INDUSTRIALISATION AND INDUSTRIAL OUTPUT NEXUS IN NIGERIA: A NEW EMPIRICAL EVIDENCE

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ABSTRACT
Infant industry protection is a common trend in Africa with the main aim of encouraging local industries to gain economies of scale. However, the result of this trend has not been shown in the industraliastion process of African countries, especially Nigeria. The article used Generalised Least Square (GLS) with time series analysis from 1987-2022. The results showed that tariffs had a low effect in protecting the infant industry in Nigeria. Tariff needs to change at the rate of 0.068 unit to bring about a unit change in industrial output. The research recommended a policy mix as a more viable policy option. Indigenisation policy should be combined with other infant industry protection policies such as production subsidy, import monopoly, imposition of embargo, exchange control, import quota, import license and preferential duties to achieve the desired industrialised economy.
Keywords: Industralisation, infant industries, protectionist law, indigenisation.

JEL: L16, D12, E24**.**

1. INTRODUCTION

Industrialization is the policy of establishing many industries in different parts of the country. It has been generally accepted as the surest and most direct route to economic development. Infant industries are newly established industries. These industries are not big enough to compete with the old ones in developed countries. Hence there is a need for their protection otherwise they will die of the system. The classic theory of development pinpoints the infant industry as a prerequisite for development process. In March 2018, African Continental Free Trade Area (AfCFTA) was launched to achieve this objective. AfCFTA aims at establishing a common and single market for goods and services produced in Africa, eliminating or reduction of tariff and non-tariff barriers, and facilitating the movement of persons to deepen economic integration and prosperity of the African continent among other objectives. History has shown that industralisation is the main economic tool that transform developed nations of the United Kingdom (UK), Germany and the United State of America (USA) into fully wealthy nations.

The Asian tiger history of Taiwan, South Korea and Singapore is still fresh in memory. These countries use light industries to grow their Per capita Income (PCI) at a rapid, unprecedented rate. This narrative seems to exclude many African nations despite the abundant of human and mineral resources in many African countries. Arnold (2019) cited in Adesina (2021) revealed that with an estimated thirty trillion dollars, in potential wealth, Africa natural resources are enough to make her one of the wealthiest place on earth. However, Africa's massive resources have not translated into economic development. The dominant of primary sector and low level of industrial manufacturing are the major cause of volatile Africa industrial output. What food is, to humans, is what raw material is to industry. Even though these raw materials are in abundance in African countries, especially Nigeria, most African countries lack factories. The few available ones are relocating to access better infrastructural facilities to reduce the cost of production. Landry (2018) argued that African countries are missing out on the opportunity that can be explored from manufacturing and industrialisation; insisting that, this seems to be

the main issue that perpetuates poverty in Africa. Spending within the business circle in manufacturing in Africa according to laundry is projected to reach 666.3 billion dollars by 2030. In 2015, the same figure recorded 465 billion dollars, about a 30% increment within the space of three years, with an annual increment of 10%. Scholars have tagged Africa as the world's next great manufacturing center, with the potential of capturing about 100 million labor-intensive job markets that will leave China in 2030. This analysis shows that there are opportunities for the continent not only for country like Nigeria but also for emerging countries of Ethiopia and Rwanda.

International Monetary Fund (IMF 2005) considers broad access to financial services as an important character of a deep and efficient financial system. How do we marry the above assertion by IMF with the CBN declaration? In Nigeria, the formal financial system provides service to about 35% of the economically active population, while the remaining 65% are excluded from access to financial services (CBN 2005). Therefore, it is clear that we need to deepen economic research on protectionist law and its role in the development of infant industries. The current trend of a concerted effort by nations of the world has made protectionism to gain more ground in the world; from UK Brexit to the US trade war with China, to other protectionist tools adopted globally by different nations of the world. The General Agreement on Trade and Tariff (GATT) provision and economic policies, superseded by the World Trade Organisation (WTO) international trade policies, seem to render the traditional, well-known, protectionist tool of tariff obsolete (Brain & Cornelia, 2021). The study is situated to examine the effectiveness of tariffs as a protectionist tool in protecting infant industries and industrial output in Nigeria. The study is structured into five major parts: the introduction, literature review, methodology, result and discussion of findings, and conclusion and policy recommendation.

2. LITERATURE REVIEW

2.1 Theoretical Literature

The import substitution theory advocates for developing countries to decrease their dependence on developed countries (Segal, 2021). The theory proposes the replacement of imported goods with domestic production. Export drive theory also known as export-led growth theory postulates that countries should increase the exportation of goods and services for which the nation has a comparative advantage. The theory is based on the promotion of industries that can produce exportable goods. The infant industry theory is a classic theory of international trade that state that newly established industry or newly established industries in developing nations need protection from internationally well-established industries or competitors until they are mature to face competition. The infant industry argument is often used to justify the main reason for domestic trade protection. Alexander (1791) cited by CFI (2022) initiated the infant industry argument stressing that the US industries needed protection from Great Britain. Friedrich (1841) cited by CFI (2022) brought Alexander's argument into the limelight. It provided a comprehensive view that refine and reformulate infant industry theory. In economic theory, protectionist laws are international economic policies, such as policies on tariffs, production subsidies and quotas on imported goods, made by the government to protect infant industries. Tariffs are import duties levied on goods imported into a country. High tariff implies a reduction in demand due to increase in prices. The producer will shift the burden of the tax to the consumer, however, this also depends on the elasticity of the product concern. Similarly, quotas increase the prices of imported goods; since there is a constraint on the supply of such goods. Quotas is a trade policy where the government restricts the quantity of imports for particular goods or services. It is a non-tariff trade barrier. Subsidies, on the other hand, are

trade policies, which are in the form of tax credits or negative taxes given to domestic producers.

The main reason behind this theory is that the infant industry does not have the economics of scale possessed by other competitors. Other rationales include stimulation of local production and encouragement to produce to meet local demand, promotion of national security, busting of national revenue, attraction of foreign investment, employment generation and development of local market, to prevent dumping and increase consumption of domestic product among others. Generally, economic literature proposed that the following tools can be used to protect the infant industry: reduction of excise duties, import monopoly, embargo, exchange control, tariff, quota, import license and preferential duties. Similarly, devaluation can be used to protect infant industry if properly annexed. Generally, devaluation makes export cheaper. It therefore increases country export. It is aimed at making export cheaper and thereby increasing foreign demand for them i.e. where demand for such export is elastic, and consequently increasing the devaluing country's foreign exchange earnings. However, it should be noted that if foreign demand for the devaluation country export is inelastic, income from such export will fall. The other angle is that, devaluation also reduces imports. Importation becomes costlier especially if home demand for foreign goods is elastic, devaluation will be ineffective if the aim is to cut down demand. The imposition of an embargo is also a potent protectionist tool. Certain goods should be banned (i.e. their importation). Recently, the government banned the importation of fresh fish, and fairly used cars popularly called "tokunbo cars". Local firms should be encouraged to produce these goods locally. Excessive importation is inimical to Nigeria's economy. It is only in Nigeria where petrol is imported while crude is exported. It is a simple analogy. As a farmer, if I plant cassava, I am not expected to harvest all the cassava, take it to the market, and sell off everything. A wise farmer is expected to reserve some cassava for personal consumption instead of going back to the market demanding for a finished product from cassava. It is illogical for Nigeria to sell crude oil and then buy the finish product (petrol) from abroad again.

The protection of these infant industries is important. 90% of MSEs financed by MFB, with a track record of regular participation and easy access to micro-credit, survived up to 4 years in southwest Nigeria (Babajide, 2011). The study also observes that the likelihood of survival of small firms, have the tendency to increase, provided the small firm can generate profit regularly, have easy access to micro-credit and convert profit back into investment. Source of finance can be retained earnings, debt or equity financing. Babajide tends to emphasise debt and retained earnings as source of fund for infant industries. This is not unexpected as equity financing is available to big firms. At that level, microfinancing is not even considered has a choice or source of finance.

2.2 Empirical Literature

Henry (2012) proposes the following guiding principle for national industrialisation: productivity and competitiveness, market development, high-value addition and diversification, regional dispersion, technology innovation, fair trade practices, growth and graduation of MSMIS, employment creation, environmental sustainability, compliance with the country constitution, education and human resources development. Tybout (2000) cited in Matthew (2004) presented two theory to support the argument for trade protection and how it affects the performance of firms in developing countries: competitive pressure and market size. The competitive pressure posits that international trade adversely affects the profitability of firms in developing countries while the market size argument opines that trade protection can boost the market size of the domestic firm. Robot (1969) accepted the fact that there are new

and unique factors affecting the infant industry that require market protection and state intervention. This is contrary to the (Carl, 1981) opinion whose writing disfavor infant industry protection. Stephen and Jorn (2010) opined that the global financial crisis is the main reason why countries announced a wide range of protectionist measures. The crisis according to Stephen and John justify protectionism. When the trade of goods and services between countries flows unhindered by restriction and intervention, free trade exists (Regina, 2012). Matthew (2004) proposes an alternative policy of global engagement if infant industry protection does not work. Saheed et al (2023) studies show that in the short run exchange rate has negative and insignificant effect on agricultural output. The research advocated for selective credit control as a panacea for high inflation trend. Danasabe and Mustapha (2003) studies used Autoregressive Distributed Lag Model (ARDL), cointegrationn relationship was established between the dependent and independent variable which indicate a long run relationship between trade openness and economic growth as a result of increase in industrial output. While Ukolobi and Oboro (2021) shows an insignificant relationship between indirect tax and industrial output. Okonta et al (2020) recommends free trade zone policy for export diversification in Nigeria for increase in industrial output.

The Role of Infant Industries and Protectionist Law in Asian Tiger

In the 1950s, India and South Korea had an approximately similar levels of per capita income. In the following two decades Korea grew at rates far exceeding those of India, achieving a much higher per capita income level than the latter (Arvin, 2001). During the same decades, Singapore, Taiwan and Honk Kong grew at a rate even higher than that of Korea (Arind, 2001). The Asian tigers - a term often used to describe the economy of Hong Kong, South Korea, Taiwan and Singapore - is noteworthy. The role of infant industries and the use of protectionist law is also of paramount importance and a lesson Nigeria can learn from. Two views emerged on the growth process of the Asian tiger. The first proponent believes in pro-market policies while export subsidies are given to small firms. The second proponent believes in the role of industrial policy, especially in the technical challenges. What is most important is that both views favored infant industries protection. Infant industry protection in the development process cannot be overemphasized. In 1861, the US tariff schedule was revised upward to give the New England Cotton Lobby additional protection. This was followed by more protection for the domestic industry in 1824 (Grey, 2003). This research by Grey has been documented to be the world's oldest infant industry protection. In the case of Taiwan, in 1993, the World Bank recorded how Taiwan builds a war of protection for their infant industries. This involves extensive quantitative restriction and high tariff rates that shielded domestic consumer goods from foreign competition. The bank of Taiwan offered a low-interest loans to exporters (Sanjaya, 2004). Undoubtedly, it can be seen as a joint effort. Microfinance institutions must play their roles in financing small firms. Government must also enact policies to protect these infant industries. The success of these Asian Tiger does not just come on a platter of gold. Concerted efforts were made by policymakers and stakeholders to deliberately move the economy forward.

The same story goes for the economy of Singapore. In the G-24 discussion paper series delivered by Hall at the United Nation Conference on trade and development, Hall did not miss words when he declared, to the astonishment of his listeners that, many multinational factories in Singapore have closed their doors. He said further that those whose doors are not closed have relocated to neighboring countries. It is therefore clear that for any economy to grow infant industries must not only be protected, but they must also be financed heavily. 1991 Singapore strategy economic plan also comes to memory here. Most Important of this plan, is the industrial cluster strategy. The word cluster here means interlinked activities of the

industries. This strategy has allowed Singapore to become the leading center for hard disk drive production in the world (Sanjaya, 2004).

Industralisation and infant industries development have the same trend in Hong Kong. As of 2010, Hong Kong has a labour force of about 3.7millions out of which 3.56 million are employed. However, as of 2009, the unemployment rate stood at 5.2% falling considerably over the years. In August 2022, unemployment rate stood at 4.1%. The establishment of small firms is one of the ways to solve the unemployment situation in Nigeria. On the part of South Korea, her gross domestic product expanded by an average of more than 8% per year from US$ 2.7 billion in 1962 to US$230 billion in 1989, breaking the trillion dollar mark in 2007 (Wikipedia, free encyclopedia). The Gross Domestic Product per capita in South Korea stood at 32644.67 US$ in 2021. Nigeria can learn from the Asian Tiger, if the development of her industrial sector, especially the infant industries is her cardinal macroeconomic goal.

3. METHODOLOGY

The study uses Generalised Least Square (GLS) with time series analysis from 1987-2022. Secondary data obtained from the Central Bank of Nigeria Statistical Bulletin is used. The first step that is done, is to determine the order of stationarity of the variables, that is, a stationarity test is conducted. The study tries to find out whether they are stationary in their levels or whether they have to be differenced once or more before they become stationary. Augmented Dickey-Fuller (ADF) test is used to carry out unit root tests. The calculated values of these statistics tests are compared with their critical values. Consideration is given to the properties of the series used in the equations.

The functional form of the GLS is given as:

$$IND_i = \varphi + \varphi_1 TAF + \varphi_1 ELECT + \varphi_1 UNM + U_I$$

where IND is the total industrial production, TAF is Tariff, ELECT is electricity supply and UNM is unemployment rate. If the heteroscedastic variances σ^2_i are known, then, the above equation can be divided by the known heteroscedastic variance, such that:

$$IND_i/\sigma_i = \varphi + \varphi_1 TAF/\sigma_i + \varphi_1 ELECT/\sigma_i + \varphi_1 UNM/\sigma_i + U_I/\sigma_i.$$

The transformed variables become:

$$IND^*_i = \varphi + \varphi_1 TAF^* + \varphi_1 ELECT^* + \varphi_1 UNM^* + U^*_I.$$

The total industrial production is the total output of all industry in Nigeria. The CBN provides this information in its economic report. Tariff represents a tax imposed by the government on goods and services imported from another country. Pandit (2000) insisted that macro-econometric modelling must satisfy four criteria. First and foremost, it must fit into a theoretical framework. Second, the actual specification of the model must reflect a clear understanding of the contextual framework within which policies are formulated and executed along with an envisaged process of adjustment. Third, it is essential that the model is built on firm and rich database and finally, the estimated structural model must adequately utilize the rigors and sophistication of econometric methodology.

$IND^*_i = \varphi + \varphi_1 TAF^* + \varphi_1 ELECT^* + \varphi_1 UNM^* + U^*_I$ is the transformed GLS that is best, linear and unbiased.

4. RESULTS AND DISCUSSION OF FINDINGS

Table 1: Unit Root Tes*t*

Variables		ADF Test Stat.	conclusion		ADF Test Stat.	conclusion
TAF	Level	-2.586571 (-2.981038)	1(1)	1st Diff.	-0.889901 (-2.981038)	1(1)
INDS	Level	-1.339177 (-2.948404)	1(1)	1st Diff.	-6.035971 (-2.951125)	1(0)
ELECT	Level	-1.255271 (-2.948404)	1(1)	1st Diff.	-6.597989 (-2.951125)	1(0)
UNM	Level	-1.796278 (-2.951125)	1(1)	1st Diff.	-11.61877 (-2.951125	1(0)

Result extracted from E-views 9 output

The variables are non-stationary at levels. However, all the variables are stationary at first difference except IND which is stationary at first difference.

Table 2: ARCH/GARCH model output

Variable	Coefficient	Std. Error	z-Statistic	Prob.
RESID(1)^2	-0.101041	0.006911	-14.62022	0.0000
GARCH(-1)	1.131274	0.029108	38.86446	0.0000

Result extracted from E-views 9 output

The sum of the RESID (1)^2 and GARCH (-1) coefficients determine the choice of econometrics techniques to be used. The sum of these coefficient representing $(\alpha + \beta)$, is very close to one as shown in table 2, indicating a persistent shocks and presence of ARCH effect, which necessitated the use of GLS

Table 3: Generalized Linear Model

Variable	Coefficient	Std. Error	z-Statistic
TAF	0.068171	0.155693	-1.190208
ELECT	-0.037398	0.031421	0.437854
UNM	0.240111	0.434268	0.552910

Result extracted from E-views 9 output

Table 3 shows the specific effect of tariff as a protectionist instrument, a tool largely used in Nigeria. The result show that 0.068 unit change in tariff bring about a unit change in industrial output. This outcome is in line with (Brain and Cornelia, 2021). Similarly, electricity supply and industrial output are inversely related. The result shows that 0.037 and 0.24 unit change in electricity and unemployment rate brings about a unit change in industrial output respectively.

5. CONCLUSION AND POLICY RECOMMENDATIONS

The result shows that tariff has a low effect on protecting the infant industry in Nigeria. The paper recommends that infant industry protection such as production subsidies, import monopoly, imposition of embargo, exchange control, import quota, import license and preferential duties can be a viable policy option. Similarly, the paper suggests a review of indigenisation policy, especially the 'schedule II' of minimum Nigeria equity participation of 60% should be increased to 90% while the 'schedule III' or 40% equity participation of Nigeria can be increased to 80%. Indigenisation policy can be a more viable protection policy when compared to the traditional protection policy of tariff. The research recommended a policy mix as a more viable policy option. Indigenisation policy should be combined with other infant industry protection policies such as production subsidy, import monopoly, imposition of embargo, exchange control, import quota, import license and preferential duties to achieve the desired industrialised economy. Import substitution industralisation strategy coupled with strengthening of macroeconomic fundamentals, for an export-led growth, are the viable policy options for Nigeria industralisation and increase in industrial output growth. This findings is in line with (Danasabe and Mustapha, 2003), (Okeowo, 2023) and (Segal, 2021) studies.

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