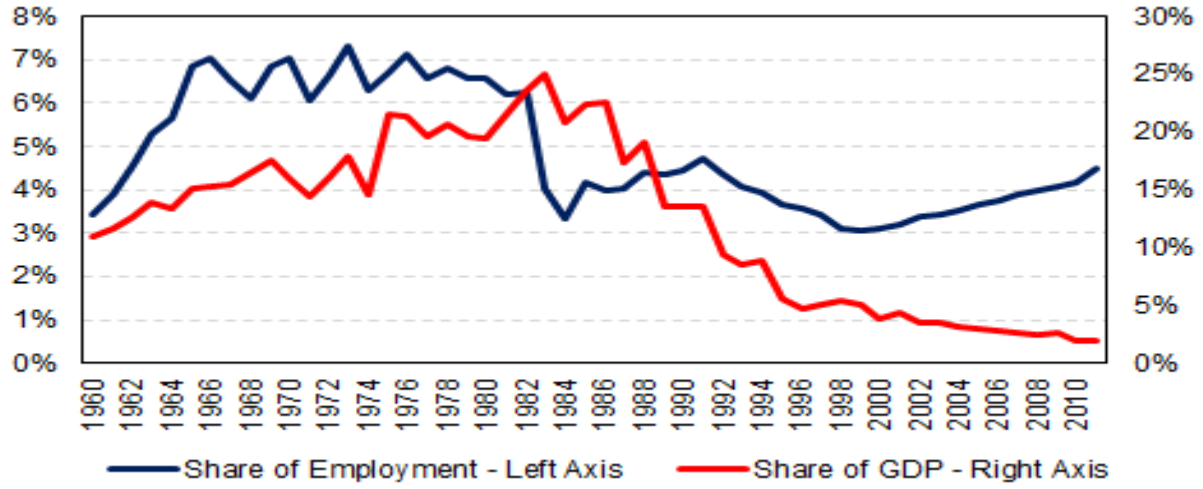
For Nigeria, the need for capital and intermediate goods increased its imports instead of substituting them (Ekpo, 2014). Given the location of production on the lower end of the GVC, industrialization in

Nigeria became "superficial", as described by Rodrik (1995) in reference to truncated industrialization experiences of countries. Thus, the transfer of skills and technology to Nigerian industries was marginal. Nigeria further suffered from fiscal imbalances from the infamous debt crisis resulting from oil price crash of the 1970s. With insufficient foreign exchange to acquire inputs and sustain the protection of ISI, it shifted (at least declaratively) to an Export Promotion Industrialisation (EPI).

In the EPI period of the 1970s, small and medium scale manufacturing, mostly around agro-products took off as the country became an exporter of agricultural products, processed food and manufactured consumer goods such as leather bags and shoes. Also, indigenization policy was adopted, which was aimed at ensuring technological capability and managerial control was transferred to local labour and the Nigerian Enterprise Promotion Act of 1977 was enacted to boost capacity. The combination of the above policies vigorously pursued ensured that MVA initially grew strongly from 4% of GDP in 1971 to 12% of GDP in 1981 (Chete et al. 2016) before declining.

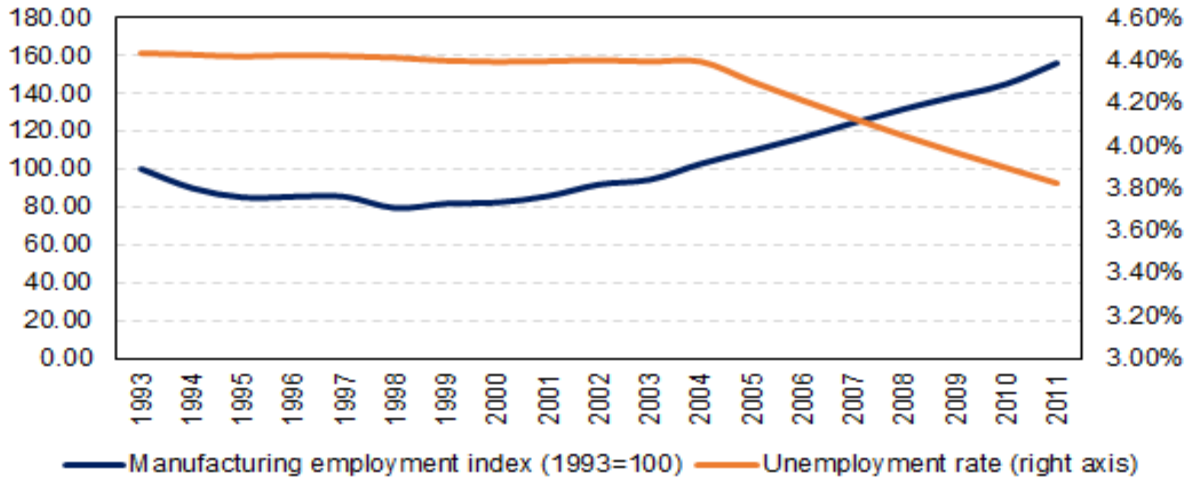
However, the stalled structural change that followed is to be located mainly within the retreat of the state from the industrialization process and the neoliberal policy package of the 1980s (Stein, 1992) which gave greater control to the private sector (Ikpe 2014), perhaps, prematurely in comparison to other successful cases of late development. Nigerian manufacturing entered a period of decline and stagnation spanning over the 1980s, during which MVA decreased substantially from a high of about 24 percent to about 5 percent in the 2000s and continues on this downward spiral (figure 1). Manufacturing share of employment also decreased in the same period. The consequence of this transitional period in IP was the shift towards the promotion of foreign direct investment (FDI) with easy repatriation of profits, which ended up deepening Nigeria's dependence on extractive industries.

Figure 1. Manufacturing share of Employment and GDP in Nigeria



Source: GGDC 10 sector database (2015)

Figure 2. Manufacturing employment index and unemployment rate in Nigeria

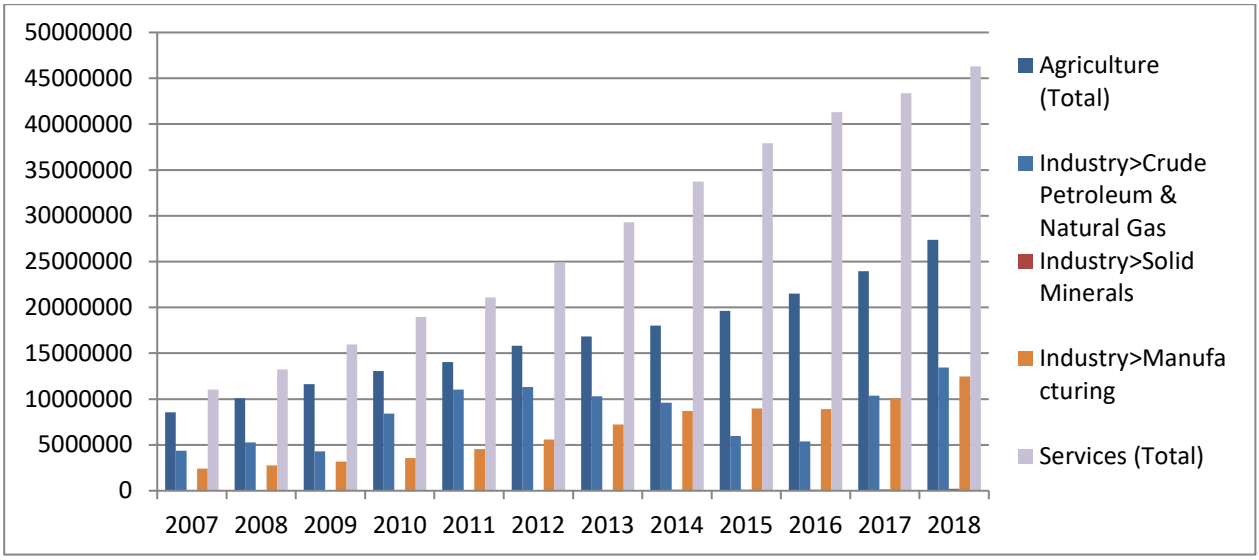


Source: GGDC 10 sector database (2015) and WB WDI (2019)

Following the return to democracy in 1999, there's been an attempt by the government to support manufacturing through a backward integration policy, aimed at addressing the high import dependence of the country. It started in 2002 with the cement and beverages industries and was later extended to other industries, including sugar, rice, tomato paste, automotive and textiles. The backward integration policy was implemented through barring exceptions, tariffs, levies and tax breaks rather than direct subsidies. Firms have to prove their commitment to building domestic supply capacity to benefit from import quotas or concessions on tariffs or levies. As such, manufacturing has shown a modest recovery. The gradual recovery of manufacturing jobs since the early 2000s seems to be correlated with a slight decrease in the unemployment rate (figure 2).

Rebased GDP figures show modest recovery in MVA pc, from USD 84 in 2000 to USD 252 in 2014 while manufacturing's share in output increased to 10% in 2014. Food and beverages is by far the most important manufacturing sub-sector, contributing 53% of manufacturing output in 2012. Within the food and beverages sector, sugar and bread generate the highest volume of output with 44% and 22% of food and beverages output respectively in 2012 (NBS, 2014). Also, there has been a decline in VA in agriculture, which now contributes about 23 percent of GDP, from over 50 percent before the 1980s. Following a resurgence of the oil sector with a 25.89 percent year on year growth in 2017, Crude Petroleum and Natural Gas contribution amount to 11 percent of total GDP, while retaining its place as the country's main export. Industry and Construction account for the remaining 16 percent of Nigeria's GDP. Services is now the largest sector of the Nigerian economy, contributing about 50 percent of the country's total GDP. Among the fastest growing segments in Services are Information and Communication, which together account for about 10 percent of total GDP (NBS, 2018) (figure 3).

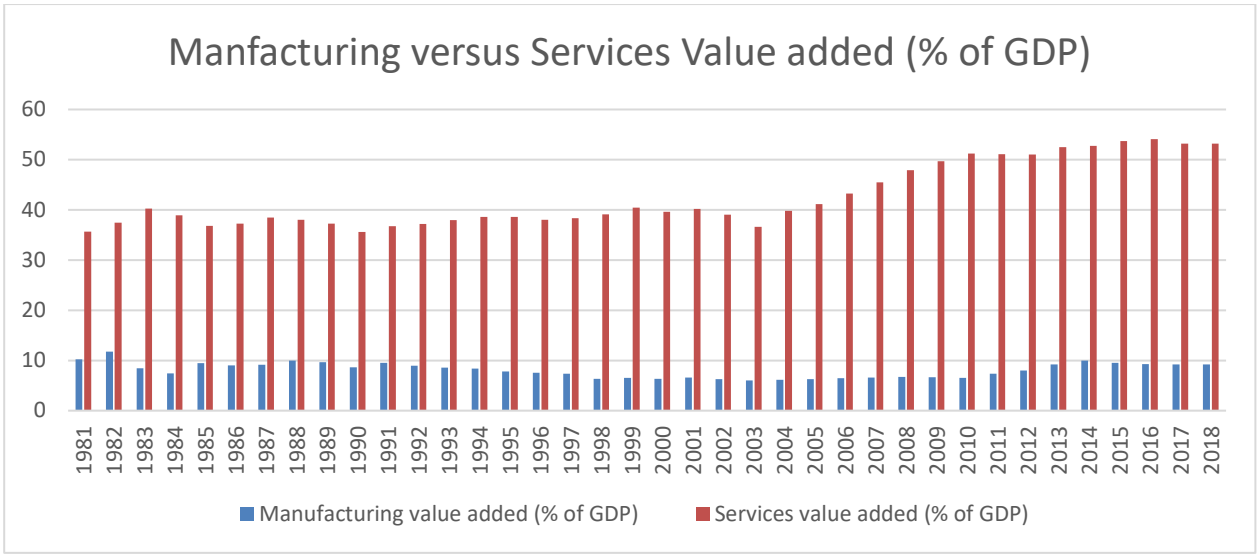
Figure 3. Sectoral Contribution of GDP in Nigeria



Source: CBN (2019).

Figure 4 shows clear divergence between MVA and services, the proportion of which, has been on the increase since the post-crisis period. This has implications for labour and wages. For labour and wages, it is necessary to understand that the non-material productivity in the services industry (except for construction and tourism) makes it unable to absorb the residual low-wage labour that arises from a decline in the manufacturing sector (Hallward-Driemeier and Nayyar (2017). Notably, unemployment in Nigeria has been on the rise, increasing steadily from 6.4 per cent in January 2015 to 18.8 per cent at the end of 2017 (NBS).

Figure 4. Manufacturing Versus Services Value Added in GDP (% of GDP) 1981-2017)



Source: CBN, Statistical Bulletin (2019).

3. Finance and Industrial Policy

An often-neglected point in the literature on structural transformation is that "catching up" for economies requires banks with enough scale, funding new economic activities and monitoring the performance of the firms they lend to (Gerschenkron, 1962; Hall and Soskice, 2001; Baliga and Polak, 2004). Long-term sustainable economic growth, therefore, is said to depend on the ability to raise the rates of accumulation of physical and human capital. Financial intermediation then plays a role in supporting this process through investment for firms. Therefore, banks could be effective "catalysts" for industrialization if they have sufficient scale and market power to fund these productive investments (Da Rin and Hellman, 2002). Burhop (2006) finds quantitative support for this, detailing how the total assets of bank credit influenced capital formation in Germany in the late nineteenth century. More recent findings show that banks can still foster the emergence of new small and medium scale firms in industries with low barriers of entry (Kim et al., 2016).

However, structural difficulties in providing debt for long-term financing of firms, especially SMEs (Cruickshank 2000; Fraser et al., 2015) has caused significant divergence between finance and industry, both in advanced capitalist and developing economies (Dumenil and Levy, 2004; Demir, 2007). In the absence of banks assuming the role of funding the real economy, the role of finance in IP is to be located in other more directed forms of finance. Some analysts propose the adoption of state-owned development and investment banks. State-owned and investment banks could help foster innovation and the take-off of key economic sectors by providing them with cheap credit and by monitoring their performance (Griffith-Jones and Cozzi, 2015). In their analysis of varieties of capitalism, Hall and Soskice (2001) propose "patient finance" in coordinated market economies (CMEs), as a way of funding long-term investments in the real economy, shielding them away from the fluctuations in the economy.

In theory, state investment banks can finance investments (a) during a downturn in the business cycle, following a countercyclical pattern; (b) during the expansion and upgrading of existing industries; (c) when it is necessary to overcome big societal challenges (such as wars and natural disasters); and (d) for the creation of whole new industries (Mazzucato and Penna, 2015). This last function is especially relevant in developing countries, where financial markets ration credit to the most secure activities for short-term profit (Crotty, 2005). Therefore, development banks distort the existing market incentives to drive the economy to better outcomes (Rodrik, 1995), as evidenced by the postwar reconstruction and re-industrialization of Europe. In this regard, investment banks are seen as essential tools of IP (Griffith-Jones and Cozzi, 2015) for "picking winners" according to public priorities (Mazzucato and Penna, 2015).

Moreover, Ferraz (2016) contend that it is possible to deter political capture and rent seeking through moral suasion and by imposing a mission on banks. These can include the financing of activities valued by the public or the development of strategic industries for long-term and sustainable growth: green energy, infrastructure, manufacturing, etc. (Cfr. Mazzucato and Penna, 2015). Recent research shows how development banks, by creating whole new industries, act as pioneers of new niches for the

financial markets. Instead of crowding out existing financial organizations, they can crowd in private capital into new strategic sectors (Mazzucato, 2016).

In addition, experiences like the KfW in Germany or BNDES in Brazil show that the creation of development banks does not mean a greater pressure on the government budget as the literature suggests, since they can rely on bonds and para-fiscal resources as the risk-absorbing capital for their operations (Ferraz, 2016; Mazzucato and Penna, 2015). In fact, both are good examples of how development banks can strategically lend to high value-added manufacturing. Recent findings even go further to show that state owned banks can outperform private banks when dealing with mergers and acquisitions and corporate control deals (Bacchiocchi et al. 2017).

The role of the "developmental state" in the catching up process of countries like South Korea, Taiwan and Singapore emphasizes that State-led industrialization becomes successful precisely because it can deal with market failures and coordination problems, such as the lack of incentives to invest in high-productivity industries (Haggard, 2018). The distortion of relative prices was key to mobilize savings, in addition to capital controls to ensure long-term investments. For example, many state-owned enterprises (SOEs) were established in heavy industry sectors, to provide cheap subsidized inputs and credit at negative interest rates to the rising manufacturing enterprises (Rodrik (1995, p. 85-87). Also, state-coordinated financing, centered on investment and production subsidies, has been teased out in the more recent Chinese experience (Schmidt 2003; Xiao, 2017). This latter case highlights the overwhelming dominance of state-owned firms and banks in the financial and equity markets, and their role as tools of economic development (Naughton and Tsai, 2015).

However, at no time in modern history has the gap been so wide between finance and productive investment and so difficult to bridge (Storm, 2018). Banks have shifted investments towards financial assets as opposed to the real economy in pursuit of higher rates of profit (Tornell, 1990), while the state increasingly withdraws from the development space. Also, firms have become financialized (Krippner, 2005; Dumenil and Levy, 2004), in pursuit of "shareholder value" and option compensation, which directly ties the remuneration of executives to stock prices, creating incentives for quick profits (Lazonick and O'Sullivan, 2000; Crotty, 2005). Since financial markets themselves are a good place for generating such profits, large firms can take loans to increase the cross-ownership of certain industries (Stout, 2012) and to speculate with their own equity (Davis, 2016), without re-investing into their own firms.

What this means is that interest and dividend (i.e. financial) incomes are becoming more important for firms as a source of revenue (Cfr. Dumenil and Levy, 2004), leading to lower investment levels in production and capital acquisition (Demir, 2007). Demir (2009) highlights the existence of a liquidity premium based on the relatively quick reversibility of financial assets, especially for rich countries. Notably, emerging and developing economies have become financialized, somewhat differently, becoming the periphery of the industrialized advanced core economies (Demir, 2007; Karwowski, 2018). The consequences could be deemed more profound for developing countries since they still have the urgent need to industrialize by investing in the real economy. Also, the need to build up

reserves against currency depreciation and attract capital flows from abroad leads to increasing sale of government backed securities which causes expansion of the banks' balance sheets, creating incentives to expand credit to households (Kaltenbrunner and Painceira, 2018).

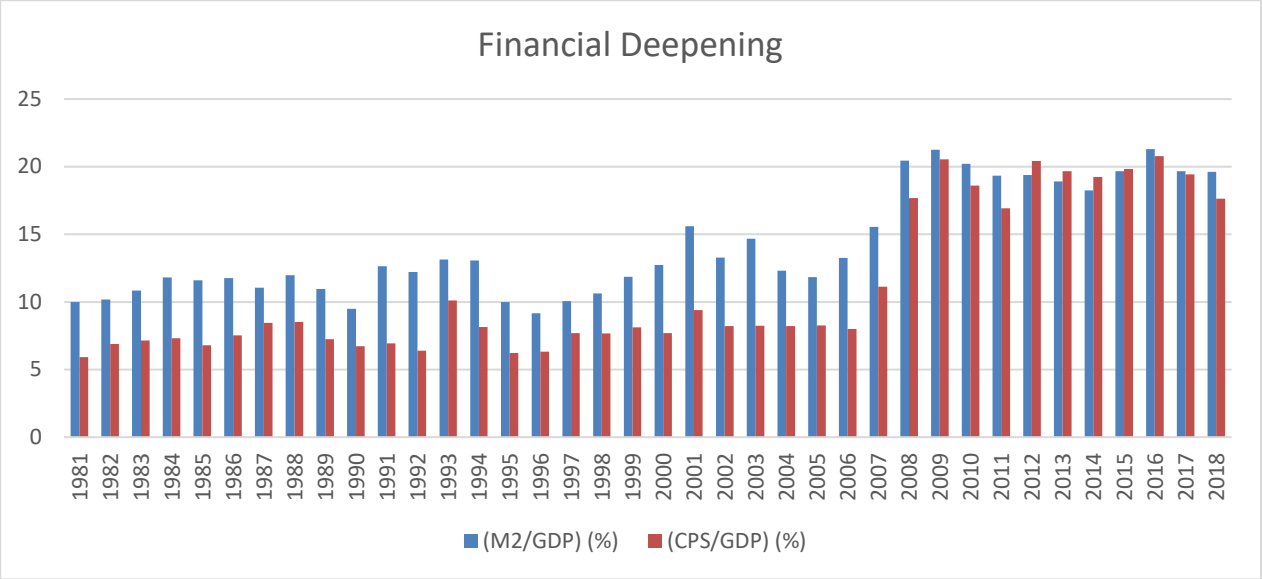
This changing role of finance, not least its divergence from funding manufacturing is the reason finance is here seen as a causal factor for the decline in MVA and the employment in industry. In short, the decline in percentage employed by manufacturing relative to finance goes to show as Tobin (1994) argued, that the net contribution of finance to output may lead to suboptimal allocation of human resources and the social returns of financial development may be lower than its private return. This is because as the financial sector grows, talents will migrate from the productive sectors of the economy to the financial sector. Similar concerns have been raised about finance' net contribution to the economy, especially in light of crises in which "the sector requires market subvention, system guarantee and corporate bail out" (See Christophers, 2011, p. 113). In short, Rajan (2010) demonstrated that through bank bailouts and remuneration structure of bank managers, financial development can intensify inefficiency between social and private returns. Cecchetti and Kharroubi (2015) provide evidence for this view.

4. Historical Background on Nigerian banks

Domestic banking activities exploded in Nigeria, following the establishment of the African Banking Corporation in 1892 among other foreign banks (Beck et al., 2005). Subsequently, strong state control in the post-colonial period meant that banking was heavily driven by public ownership in the 1960s and 1970s. This was later followed by major reforms from the 1980s, which saw the increasing liberalization of the Nigerian banking system, through interest rate liberalization, credit loosening and reduction in entry requirements in the Structural Adjustment Programme (SAP). This involved the divestment of government shareholding of over 50 per cent of total banking assets, in eight commercial banks and six merchant banks by 1992 (Beck et al., 2005). The privatization of government equities further triggered the entry of new banks into the Nigerian banking system.

However, the boom in the Nigerian banking industry following privatization, did not cause increase in lending to businesses but saw a rise in rent-seeking and arbitrage activities, which prompted the government to re-nationalize the banks. The problem was later said to be insufficient capital in the banking industry. As such, another banking consolidation was embarked upon between July 2004 and December 2005, with the objective of strengthening domestic banks to finance large long-term capital projects. The banking consolidation in this period required each bank, through a combination of mergers, acquisitions and initial public offers to recapitalize to a minimum of N25 billion (approximately $200 million at the time). This saw a 1250 per cent rise in paid up capital, with the number of commercial banks shrinking from 89 to 25. The 2004-2005 banking recapitalization exercise in Nigeria was high at the time even by advanced economy standards (Griffith and Karwowski, 2013, p. 22-23), expanding financial sector indicators as depicted in figure 5.

Figure 5. Financial Deepening in Nigeria

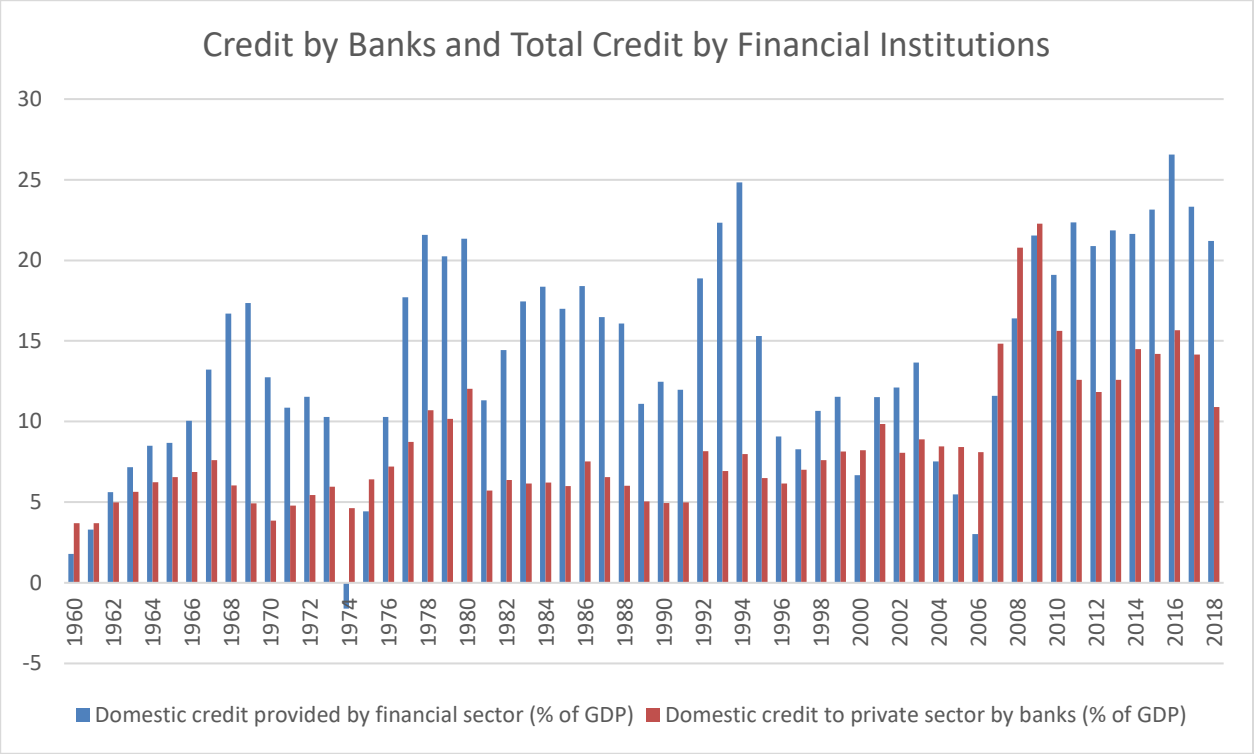


Source: CBN, Statistical Bulletin (2019).

Private credit tripled from 12 percent to 36 percent between 2006 and 2009 and continues to rise (figure 6). Despite the dip between 2014 and 2015 resulting from the economic recession due to decline in commodity prices globally, credit to the private sector continues to grow. There was an explosion of household borrowing through credit cards, consumer loans and financing of private and corporate purchase of assets from the Nigerian Stock Exchange (NSE). Commercial banks provided loans of up to 300 percent equity contribution to customers purchasing shares from the primary and secondary capital markets. Strikingly, banking halls in Nigeria became platforms for trading all kinds of financial and non-financial instruments as commercial banks engaged in trading forex (both on-site and online), mobile phone top up cards and other speculative instruments. Banks exploited the country's multi-tiered foreign exchange market which presented significant arbitrage and rent-seeking opportunities for enormous profit without necessarily investing in productive investments.

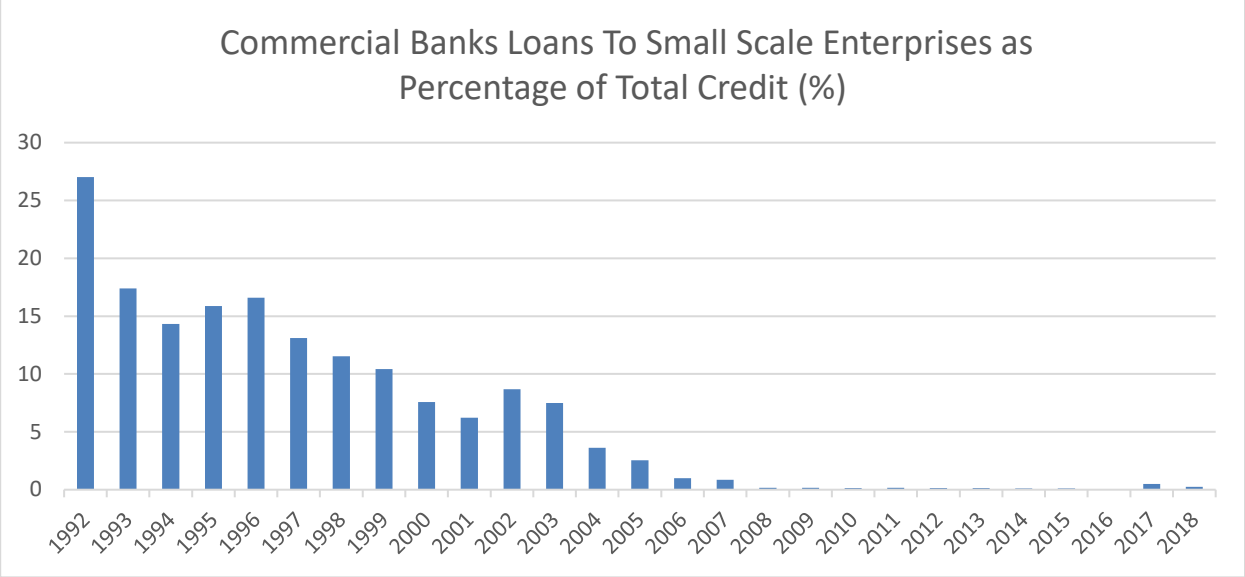
Today, Nigerian banks have grown into regional banks dominating the African banking system, expanding their branches across Europe and the USA. Some are listed on foreign exchanges such as the London Stock Exchange and the Johannesburg Stock Exchange. But lending to firms, especially SMEs remained marginal, even declining relative to total credit as depicted in figure 7. This is in part, attributed to high interest rates, preventing borrowing by firms. In short, only commercially crude and unsophisticated businesses, such as trading (especially short-term), can borrow at such high interest rates. In addition, the sharp decline in bank lending from 1992 resonates with increasing divestment of government financial assets following structural adjustment of the 1980s. The abolition of mandatory bank credit allocations of 20% of total credit to SMEs wholly owned by Nigerians took effect from October 1, 1996.

Figure 6. Bank Credit to the Private Sector in Nigeria



Source: CBN (2019).

Figure 7. Commercial Bank Loans to SMEs

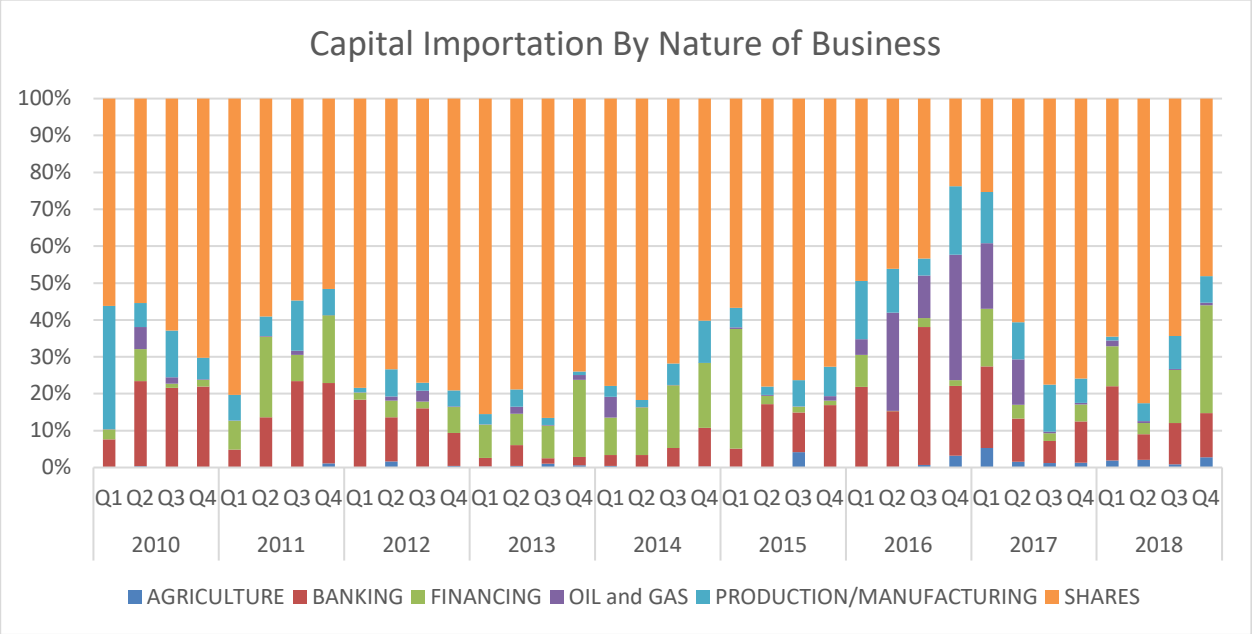


Source: CBN, Statistical Bulletin (2019).

4.1 The Role of Bank Credit in Nigeria's Premature De-Industrialization

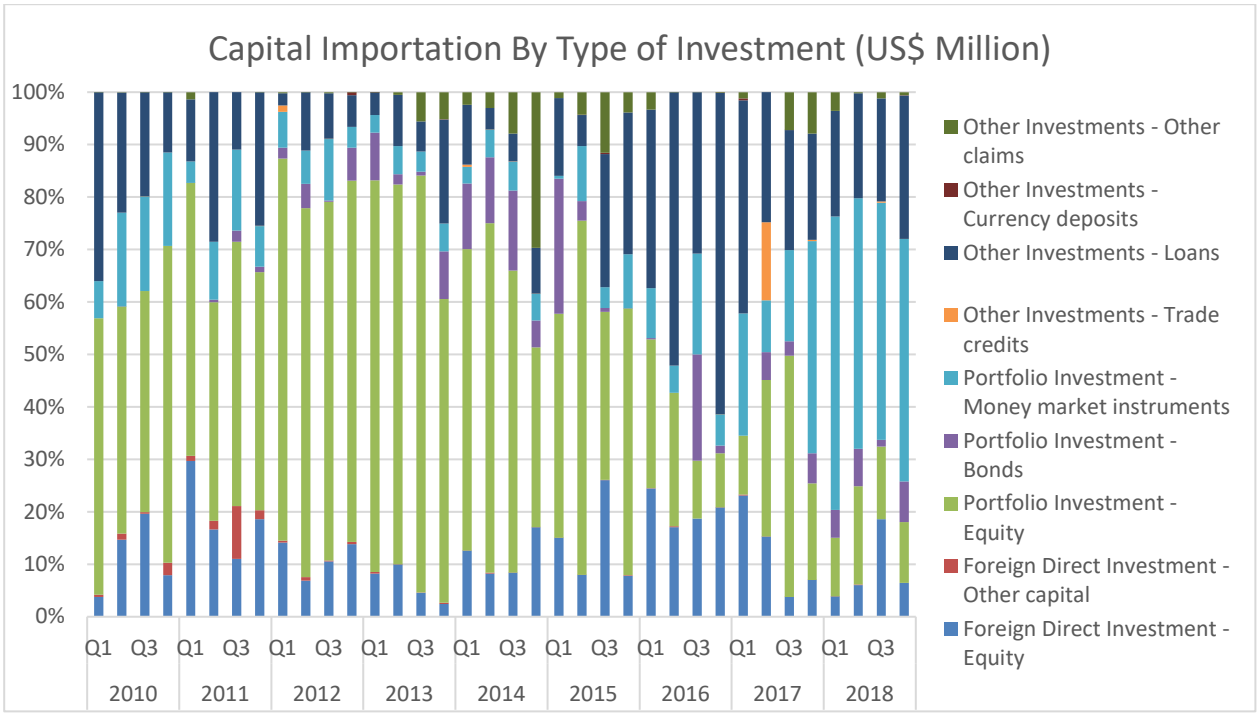
The role of finance in Nigeria's premature de-industrialization is seen first, in the disproportionate inflow of capital to the financial sector, mostly capital market shares and banking relative to manufacturing and agriculture. Figure 8 shows quarterly data of capital importation by businesses to sectors in Nigeria between 2010 and 2018. Where agriculture and manufacturing record high inflows in 2016, this seems to be diluted by flows to the oil and gas sectors. Figure 9 further expands on the preference of capital investment flows for financial assets relative to FDI capital and equity investments and trade credits in the same period. The decline in capital importation to the equity portfolio investments between 2015 and 2018 only shows a shift towards money market instruments, not FDI.

Figure 8. capital importation by Business



Source: CBN, Statistical Bulletin (2019)

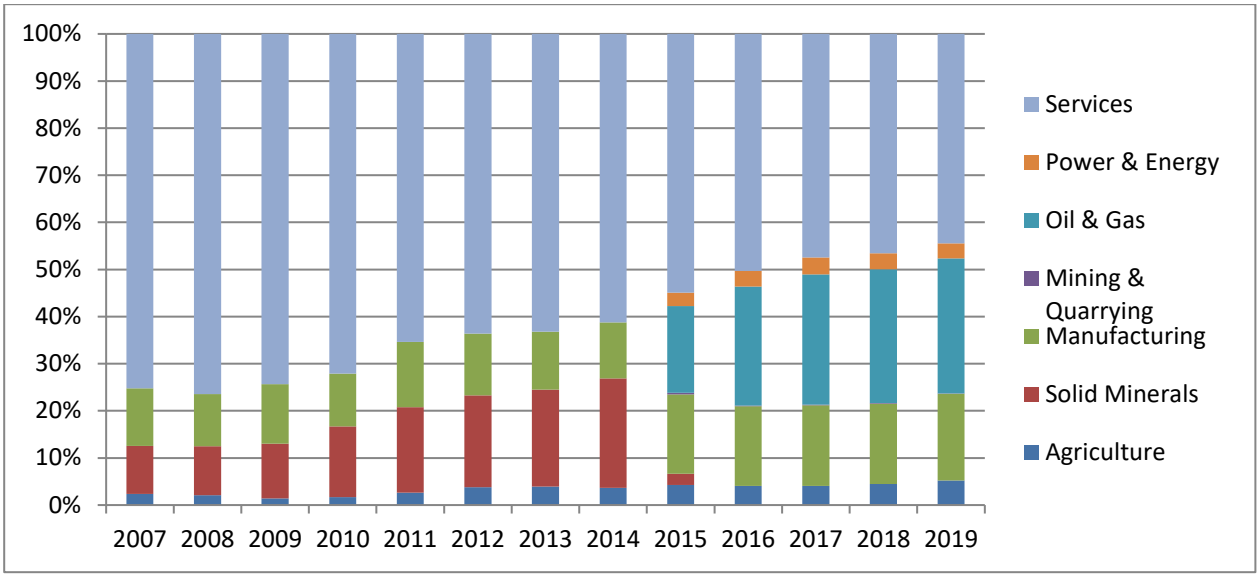
Figure 9. Capital Importation by Investment



Source: CBN, Statistical Bulletin (2019)

A look at banking credit allocation in Nigeria in figure 10 shows disproportionate financing of services relative to manufacturing and agriculture. As such, the decline in manufacturing and consequent growth in services may be linked, at least in part, to the disproportionate allocation of bank credit to the private sector as a percentage of GDP. Available Data for the period 2007-2019 shows that allocation to services has been in the range of five times that of manufacturing, at about 60 percent of total credit by banks. Oil and gas services (reclassified away from services from 2015) is the second highest recipient of bank credit. Bank credit to these two sectors is evidence of the financial sector's preference for high yield and non-productive investment. Further scrutiny of bank credit to services reveals that FIRE attracts the largest proportion of about 18 per cent of total allocation to services on average, and 10.6 per cent of total bank credit to the private sector (CBN, 2019).

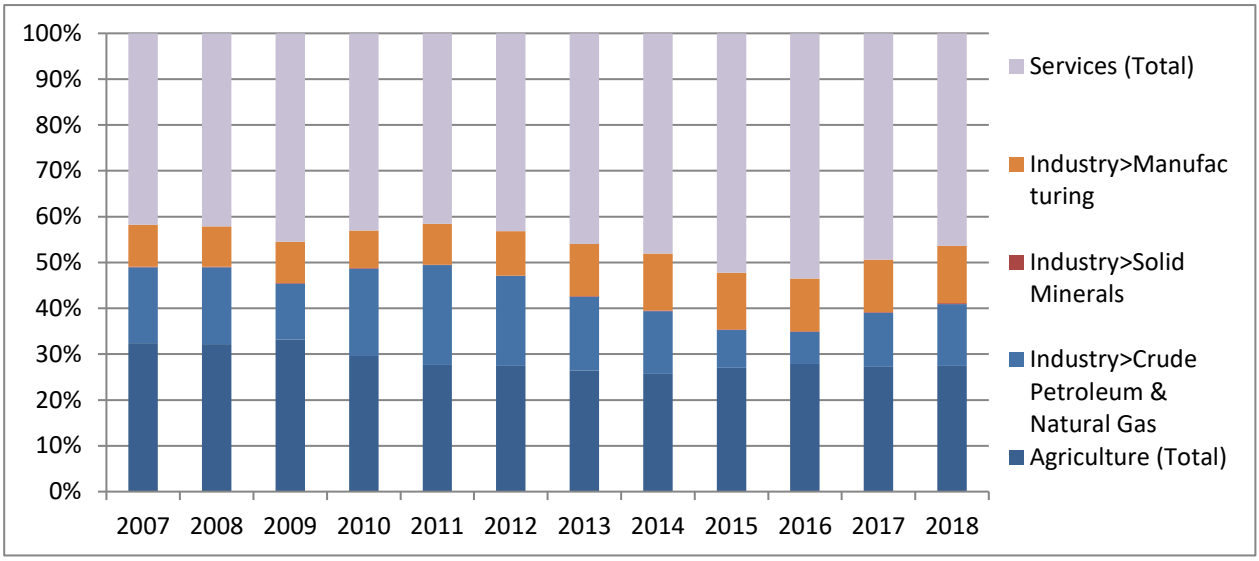
Figure 10. Bank Credit Allocation to Sectors in Nigeria



Source: Author's Compilation from NBS and CBN, 2019

Note: 'Services' in Bank credit to the private sector as categorized by the Nigeria Bureau of Statistics (NBS) in figure 10 comprises construction, trade/general commerce, government services, real estate, finance, insurance and capital market, education services, oil and gas, power and energy services, information and communication, transportation and storage, general services and others.

Figure 11. Value Added of Sectors in Nigeria



Source: Author's Compilation from CBN 2019

Interestingly, the pattern of bank credit allocation to different sectors is reflected in the contribution of different sectors to value added in the same period (not least for services, manufacturing and oil and gas), albeit minor difference, especially in agriculture which contributes disproportionately high despite poor bank funding (figures 10 and 11). This goes to prove our thesis on the connection between finance and premature de-industrialization in Nigeria. Therefore, we investigate further in the section that follows, the empirically relationship between MVA and bank credit, amongst other variables to ascertain the extent to which the former is potentially causal for the latter.

5. Empirical Analysis

Data for this study was pooled from the CBN, WDI, and the NBS. The dependent (endogenous) variable – MVA – is used to capture de-industrialization. The time series consists 37 observations of annual data for all the variables, from 1981 to 2017. Table 1 presents the descriptive statistics of the variables of interests. MANVA is manufacturing value added, CREDITB and CREDITF are credit to the private sector by banks and total credit by financial institutions respectively. Credit from financial institutions includes additional contribution by development banks or state-owned financial institutions. GDPPC is GDP per capita (in thousands), FDINIP is FDI net inflows and OILCS is credit to the oil sector (representing the long-term domination of the oil sector in the Nigerian economy). The average value of manufacturing to GDP is 14.6%, credit from banks has a low average of 9.5% and credit from financial institutions is 15.6%. We find similarities between average credit from banks and credit to the oil sector, which is telling of bank credit allocation. FDI net exports remain low at an average of less than 2%.

***Table 1*. Descriptive Statistics**

	MANVA	CREDITB	CREDITF	GDPPC	FDINIP	OILCS
Mean	14.559	9.543	15.591	1.741	1.795	9.214
Median	16.257	8.111	16.080	1.514	1.642	7.932
Maximum	21.098	22.267	26.555	2.563	5.791	30.127
Minimum	6.553	4.948	3.024	1.324	0.257	0.918
Std. Dev.	5.217	4.352	5.967	0.433	1.253	8.625
Skewness	-0.142	1.288	-0.088	0.739	1.307	1.099
Kurtosis	1.355	3.981	2.107	1.986	4.848	3.208

Source: Authors' computation

The Autoregressive Distributed lag (ARDL) cointegration technique has been used to analyze the short and long-run relationships between the proxy for premature de-industrialization (MANVA) and finance (CREDITB and CREDITF). Other variables in the estimation include GDP per capita, FDI inflows and oil and gas financing, which may on their own impact de-industrialization. The ARDL cointegration approach extended by Pesaran et al. (2001), which we use, enjoys several advantages. First, it can be applied to a small sample size estimation. Second, it estimates the short- and long-run parameters of

the model simultaneously and presents the results separately. This addresses problem associated with autocorrelation and omitted variables. Third, the technique provides valid t-statistic (irrespective of endogeneity) and unbiased estimates of the long-run model (Harris and Sollis 2003). And the dynamic specification of the model corrects for endogeneity bias (Pesaran and Pesaran, 1997). Fourth, the cointegration relationship can be estimated using Ordinary Least Squares (OLS) method, once the order of lags in the model has been appropriately selected.

Given the foregoing, the ARDL models is specified as follows:

$$\begin{aligned} ManVa_t = \beta_0 &+ \sum_{i=1}^{p} \delta_1 \Delta ManVa_{t-i} + \sum_{i=0}^{q} \delta_2 \Delta creditb_{t-i} + \sum_{i=0}^{q} \delta_3 \Delta credit_{t-i} + \sum_{i=0}^{q} \delta_4 \Delta GDPpc_{t-i} \\ &+ \sum_{i=0}^{q} \delta_5 \Delta FDIni_{t-i} + \sum_{i=0}^{q} \delta_6 \Delta oilc_{t-i} + \beta_1 ManVa_{t-1} + \beta_2 creditB_{t-1} \\ &+ \beta_3 creditF_{t-1} + \beta_4 GDPpc_{t-1} + \beta_5 FDIni_{t-1} + \beta_6 oilc_{t-1} + \varepsilon_t \end{aligned} \quad (1)$$

Where $ManVa$ is the value addition of manufacturing sector to the total GDP, $creditb$ and $credit$ are the amount of credit by banks and total credit by financial institutions respectively, to the private sector. $GDPpc$ is Gross Domestic Product per capita, $FDIin$ is foreign direct investment net inflows as a percentage of GDP, while $oilc$ is credit to the oil sector as a share of total credit by commercial banks. The Δ denotes a first difference operator, the δ s and β s denote the intercept and the coefficient estimates, t is time in years and ε is the error term.

5.1. Bounds Test

To ensure a long-run relationship exists among the variables in the equations, an ARDL bounds test on the F-statistic is used to test for joint significance of the coefficients. The null hypothesis of no-cointegration is $H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ and the alternative hypothesis is $H_1 : \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$. The null hypothesis is not rejected when the F-statistic is lower than the lower bound but rejected when the F-statistic exceeds the upper bound. If the result is as otherwise stated, then it is inconclusive. Table 2 shows the results for the ARDL bounds test. The F-statistic clearly exceeds the upper bound for all significant levels, therefore we can infer a stable long-run cointegration relationship of the model.

Table 2. Bounds Test

F-statistic	Significance Level	Lower Bound	Upper Bound
46.41315	10%	2.26	3.35
	5%	2.62	3.79
	2.5%	2.96	4.18
	1%	3.41	4.68

Source: Authors' computation

Second, we estimate the conditional ARDL long-run model, expressed as follows:

$$ManVa_t = \beta_0 + \sum_{i=1}^{p} \beta_1 ManVa_{t-i} + \sum_{i=0}^{q} \beta_2 creditb_{t-i} + \sum_{i=0}^{q} \beta_3 credit_{t-i} + \sum_{i=0}^{q} \beta_4 GDPpc_{t-i} + \sum_{i=0}^{q} \beta_5 FDIni_{t-i} + \sum_{i=0}^{q} \beta_6 oilc_{t-i} + \varepsilon_t \quad (2)$$

Using an Akaika Information Criteria (AIC), the orders of the ARDL (p, q) model is selected, where all variables have been earlier defined. Third, we estimate the short-run dynamic parameters with an ECM model associated with the long-run estimates. This is expressed as thus:

$$ManVa_t = \beta_0 + \sum_{i=1}^{p} \delta_1 \Delta ManVa_{t-i} + \sum_{i=0}^{q} \delta_2 \Delta creditb_{t-i} + \sum_{i=0}^{q} \delta_3 \Delta credit_{t-i} + \sum_{i=0}^{q} \delta_4 \Delta GDPpc_{t-i} + \sum_{i=0}^{q} \delta_5 \Delta FDIni_{t-i} + \sum_{i=0}^{q} \delta_6 \Delta oilc_{t-i} + \phi ECM_{t-i} + \varepsilon_t \quad (3)$$

Where δ s denotes the short-run dynamic coefficients of the model's convergence to the equilibrium and ϕ is the speed of adjustment parameter – the rate at which the cointegration model restores the previous period's disequilibrium to the long-run equilibrium relationship. ECM is the error correction term that is derived from the estimated equilibrium of equation (1), for which the ECM term must be negative and significant. This implies that any short-run movement between the independent and dependent variables will converge back to the long-run relationship.

5.2. Unit root test

We test for stationarity of the selected variables to determine their order of integration (e.g. I(0) or I(1)). This is to avoid spurious regression results from the use of I(2) variables, because the computed F-statistics by Pesaran, et al. (2001) are only valid using I(0) or I(1) time series. The conventional Augmented Dickey Fuller (ADF) and Philips-Perron (PP) tests are used and the results are presented in table 3 The null hypothesis $H_0 : \beta = 0$ indicates that the variable has unit root, whereas the alternative hypothesis is $H_1 : \beta < 0$. The results show that the variables are found to be integrated at order I(0) and I(1).

Table 3. **Stationarity (Unit root) test**

	ADF		PP		Remark
Variables	**Intercept**	**Trend**	**Intercept**	**Trend**	
CreditB	-2.087	-3.293*	-1.578	-3.445*	I(0)
CreditF	-2.111	-1.426	-2.162	-2.295	
1st Diff	-5.369***	-5.577***	-8.968***	-9.224***	I(1)
FDIniP	-3.665***	-3.483*	-3.615***	-3.418*	I(0)
GDPpc	-1.317	-1.919	-0.643	-3.913**	
1st Diff	-4.345***	-3.951**	-4.435**	-3.925**	I(1)
Mva	-0.730	-2.125	-0.620	-2.348	
1st Diff	-8.131***	-8.009***	-7.925***	-7.315***	I(1)
Oilcs	2.021	-0.516	2.742	-0.314	
1st Diff	-5.880***	-7.033***	-5.956***	-7.074***	I(1)

Notes: ***(**)* indicate significance at the 1%, 5% and 10% respectively.
Source: Authors' computation

5.3. Findings

Table 4 shows the result of the estimation. Credit by banks is negative and statistically significant at the 1% level. This means that a 1% increase in bank credit contracts value addition from manufacturing by -0.5. This supports the claim that increase in bank credit has a significant impact on premature de-industrialization in Nigeria. The result from credit to oil is significant and negative, meaning that an increase in credit to oil by 1% leads to a -0.4 decrease in MVA. This implies that over time, the increasing share of credit to the oil sector is correlated with a decrease in the MVA, since such credit is forgone credit for manufacturing.

Total credit by financial institutions, which includes intervention credit by state development banks to the private sector, has a positive and significant impact on MVA, indicating that development banks in Nigeria serve to counter-act the negative effects of commercial bank lending. Yet, this has been insufficient in altering Nigeria's economic structure towards manufacturing as financing through development banks in Nigeria remains weak. Likewise, FDI net inflow is positive and significant at the 5% level, which indicates that an increase in FDI expands MVA. On the other hand, the relationship between GDP per capita and manufacturing is negative and insignificant, which suggests a decline in VA in manufacturing with increase in GDP per capita. It could be that as income increases, there is low domestic demand for locally made manufactures, given the preference for imported goods. Overall, the results of the model reflect a negative role of finance on industrialization in Nigeria.

Table 4. Long run Coefficients ARDL (4, 3, 4, 4, 4, 3)

	Dependent Variable: MANVA		
Variable	**Coefficient**	**t-Statistics**	**Prob. Values**
CREDITB	-0.499	-4.180	0.006
CREDITF	1.033	6.980	0.000
GDPP	-1.259	-0.618	0.559
FDINIP	0.748	2.930	0.026
OILCS	-0.440	-4.494	0.004
C	7.712	1.695	0.141

Source: Authors' computation

Table 5 presents the error correction estimation for the ARDL model. The ECM coefficient is negative (between -1 and 0) and significant at the 1% level, thus, confirming the existence of a long run relationship among the variables. Precisely, the coefficient shows a high speed of adjustment back to the equilibrium, that is 92% of the disequilibrium in MVA in the previous period, converges back to the long-run equilibrium in the current period. For the short-run coefficients, all the variables are negative except bank credit. This further highlights the overall negative impact of the variables in the model on industrialization. Nevertheless, credit from banks has a positive and significant impact in the short run.

Table 5. Error Correction Representation (ECM) of the ARDL Model selected on Akaike information criteria (AIC) (4, 3, 4, 4, 4, 3)

	Dependent Variable: D(MANVA)		
Variable	**Coefficient**	**t-Statistics**	**Prob. Values**
D(MANVA(-1))	-0.710	-3.596	0.011
D(MANVA(-2))	-0.763	-3.836	0.009
D(MANVA(-3))	-0.387	-2.122	0.078
D(CREDITB)	0.448	3.143	0.020
D(CREDITB(-1))	-0.446	-1.952	0.099
D(CREDITB(-2))	0.634	3.677	0.010
D(CREDITF)	-0.044	-0.578	0.584
D(CREDITF(-1))	-0.032	-0.390	0.710
D(CREDITF(-2))	-0.359	-3.929	0.008
D(CREDITF(-3))	-0.095	-1.739	0.133
D(GDPP)	-4.399	-1.404	0.210
D(GDPP(-1))	6.647	1.735	0.133
D(GDPP(-2))	-6.576	-1.539	0.175
D(GDPP(-3))	1.406	0.643	0.544
D(FDINIP)	-0.350	-2.840	0.030
D(FDINIP(-1))	-0.081	-0.499	0.635
D(FDINIP(-2))	-0.448	-2.866	0.029
D(FDINIP(-3))	-0.417	-2.421	0.052
D(OILCS)	-0.220	-1.551	0.172
D(OILCS(-1))	0.344	2.422	0.052
D(OILCS(-2))	-0.391	-2.677	0.037
CointEq(-1)	-0.915	-4.477	0.004

Source: Authors' computation

Table 6 highlights the diagnostic and stability tests to ensure the goodness of fit of the model. The results of the diagnostic test show that we reject the null hypothesis of homoscedatisticity and serial correlation and that the model is normally distributed. For stability, Ramsey RESET is used to test whether non-linear combinations of the model explain MANVA. The result is insignificant, indicating that the model is correctly specified as linear.

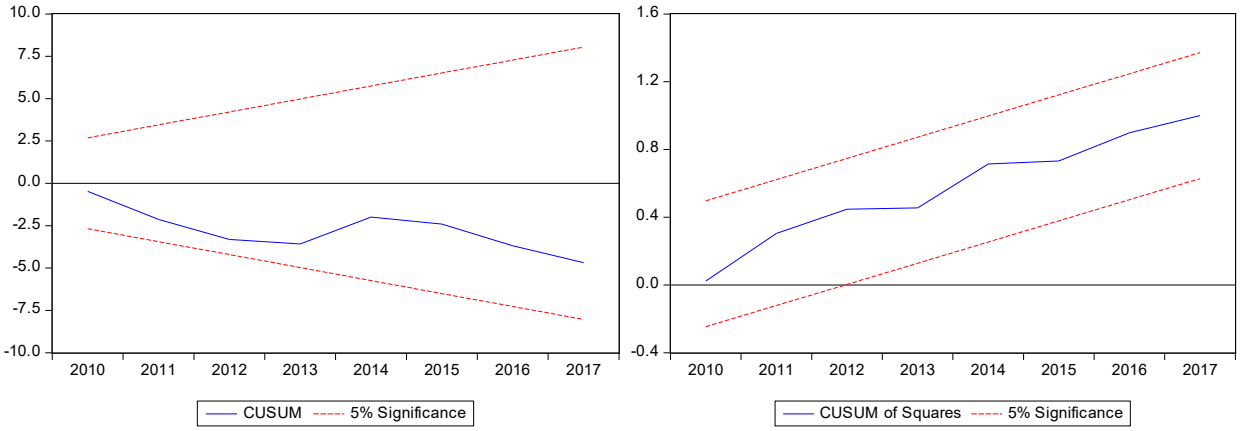
Table 6. Post Estimation Test

Test	Statistic	Prob.
Heteroscedasticity	0.947	0.588
Serial Correlation	0.279	0.771
Normality	1.513	0.469
RESET	2.913	0.166

Source: Authors' computation

Further stability test of CUSUM as shown in figure 12, suggests that the estimated parameters are stable over the period of study. Therefore, the result of the diagnostic tests confirms the reliability and validity of our estimates.

Figure 12. The cumulative sum of recursive residuals (and square) plot



6. Concluding Remarks

The preferential allocation of credit to services and oil and gas sectors is seen to be fundamental to premature de-industrialization in Nigeria, with short-term profit motive of banks at the heart of this phenomenon. The combination of these factors; decline in credit in real investment, lop-sided allocation of credit to services and oil and gas sectors relative to manufacturing, clearly make finance one of the factors that drive Nigeria's premature de-industrialization. The obvious result of insufficient allocation of credit to manufacturing is a decline in productivity and reduction in the share of labour employed by the manufacturing sector, which has detrimental effects on the country's development. These findings, particularly around the impact of the oil sector in Nigeria, make it necessary to further analyze premature de-industrialization in commodity-dependent countries and for theorizing on the its causal structure in developing countries.

Understanding the role of finance in premature de-industrialization will ensure that finance is directed in a way that allows for developing countries to achieve certain higher levels of income, manufacturing shares and labour employed in manufacturing before de-industrialization. This will smoothen to some extent, uneven development between countries, allowing more concerted efforts on addressing the de-industrialization at higher levels of development. At the core of the matter is that there is no alternative to industrialization for developing countries, albeit with consideration for the type of products around which industrialization is to emerge, while ensuring productive capabilities of labour is developed. There is huge potential wealth to be tapped from developing the manufacturing base for Nigeria's large market. And services can be strategically positioned higher on the GVCs when they emerge.

Ultimately, it is necessary to understand the conditions within which manufacturing was made successful in today's industrialized economies, not least the level of wages that ensured manufacturing thrived and maintained output growth, as opposed to its complete abandonment. This would mean revisiting the issue of distribution that ensures the income of the teeming low- and middle-skilled labour force can be boosted through labour policy reforms to continue to sustain aggregate demand, in the face of technological disruptions. A redistributive taxation policy, especially on all forms of wealth, holds the key to balancing the disruption that technology poses for labour. While developing an effective tax system for Nigeria may seem independent of the current shift from manufacturing to services, these issues are not independent. An effective IP is one that eventually recognises the interconnectedness of these factors, in the search for sustainable growth strategies.

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Appendix

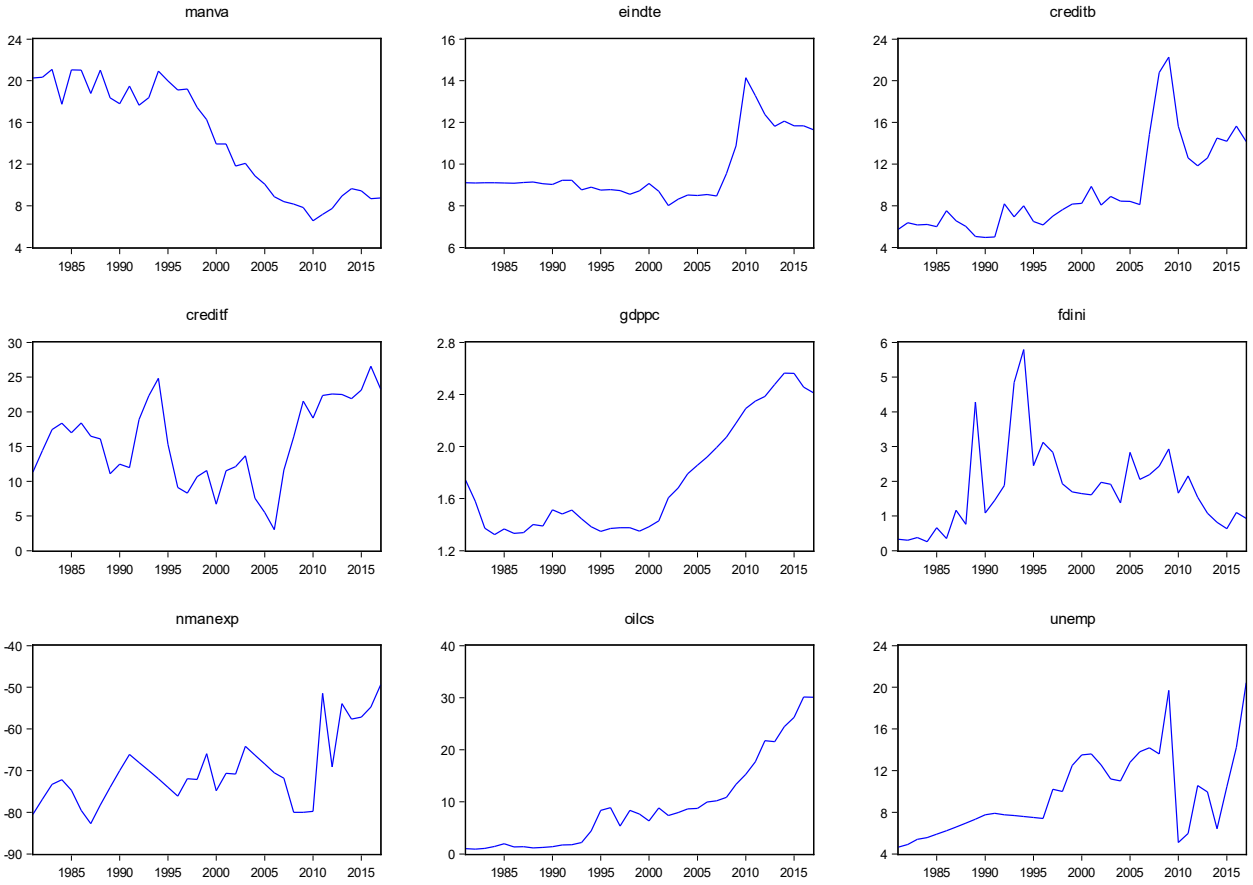
Below is a list of variables that capture premature deindustrialization in Nigeria. The variable-mix which worked best for the model is listed in the upper part of the table, while "others", though theoretically useful, did not pass the empirical test.

Table 7: List of Variables

Variable	Definition	Source
ManVa	Manufacturing, value added (% of GDP)	World Development Indicator database, World Bank online (2019)
CreditF	Domestic credit to private sector by banks (% of GDP)	World Development Indicator database, World Bank online (2019)
CreditF	Domestic credit provided by financial sector (% of GDP)	World Development Indicator database, World Bank online (2019)
GDPPC	GDP per capita (constant 2010 US$) in Thousands	World Development Indicator database, World Bank online (2019)
FDIni	Foreign direct investment, net inflows (% of GDP)	World Development Indicator database, World Bank online (2019)
Oilc	Share of commercial bank credit to the oil sector	Central Bank of Nigeria (2019)
Others		
Eindte	Employment in industry (% of total employment) (modeled ILO estimate)	World Development Indicator database, World Bank online (2019)
edusec	Secondary education, pupils	World Development Indicator database, World Bank online (2019)
Pop	Population, total	World Development Indicator database, World Bank online (2019)
Nexp	Net Exports of goods and services (% of GDP)	World Development Indicator database, World Bank online (2019)
GDPg	GDP growth (annual %)	World Development Indicator database, World Bank online (2019)
Unemp	Unemployment, total (% of total labor force)	National Bureau of Statistics (2019)
NexpMan	Net Manufactures exports (% of merchandise Trade)	World Development Indicator database, World Bank online (2019)

Source: Authors' compilation

***Figure 13*. Time trend of the selected variables in the study**



Source: Authors' computation

***Figure 14*. Actual, fitted, residual graph**

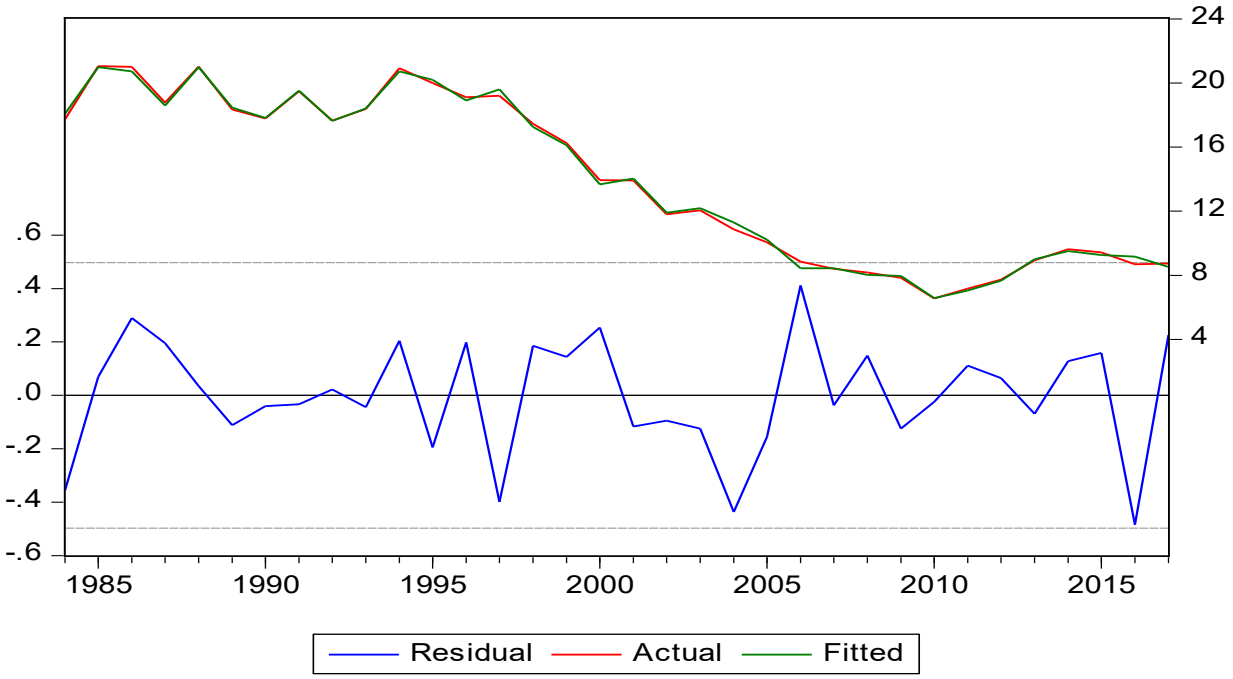


Figure 15. **AIC Criteria Graph**

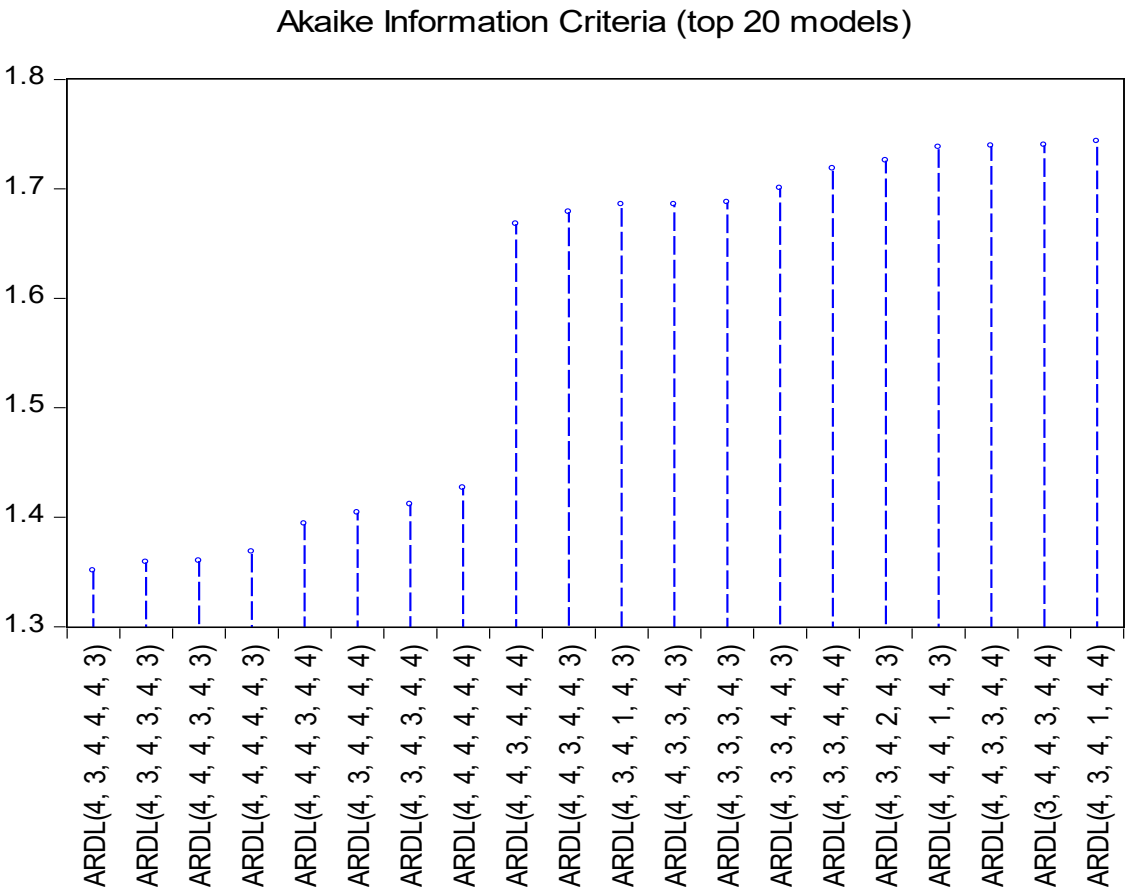


Figure 16. **Jarque Bera Normality Test**