THE **NIGERIAN ECONOMIC SUMMIT GROUP**

Building a Resilient Economy for Shared Prosperity in Nigeria

List of Articles

Nigeria's Economic Uncertainties: Coping Guidelines for Business Survival

NESG Research

Abstract

Nigeria, like many economies, is ravelled by the fallout of the Russia-Ukraine war, which worsened the enduring impact of the COVID-19 pandemic and the existing structural challenges facing the economy. The macroeconomic instability experienced in Nigeria over time cannot be dissociated from the country's massive dependence on crude oil, which remains the largest source of fiscal revenues and export earnings. The unstable macroeconomic space – in terms of high inflation, exchange rate volatility, constricted fiscal space, weak external reserves, and balance of payments problems – and deepening instability on the social and political landscapes – have proved the extent of Nigeria's vulnerability to shocks. A more recent ranking showed that Nigeria was among the bottom half of African countries classified as less resilient to shocks by the African Development Bank (AfDB) in 2021[1]. The burden of vulnerability is borne by the people at the bottom of the income pyramid, which could aggravate the insecurity problem. Consequently, Nigeria's unstable macroeconomic space has worsened the business environment, subdued investors' confidence and weighed on the financial performance of businesses in Nigeria. In this paper, the NESG highlighted four variants of business-related risks alongside the coping guidelines Nigerian businesses could adopt.

Introduction

Nigeria consolidated post-pandemic recovery with economic growth of 3.1 percent and 3.5 percent in the first and second quarters of 2022, respectively. The average growth stood at 3.3 percent in the first half of 2022 (H1'2022), higher than the average growth of 2.8 percent in the first half of 2021 (H1'2021). This stellar growth was driven by the improved performance of the non-oil sector, which grew by an average of 6.1 percent in H1'2022, relative to an average growth of 3.8 percent in H1'2022. On the contrary, the oil sector contracted further by 11.8 percent and 18.9 percent in 2022Q2 and H1'2022, respectively. Inflation remained elevated, rising from 15.6 percent in January 2022 to 20.8 percent in September 2022. With the inflation rate remaining high and real income eroded, the World Bank projects that an additional 7 million Nigerians will fall into extreme poverty in 2022. In reaction to the upward inflation trend, the CBN's Monetary Policy Committee (MPC), at its last meeting in September 2022, raised the monetary policy rate and cash reserve ratio to 15.5 percent and 32.5 percent, respectively. On the fiscal policy side, great concerns continue to trail the growing public debt stock, which grew to an all-time high of N42.8 trillion (US$103.3 billion)[2] as at June 30, 2022.

Moreover, the growth in exports outpaced that of imports, further expanding the trade surplus to N2 trillion in 2022Q2 from N327.3 billion and N1.2 trillion in 2021Q2 and 2022Q1, respectively. The trade surplus was sustained on the backdrop of higher global crude oil prices. Similarly, the overall foreign investment inflows stood at US$3.1 billion in H1'2022, representing a 10.7 percent increase compared to US$2.8 billion recorded in H1'2021. Nonetheless, key factors including declining investors' confidence as illiquidity in the foreign exchange (FX) market persists, real returns on investment remain negative and structural rigidity constrains domestic crude oil production continue to supress substantial inflows of foreign investment in Nigeria. Despite the rising global oil prices, Nigeria's external reserves have stayed below US$40 billion so far in 2022. However, due to robust FX demand and illiquidity in the official market, the parallel market premium has widened by over 60 percent in 2022. In addition, the Naira has slumped by 5.1 percent and 44.2 percent against the US dollar at the official and parallel FX markets, respectively, so far in 2022. Similarly, the standard deviation of the exchange rate – a crude

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[1] AfDB (2021). African Economic Outlook for 2021. Retrieved from: https://www.afdb.org/en/
[2] CBN Official Exchange Rate of US$1 to N414.72 as at June 30, 2022, was used for currency conversion

measure of the domestic currency's steadiness – is about 16 percent higher between 2019 and 2022, relative to the preceding four years (2015-2018). This indicates that the exchange rate has become increasingly volatile in recent times.

With no end to ravaging uncertainties in Nigeria's business environment, the outlook appears deemed. Contextually, in this paper, the NESG categorised businesses' risks into four channels of exposure: structural, financial, external and policy exposures. The rest of the paper explains the risk types and possible coping guidelines in great detail.

Risks and Coping Strategies

Structural Risks: These constitute headwinds to the conduciveness of the operating environment and business competitiveness. Structural risks include business risks, driving up operating costs and adversely impacting business performance. What follows are the dimensions of the structural risks and the associated coping guidelines suggested for businesses.

Forms of Structural Risks	Coping Strategies
Infrastructural deficit	**Take Advantage of Executive Order 7**: This allows private businesses to invest in road infrastructure directly impacting their operations in exchange for a tax credit.
	Adopt localisation of industries: Firms operating in similar industries can jointly collaborate to invest in requisite infrastructure in a geographical location.
Resurgence of COVID-19	**Reinstate COVID-19 guidelines**: Continued enforcement of social distancing, wearing nose masks and frequent cleansing hands with sanitiser, among others.
	Digitalise business processes: This has shaped the different aspects of business operations: production, marketing, client management, and customer service, among others.
The dreadful state of insecurity	**Review Environmental Sustainability Governance (ESG)**: Firms should improve their Corporate Social Responsibility (CSR) to be more socially responsive and responsible to their host communities.
	Drive cybersecurity awareness: Educate staff on cyber threats and ensure they are aware of legitimate internal and external channels of contact.
Persistent inflationary pressure	**Localise supply chains**: Import-dependent businesses need to explore local resources.
	Adopt backward integration strategy: Backward integration involves expanding businesses' roles to provide or produce inputs into existing business operations.
	Adopt Sachetisation strategy: Sachetisation involves developing sachet products and packages (mini and nano firms) with similar quality that will fit into the purses of low-income earners.
	Leverage outsourcing services: With the rising production costs, businesses can outsource some parts of their operations that are not core.
	Drive sustainable and circular operations: Sustainable/circular operations, here, refer to a production process that involves reusing, recycling and refurbishing unused products
Rising brain drain and staff turnover	**Review the company's remuneration, recognition, and reward system**: Organisations should keep up with competitive salaries and compensation and reward labour efforts adequately.
	Invest in the personal development of employees: This could guarantee commitment to work as retention is tied to employees' capacity development.
	Encourage a healthy work-life balance environment: Workers should be able to lead a balanced life, which is critical to workers' satisfaction and retention.
	Create a shared vision brought on board to achieve the organisation's goal. product of the ingenuity employees bought on board to achieve the organisation's goal.

Financial Risks: Financial risks burden companies' capital structure and cause catastrophes in financial institutions' portfolios. The Nigerian financial market, like other countries, is experiencing sharp asset repricing across segments of the market. Following the global inflationary pressure, interest rates are rising worldwide, with the Central Bank of Nigeria increasing the policy rates. Accordingly, yields across the fixed-income market are picking up; the equity market, however, is running bearish, while exchange rate volatility is heightened. These have significant implications for capital structure and financial institutions' loan portfolios resulting from increased non-performing loans.

Forms of Financial Risks	Coping Strategies
Increasing domestic interest rates and liquidity crisis	**Adopt equity financing**: With rising interest rates, debtor organisations should expand equity financing in their capital structure to raise funds through the sales of shares.
	Provide moratorium and forbearance: Due to limited system liquidity and the risk of default from debtors, financial institutions should give customers a moratorium and forbearance on their debt obligations to avoid the risk of default and potential hike in non-performing loans.

External Risks: Business vulnerabilities amplify with growing uncertainty in the international markets. The higher oil prices in the global market inspired a trade surplus for Nigeria as growth in merchandise exports outpaced that of merchandise imports. However, the global risk emanating from energy and food crises, appreciation in the dollar against global currencies as the greenback becomes a safe haven, increase in the import bills on petroleum products and high subsidy payments, and halt in foreign investment inflows have elevated the exposure of businesses to risks associated with international trade and foreign capital flows.

Forms of External Risks	Coping Strategies
Intensified currency risk and foreign exchange scarcity	**Make use of currency options:** This allows companies to buy and sell Foreign Exchange (Forex) at a specific future date and rate hedged against downward movements in the Naira
	Operate at a natural hedging level: This involves companies matching their Forex costs to Forex revenues to net off each other to minimise Forex risk.
	Transact in local currency and limit Forex transactions: Companies need to ensure a substantial part of their cost is in Naira and should depend mainly on local raw materials.
Global supply chain disruption	**Localise the supply chains and integrate businesses operation backward**s: Import-dependent FMCGs should source their inputs locally and invest directly in the local value-chain development to now access the input source.
	Diversify energy sources: Companies should invest in more sustainable energy sources to compensate for a deficiency in electricity supply from the national grid.

Policy Risks: The policy space has been constrained in a challenging time, with policies appearing as a threat rather than an enabler to business growth. As with most global central banks, Nigeria's monetary authority battles with the trade-off between reining in inflationary pressures and stimulating economic growth. However, the fiscal authority has maintained an expansionary fiscal policy, with fiscal deficits overshooting the 3 percent of GDP target set by the Fiscal Responsibility Act 2007. Hence, Nigeria is at a crossroads where both monetary and fiscal policies are constrained; however, they cannot remain idle. The debt service-to-revenue ratio has reached 119 percent, but the Nigerian government cannot curb borrowing due to a weak revenue base. This poses significant challenges for businesses in the country

Forms of Policy Risks	Coping Strategies
Monetary policy tightening	**Hedge against interest rate risk**: As the interest rate outlook remains high, businesses need to take measures to limit their interest risk in future. This includes using interest rate futures, equity financing and capital structure adjustment.
Sovereign default risk	**Diversify asset portfolio**: Creditor organisations should brace for sovereign default risk and adequately diversify their portfolio across government bonds, corporate bonds and commercial papers, equities and especially foreign-denominated securities.
Risks associated with a tax rate increase	**Reduce the cost of production**: As taxes increase, businesses will be impacted by lower demand. Hence, organisations need to work to reduce their production costs. Several guidelines have been mentioned earlier. Besides, businesses must adopt the sachetisation strategy.

Diversification Towards Industrialization: A Pathway to Building a Resilient Nigerian Economy

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Abstract

Successive governments have made various attempts at diversifying the Nigerian economy to foster economic resilience and competitiveness, albeit with suboptimal outcomes. This paper, therefore, presents diversification toward industrialization as the sustainable pathway towards building a resilient and competitive Nigerian economy. The finding revealed that the Nigerian industrial sector's contribution to aggregate output, employment and exports is at a low ebb, suggesting the need to revamp the sector for improved performance. Lessons are drawn from international experience in this regard and policies to achieve this goal are outlined in this paper.

Introduction

Diversification towards industrialization is central to structural economic transformation and building a resilient economy. Notable economies that employed this route to drive structural economic transformation, resilience and competitiveness, which have established them as a major global force, are China, Singapore, Malaysia and South Korea, among others (Adeoti, 2020). While shocks are somewhat inevitable, industrialised economies appear to be less affected by internal and external shocks than natural resource-based economies. Many countries in Sub-Saharan Africa, including Nigeria, are largely natural resource-based, import-dependent and small open economies (Ogunjimi, 2020a). These features make them more susceptible to external shocks and explain the pervasive macroeconomic instabilities and uncertainties common in these countries. The 2008 global financial crisis and the recent COVID-19 pandemic are typical examples of global shocks, which had varying impacts on different economies, subtly testing their level of resilience.

Nigeria, a small open economy and a major oil-exporting and oil-importing country, have had series of booms and busts in recent years owing to the persistent volatility of oil price in the international market (Ogunjimi, 2020b). With crude oil as its major export product, source of foreign exchange and government revenue, the Nigerian economy has faced series of business cycles that threaten its macroeconomic stability. Nigeria's boom and bust revenue cycles, associated with oil price movements, essentially steer the fiscal management of its economy as the government's spending patterns often mirror the dynamics of international crude oil price. This procyclical fiscal policy behaviour undermines macroeconomic stability and could heighten the precarious macroeconomic woes of Nigeria. Nigeria's high unemployment rate, wide income gaps, high poverty level and low economic competitiveness need to be addressed and not compounded.

The disruptive effects of external shocks have further accentuated the diversification imperative in Nigeria. Consequently, there have been growing concerns on building resilience in the Nigerian economy, especially with the bleak future the country faces if pragmatic strategies are not deployed expeditiously to save the economy from its impending collapse. Economic diversification, particularly through industrialization, offers great hope in this regard and has been presented as a sustainable panacea to the various economic conundrums bedeviling the Nigerian economy (Afolabi and Ogunjimi, 2020, Awotunde, 2020). Successive governments have made numerous policy efforts toward building resilience in the Nigerian economy but with little success. Nigeria's poor responses to recent global shocks, which led to economic distortions, are testaments to the fragile nature of the country's economy hence, the need to build resilience that helps construct a bulwark against shocks and aids macroeconomic stability.
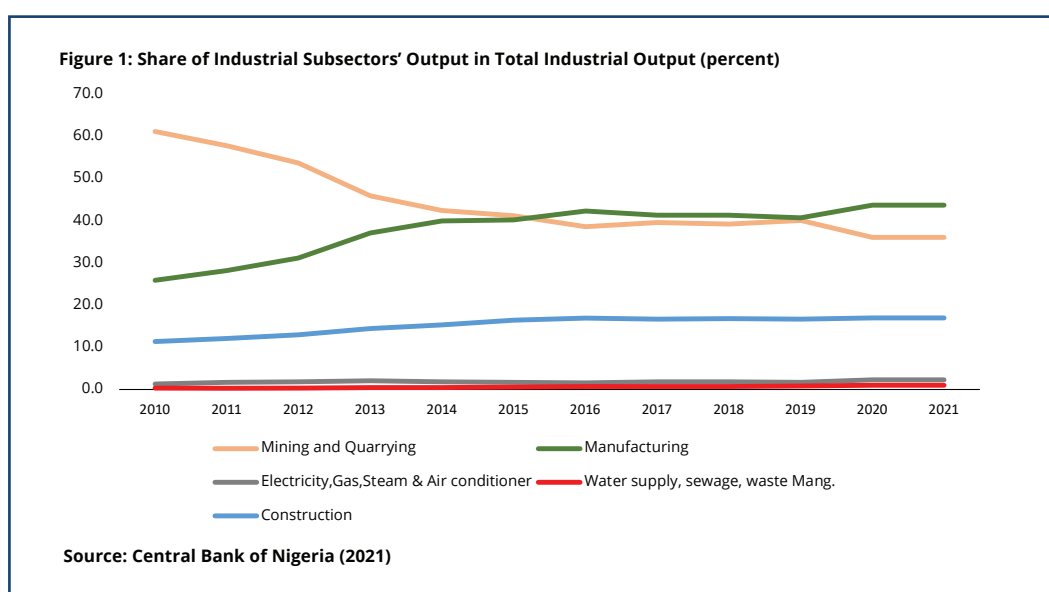
Evidence shows that industrial-based economic diversification fosters resilience to external shocks (Andreoni, 2021). Against this backdrop, this paper explores how Nigeria can build economic
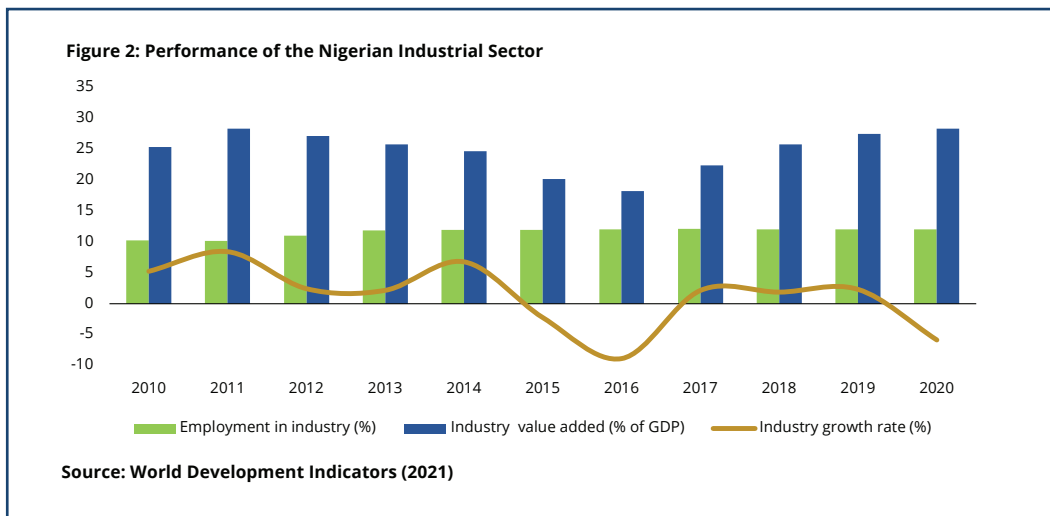
resilience by powering industrialization to achieve its age-long desire for economic diversification and competitiveness. A situation analysis is carried out in the next section to show the present state of Nigeria's industrial sector and its performance. The following section details the pathways industrialized countries trod to build resilience and draws lessons for Nigeria from the international experiences. Finally, the last section provides pragmatic approaches to powering industrial-based economic diversification in Nigeria.

Overview of the Nigerian Industrial Sector

The industrial sector is critical for structural economic transformation as it is the real sector that engages in the extraction and conversion of raw materials into finished and semi-finished products. The sector does value addition and promotes forward and backward linkages to spur growth. The industrial sector output could serve as an input in other economic sectors, which could also provide input factors to the industrial sector. The Central Bank of Nigeria (CBN) disaggregates the Nigerian industrial sector into five key subsectors: mining and quarrying, manufacturing, electricity supply, water and construction. However, the manufacturing and mining and quarrying subsectors are the most prominent in terms of their contribution to industrial output in Nigeria (see Figure 1). The development of the industrial sector has great potential to foster inclusive growth through its job-generating and welfare-improving prowess. However, the Nigerian industrial sector has been performing below par over time.
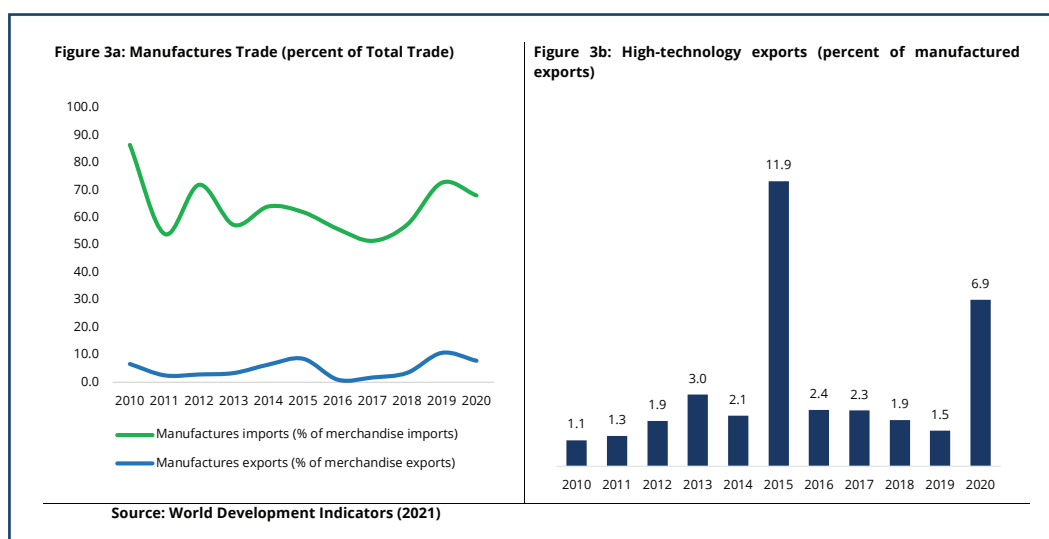
The sector's contribution to national employment and aggregate output is comparatively low (see Figure 2). Specifically, the sector's share in total employment is significantly below 15 percent and its share in aggregate output averaged 25 percent between 2010 and 2020. This signals that the sector's job-creating and growth-enhancing potentials are yet to the effectively harnessed despite Nigeria's growing unemployment and growth challenges. The volatility in the sector's growth rate, as shown in Figure 2, reflects that the sector needs urgent attention for improved performance. However, some of the factors constraining the Nigerian industrial sector from maximizing its full potential include epileptic power supply, limited access to financial support, unfavourable government policies, low adoption of technological innovation and an unfriendly business environment (Adeoti, 2020). These factors have not only crippled industrial development in Nigeria but also frustrated every effort towards economic diversification.

Figure 1: Share of Industrial Subsectors' Output in Total Industrial Output (percent)

Source: Central Bank of Nigeria (2021)

Figure 2: Performance of the Nigerian Industrial Sector

Legend: Employment in industry (%) — Industry value added (% of GDP) — Industry growth rate (%)

Source: World Development Indicators (2021)

The manufacturing subsector, a key growth driver and employment creator in industrialized countries, has been pinpointed to effectively lead the quest towards economic diversification and competitiveness (Nyor and Chinge, 2014; Newman et al., 2016). However, Nigeria's manufactured products constitute an insignificant share of Nigeria's export basket (see Figure 3a). The meagre percentage contribution of the subsector to Nigeria's total export signals that Nigeria either has a low capacity to produce exportable manufactured products and/or its manufactured products are less able to withstand the stiff competition in the international market. Given that products that enter the international markets are often subjected to series of tests to ensure they comply with international standards, many Nigerian products fail global standard tests and are denied entrance into the international market (Roy and Yasar, 2015). The Nigerian manufacturing subsector, like many other Nigerian economic subsectors, is highly import-dependent as reflected by the high volume of manufactured imports in total merchandise imports (see Figure 3a). The high share of manufactured imports in Nigeria's merchandise import gives further credence to Nigeria's low capacity to domestically produce input factors that could drive productive operations in the country's manufacturing subsector.

While technological innovation has been integrated into industrial processes across many developed countries, Nigeria appears to be a laggard in the production and deployment of technology innovation. This implicitly reflects in the low share of high-technology exports in Nigeria's total manufacture exports (see Figure 3b), which indicates that Nigeria's manufactured products are less sophisticated to compete with complex technological products from other countries. It is, however, essential to note that Nigeria's high-technology products were relatively high in 2015 and 2020, the years when Nigeria was severely hit by oil price shock (dwindling global crude-oil price) and twin shocks (oil price and COVID-19 pandemic shocks), respectively. This trend suggests that technology played a crucial role in boosting Nigeria's manufactured exports during shocks and could help build bulwarks against external shocks. Thus, integrating technological innovation into the Nigerian industrial sector and other economic sectors, by extension, will not only foster economic diversification but also help the sectors build resilience against shocks.

Figure 3a: Manufactures Trade (percent of Total Trade)

Manufactures imports (% of merchandise imports)
Manufactures exports (% of merchandise exports)

Source: World Development Indicators (2021)

Figure 3b: High-technology exports (percent of manufactured exports)

Year	Value
2010	1.1
2011	1.3
2012	1.9
2013	3.0
2014	2.1
2015	11.9
2016	2.4
2017	2.3
2018	1.9
2019	1.5
2020	6.9

Building Resilience through Industrialization: Lessons from International Experience

Some countries have powered industrialization and rapid economic progress, presenting lessons to foster industrial development and build the resilience in the Nigerian economy. Asian countries (such as China, Singapore, South Korea and Taiwan) are notable for their dramatic economic transformation and industrialization despite being considered third-world countries in the 1960s. They evoked an Asian miracle that made them record unprecedented growth rates and heightened industrial development. From the intensive government intervention to the high private sector participation and strategic industrial policies, these Asian countries present models that could be studied and adopted for dramatic industrial development. The countries used both horizontal and vertical diversification approaches to transform their economies (Seric and Tong, 2019). While horizontal diversification entails expanding the production of primary products and basic manufacturing goods, vertical diversification involves upgrading towards more technology-intensive production.

Notably, different countries applied different strategies in their pursuit of industrial development. For example, the South Korean government used trade restrictions to protect infant industries; rationed foreign exchange to support importation of intermediate and capital goods; gave export subsidies to high-performing exporting firms; and used foreign direct investment to foster knowledge transfer to domestic firms (Chang and Zach, 2019). Similarly, the Malaysian government fuelled industrial development by financing factory construction in industrial zones; providing tax incentives to export-oriented firms and investment subsidies to local producers; and formulating flexible industrial policies. The narrative is not too different in China, where the government provided numerous incentives to attract foreign direct investment into export processing zones; extracted concessions from multinational corporations with respect to joint venture, skill and technology transfer, and local sourcing; used export processing zones to integrate domestic firms into the global market; gave subsidized credits to industrialists through government financial institutions; introduced trade barriers to protect domestic infant industries; and introduced the "Made-in-China" initiative to increase local production and raise export performance (Afolabi and Oji, 2021).

Overall, Chang and Zach (2019) identified four strategies that fostered industrial development among Asian countries. The first factor is the degree of pragmatism characterizing their industrial policies as the countries adopted industrial catch-up methods even when the approaches negate their ideology. Second, the countries were flexible enough to modify their policies in line with the structures of their economies and the nature of their interactions with the rest of the world. Third, the countries imposed appropriate industry-enhancing monetary and fiscal policies to fuel industrialization. Fourth, the countries exhibited high state capacity as the governments were committed to achieving policy goals, which powered industrialization. These strategies are crucial for industrial development and could be deployed in the Nigerian industrial sector to actualize industrialization and build resilience in the Nigerian economy.

Conclusion and Policy Recommendations

This paper has shown that the Nigerian industrial sector has been performing sub-optimally and needs dramatic resuscitation, given its potential to transform the Nigerian economy structurally. The following recommendations are made to aid the realization of this noble goal:

1.   Design new industrial policies that account for current realities and pursue the effective implementation of extant industrial policies. Policymakers should design, implement, monitor and regularly evaluate new and extant industrial policies to prevent policy summersault and to improve the performance and competitiveness of the Nigerian industrial sector. Precisely, the government needs to regularly and closely interact with industrialists to identify their problems and proffer plausible solutions to these problems through policy interventions. Free-market policies that will facilitate increased private sector participation should also be implemented to further improve industrial development.

2.   Deploy fiscal and monetary frameworks to power economic diversification. The complexity involved in economic diversification makes deploying a blend of fiscal and monetary policy instruments imperative to drive diversification through the industrial sector. Specifically, the strategic interplay between expansionary fiscal policy (such as an increase in government expenditure to the industrial sector) and monetary policy (such as charging low lending rates for industrialists) will aid the actualization of the age-long industrialization dream of Nigeria.

3.   Integrate technological innovation into the industrial sector's operations. This can be done by increasing investment in technological innovations, particularly those that will facilitate industrial production. Investment in industrial technologies and infrastructures should also be prioritized to boost industrial output and increase the quality of Nigeria's manufactured products. Policymakers should also design and implement policies that will ensure manufactured products meet certain international standards. This will make these Nigerian-made products become more exportable and competitive in the international market, and also promote the industrial sector's contribution to aggregate output, exports and employment.

4.   Foster knowledge and technology transfer to boost industrial production. The government should encourage interactions between foreign and domestic firms in a bid to foster knowledge and technology transfer among the firms. More so, platforms that will facilitate interactions between industrial firms and research institutions (domestic and foreign) should be created to enable knowledge and technology transfer from researchers/innovators to industrialists. Certainly, this will tremendously aid industrial development in Nigeria.

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Nigerian Economy: Investing in Resilience Focused on Agriculture

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Abstract

Economic shocks do not only threaten people's lives but also their future livelihoods. To move ahead and address these shocks involve understanding how different sectors of the economy can be improved upon sustainably to achieve economic prosperity. Investment in agriculture provides a roadmap for creating a resilient Nigerian economy. A proper understanding of the uncertainties faced by the Agricultural sector and effective strategies to manage these uncertainties is vital to creating a diversified and resilient Nigerian economy for sustained growth and economic transformation. According to Jamais Cascio, "the goal of resilience is to thrive" (Instarinvest, 2021) Agriculture is part of the solution to thrive and an optimistic path to Nigeria's resilience drive. This paper provides a careful analysis of the challenges faced by Nigeria's Agricultural sector and prioritizes investment solution to manage these challenges and position the economy to be resilient. The paper provides policy recommendations covering extensive public-private financing, climate-responsive agriculture, early warning system, improved seeds technology and check on government expenditures and debt profile, which will serve as tools and mechanisms to assess, reduce, and manage economic shocks and the uncertainties in the Agricultural sector. Investing in resilience focused on agriculture is an absolute prerequisite for a robust sector.

Introduction

The confluence of economic meltdown and food security has placed enormous emphasis on resilience across the globe. Nigeria like many countries is facing the double burden of economic recession and food insecurity, and the critical role of the Agricultural sector in the Nigerian economy cannot be overemphasized. There are millions of Nigerians whose livelihoods depend on agriculture, and adaptation of the sector to its growing challenges is critical to building economic resilience. If the sector is neglected, the result could be catastrophically crippling for the economy.

Disruptions like the COVID-19 pandemic and dwindling economy are focal points that reveal where investment is needed. Understanding the key drivers of Nigeria's vulnerability such as inadequate investment in agriculture and identifying high risk areas such as food security are necessary to know the significance of investment prioritization in the sector. The sustainability of Nigeria's economy lies not only in her crude oil but also in her ability to address agricultural challenges in a fast evolving world, adapting to and mitigating the impact of various shocks in the sector while ensuring food security and a robust economy.

The Challenges

Nigeria is still characterized by high poverty rate, heavy reliance on food imports, malnutrition is widespread and rural areas are especially vulnerable to chronic food shortages, erratic food supply, poor quality foods, high food costs, and even total lack of food (Akinyele, 2009). A report by the United Nations Food and Agricultural Organisation (FAO) in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD) reveals that about 19.4 million Nigerians will face food insecurity across the country between June and August 2022 (Udegbunam, 2022). According to the 2021 Global Hunger Index, Nigeria ranked 103rd out of the 116 countries. With a score of 28.3, Nigeria had a level of hunger that is severe (Global Hunger Index, 2021). Furthermore, the FAO and FMARD report identified insecurity especially insurgency in the North-east states, armed banditry in some North-west states as key drivers to the upcoming food crisis. Climate change and pandemic-related shocks also affect food production and push food prices

up. These reports are evidences of sub-optimal Agricultural sector. This study links below par Agricultural sector in Nigeria with insurgency, climate change, high inflation and poor resilience approach in the sector.

According to data from the National Bureau of Statistics trade report, food products worth N2.1trillion were imported into Nigeria from January through September in 2021, indicating a 75 percent rise when compared to N1.2 trillion in the corresponding period of 2020 (Okojie, 2022). This implies that Nigeria cannot grow enough food to meet the high demand of her fast-rising population who must be fed; therefore, the country is left with no option but to import food from other food-sufficient countries. This is further exacerbated by climate change which has continued to take a heavy toll on agricultural activities in all regions of the country. Also, the report by the National Bureau of Statistics (NBS) revealed Nigeria's headline inflation rate increased to 19.64 percent on a year-on-year basis in July 2022. (National Bureau of Statistics, 2022) Nigeria's high inflation is evident in soaring food commodity prices, which could be associated with the dwindling economy, which contribute to the food and hunger crisis (ReliefWeb, 2022).

The Nigerian agricultural sector just like many other global south countries is facing numerous challenges such as inadequate and unaffordable financing, poor investment in seed technology, price volatilities, poor warning system to detect threats to food security; insecurity, and climate change has had its toll on the sector through droughts, floods, and desert encroachment. It is no news that climate change is slowing the progress towards food security in Nigeria, lack or poor climate-responsive agriculture leaves the sector vulnerable and by extension the economy. These challenges have different impacts in terms of the severity and frequency. The poor or lack of resilience response to the current disruptions that the country's economy and agriculture sector is experiencing can easily magnify the damage that has already been done.

The negative impacts of the above mentioned factors are visible. Agricultural productivity is declining and more can be said of its devastating effect on Nigeria's economy such as overreliance on imports and an alarming inflation rate. Agricultural investment addresses the very economic and social impact of Nigeria's current landscape: dwindling revenue, inflation, unemployment, hunger, etc. Ultimately, investing in resilience focused on agriculture is necessary for Nigeria to thrive, grow and prosper. The need to amplify domestic and foreign investment in agriculture has numerous benefits which could create and strengthen resilience efforts by the government, create jobs, boost the economy and ensure food security. Neither the government nor private sector alone can carry the burden of investment in the sector.

Importance of Investing in Resilience Focused Agriculture

Brende and Sternfels (2022) stated that the resilience muscle is strengthened through three key actions: prepare, perceive, and propel. For Nigeria to propel the economy to a global position, there must be early and adequate preparation which will form a robust response mechanism. Investing extensively and early in agriculture ahead of any economic shake-up (disruption) is a pivot to accelerate out of it and build flexibility to adapt. Anecdotal evidence reveals that Nigeria usually reacts and addresses economic challenges from a defensive standpoint. Previous and even current solutions are focused on hastily setting up costly buffers that are short-term and do not support sustainable growth. Hurriedly packaged solutions that serve short-term purposes can be problematic if resilience and sustainability is to be sufficiently achieved.

The approach to economic resilience goes beyond this fire brigade defensive stance toward sustainable economic growth. Investment in agriculture is an enhanced response that focuses on creating a flexible system that orients and adapts more quickly to economic uncertainties. Extensive investment in agriculture by the public and the private sector is an active strategy that will allow Nigeria's economy the flexibility to adapt to any economic uncertainties both domestically and globally. In this context, buffers become a residual tool to protect against economic uncertainties that resist hasty answers. While investment in agriculture is desirable, the government have the responsibility to create an investment attractive environment. This would show that the government is committed to resilience interventions and sustainability of the economy (Okafor, 2021)

Policy Recommendation

There is an urgent need for the federal government to retool its economic policy to overcome present economic challenges. Bold and urgent policy measures are needed to protect the economy and promote sustainability. These recommendations will contribute to the architecture of Nigeria's resilience framework across all sectors. Other specific action points include:

1.   Provision of adequate and affordable public-private financing for the sector. Due to shifting uncertain landscape in the Agricultural sector, it will require extensive public and private financing that build resilience capacities over the long term. This will enable farmers go beyond the subsistence level of production, enable them increase preparedness, and reduce shock of disruptions, to reduce risk and provide adequate and timely post-shock support to strengthen economic resilience. Adequate, accessible and affordable financing that will empower farmers to become resilient to uncertainties in the sector is one of the vital strategies that should be at the heart of the federal government resilience drive.

2.   As the climate changes, Nigeria must adapt. The government should explore sustainable paths and strategies such as climate-adaptable farming, conservation agriculture, greenhouse farming (utilizing renewable energy, like drip irrigation and solar pumps) Climate change has impacted agriculture causing the loss of crops and livestock to excessive rainfall or draught, reducing productivity, as well as related issues affecting the broader environment such as water quality and greenhouse gas emissions have culminated into long-term challenges. Therefore, the government should encourage climate-responsive agriculture through continuous training and technical support to increase preparedness to climate change shocks.

3.   The use of quality seeds, well-adapted crops and varieties is a critical part resilience-focused agriculture. The needed progress in the Agricultural sector depends on the production of high quality seeds in grains, root and tuber crops, with best yields through technology. This is where the National Agricultural Seeds Council (NASC), that is saddled with the overall development and regulation of the national Seed industry, must invest and strengthen. It is fundamental that improving seeds to be part of the discussion on agriculture and food security by the government. The Central Bank of Nigeria (CBN) admitted that importation of some agricultural products; especially grains were parts of the reasons why the country's foreign exchange challenges were escalating. Improved seeds technology will reduce Nigeria's dependence food imports, and stem food insecurity.

4.   Food security remains one of Nigeria's challenging national issues. It is important to strengthen early warning system to detect threats to food security. Countries do not just plunge into food security problem over the night. There should be proper reporting and dissemination of information by regulatory agencies like the Federal Ministry of Agriculture and Rural Development (FMARD), National Agricultural Seed Council (NASC), National Environmental Standards and Regulations Enforcement Agency (NESREA) and Nigerian Metrological Agency (NiMet) about new developments and the weather, helping farmers determine priorities.

5.   Arguably, high debt burden, to a very large extent, leads to poor investment in agriculture and by extension affects the resilience efforts. With Nigeria's dwindling revenue, the debt profile is alarmingly increasing, and the cost of servicing debts remains outrageously high. According to the former Chairman of Nigerian Economic Summit Group (NESG), Asue Ighodalo, "Nigeria must return to the path of debt sustainability in the face of dwindling revenues not to create a debt burden for future governments and, indeed, future generations". Failure to invest in the Agricultural sector and other public goods shifts the burden onto the affected sector, in this case, it will hinder the resilience efforts. Nigeria must effectively manage her debt profile in order not to undermine the Agricultural sector and distort sustainability.

These economic recommendations would no doubt provide a guide to the government in its effort to strengthen and position the economy, and better the lives of Nigerian citizens.

Conclusion

As Nigeria continues to address her economic challenges, the important issues of resilience of the Agricultural sector must be taken seriously. The government should continue to strengthen the Agricultural sector through investments focused on resilience. The resilience stance of Nigeria must be forward-looking, anticipating disruptions rather than simply reacting. Nigeria must shift from purely reactive strategies in response to the wave of economic disruptions towards activating resilience that equips every sector of the economy to be flexible and prepared to withstand changes emanatiing from the local and global environments. This can be achieved through continuously learning and amending based on past experiences. Beyond the short-term response by the Federal Government of Nigeria in the sector, the aftermath of the COVID-19 and dwindling Nigerian economy should be the impetus to develop and accelerate implementation of long-term measures in the Agricultural sector to set Nigeria on a more sustainable path and make her economy more resilient to present and future economic uncertainties.

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Governance Environment and Manufacturing Sector Performance in Nigeria

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Abstract

A well-functioning Manufacturing sector is key to economic growth and development. Studies on the governance environment and technical efficiency of the Manufacturing sector is crucial to achieving Nigeria's industrialization objective. There are several studies on innovation and efficiency of firms, but limited studies have examined the effect of the governance environment on technical efficiency of firms in Nigeria's Manufacturing sector. The latest available World Bank Enterprise Survey data (2014/2015) was used. Data was analysed using descriptive statistics, composite score and stochastic frontier analysis. Empirical results revealed the low technical efficiency of firms in the sector. The technical efficiency of firms decreases when they operate in poor governance environment. Specifically, corruption and regulatory quality were positively related to technical inefficiency. The coefficient of the rule of law was also positive but not statistically significant. Therefore, it concludes that policy reforms focused on industrial development are more likely to generate efficiency gains if the governance environment is improved by fighting corruption and enhancing regulatory quality.

Introduction

A well-functioning Manufacturing sector is key to economic growth and development. The African Continental Free Trade Area (AfCFTA) is a policy drive to re-awaken the sector in achieving industrialisation, a significant development objective of the Nigerian State. Evidence on structural transformation through manufacturing sector-led industrialisation. Examples are the United States, United Kingdom, France, Japan, Germany, and more recently, China (one of the fastest-growing economies). However, the case is not so with Nigeria and other African nations. Despite the potential and prospects of the sector, the country, like other African nations, has been deficient in factories (Signe and Johnson, 2018). This has further affected the nation's achievement of economic transformation and employment. The increasingly important role of the sector has become evident to the Nigerian government as reflected through the Medium term National Development Plan (2021-2025), with the primary objective of accelerating the build-up of industrial capacity within Nigeria. There is also the Agenda 2063 of the African Union, where governments in Africa are to seek new and innovative ways to transform the sector. This study, therefore, contributes to this effort and quest in Nigeria by examining how conditions of the governance environment affect manufacturing firms' technical efficiency.

Firms in the Manufacturing sector are critical to growth and technological catch-up. The same does not hold for firms in developing countries, more specifically, Nigeria, as inefficiency prevails (Sleuwaegen and Goedhuys, 2003). In addition to operating below the frontier, poor management and production expertise prevail (Goedhuys and Sleuwaegen, 2010). Adeoti and Adeoti (2013) reported that it had been increasingly challenging for manufacturing firms in the country to increase efficiency levels, and this has negatively affected improvement in firm-level output per input utilised. The country remains a laggard in its industrialisation quest. The un-competitive nature of locally produced goods as against imported products reflects the efficiency-related challenges of the sector. As aforementioned, the export of manufactures remains limited.   It is established that only efficient manufacturing firms can compete effectively in modern economies. For the country to achieve economic diversification and structural transformation, the technical efficiency of firms in the Manufacturing sector cannot be undermined.

Alvarez and Barney (2014) documented that developing countries have made efforts to improve the governance environment, however, they are still faced from time to time with obstacles

and policy shifts that affect their innovation capacity (Bradley et al., 2012; Adeoti et al., 2019) and this has limited performance, and this is true of firms in Nigeria. Adeoti et al. (2019) provided evidence of the conditions of the governance environment in Nigeria. They include poor tax rates and administration, business licensing and permit restrictions, corruption, and customs and trade regulation. The issues of poor governance (Tybout, 2000) and weak institutions further constrain the upholding of the rule of law, regulatory quality, corruption, all which has limited the performance of the sector over the years (Alence, 2004; Adeoti et al., 2019). This study provides empirical evidence on the effect of the governance environment on technical efficiency of firms in Nigeria's Manufacturing sector. The study further contributes to evidence in the design of policies that are suitable and evidence-based to improve the governance environment and assist Nigeria's economic development. It aligns with the medium-term National Development Plan (2021-2025) of accelerating the build-up of industrial capacity within Nigeria. Globally, it aligns with Goal 9 of the Sustainable Development Goals (SDGs) since Goal 9 focuses on building resilient infrastructure, promoting inclusive and sustainable industrialisation and fostering innovation.

Against this background, the study seeks to answer the following research questions: What are the conditions of the governance environment of manufacturing firms in Nigeria? How technically efficient are these firms? How does the governance environment affect technical efficiency of firms?

Objectives
The main objective of this study is to explore the effect of the governance environment on the technical efficiency of firms in Nigeria's manufacturing sector. The specific objectives are to:
1. Examine the conditions of the governance environment of manufacturing firms in Nigeria.
2. Estimate the technical efficiency of manufacturing firms.
3. Determine the effect of the governance environment on the technical efficiency of manufacturing firms.

Methodology
The data was sourced from the 2014/2015 Enterprise Survey data by the World Bank. The data provides information on firm characteristics, the governance environment and efficiency-related variables as it relates to the manufacturing sector. Objective one was analysed using descriptive statistics and the composite score method. Objectives two and three were achieved using the stochastic frontier analysis (see Appendix). The variables used in the analysis are shown in Table A1 in the Appendix. The efficiency variables used were output (sales in the previous fiscal year), capital (value of fixed assets such as vehicles, machinery and equipment), labour (number of full-time workers). The choice of inefficiency variables draws mainly from the work of Yang (2016).

Results and Discussion
Governance Environment
In describing the governance environment, the study adapted the measures of institutional quality, corruption, the rule of law and regulatory quality. These measures were used to describe the governance environment conditions in Nigeria using the composite score method as employed by Chadee and Roxas (2013). The results are presented in Table 1. Findings revealed that corruption is most problematic for firms in the manufacturing sector, with an index of 0.48. This is reflected through the perception of the court system as fair, impartial and uncorrupted and the degree of perception of corruption as constraints to firm operations. This is followed by poor regulatory quality.

The regulatory quality index was 0.29. The rule of law was the least, with score of 0.22. There is no disparity across sub-sectors in all measures considered. Overall, the business environment score was 0.32. This reflects weak institutions negatively affecting business operations in the Manufacturing sector. Essentially, this study emphasizes the importance of a better governance environment for improved technical efficiency in Nigeria's Manufacturing sector.

Table 1: Governance Environment in Nigeria's Manufacturing Sector

Manufacturing subsector	Corruption	Rule of law	Regulatory quality	Business environment
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD
Garments	0.49±0.19	0.25±0.15	0.27±0.17	0.34±0.14
Food and Beverages	0.50±0.20	0.21±0.14	0.25±0.15	0.31±0.12
Metals and machinery	0.48±0.21	0.23±0.13	0.28±0.16	0.32±0.14
Manufacturing Panel	0.45±0.21	0.20±0.15	0.25±0.16	0.30±0.14
Wood and furniture	0.50±0.19	0.20±0.14	0.24±0.15	0.31±0.13
Non-metallic and plastic materials	0.51±0.23	0.24±0.18	0.24±0.17	0.33±0.17
Other manufacturing	0.50±0.23	0.23±0.16	0.29±0.18	0.34±0.17
All	0.48±0.21	0.22±0.15	0.26±0.16	0.32±0.15

Source: Author's computation using data from the World Bank Enterprise Survey (2014/2015)

Technical Efficiency of Manufacturing Firms

Table 2 shows the technical efficiency scores of firms. The technical efficiency index, on average, was 0.31. This revealed that technical efficiency is typically poor. This might indicate that firms still produce less than their potential output at the current input level. This could also mean that firms can still make substantial improvements as it is potentially feasible for firms in Nigeria's Manufacturing sector to reduce inputs without necessarily reducing output.

Table 2: Technical Efficiency Scores of Manufacturing Firms

Technical efficiency scores	Frequency	Percentage
0.1-0.29	719	63.8
0.3-0.59	269	23.9
0.60-0.89	89	7.9
0.90-0.99	50	4.4
Total	1127	100
Mean	0.31	-
Minimum	0.02	-
Maximum	0.99	-

Source: Authors' computation using data from the World Bank Enterprise Survey (2014/2015)

Effect of Governance Environment on Technical Efficiency of Manufacturing Firms

Table 3 presents the effect of the governance environment on the technical efficiency of manufacturing firms in Nigeria. Results showed that corruption and regulatory quality were positively related to technical inefficiency and statistically significant at 1 percent and 5 percent, respectively. The coefficient of the rule of law was also positive but not statistically significant. This implies that as the level of corruption increases, technical inefficiency increases. In a similar vein, a poor regulatory quality further increases technical inefficiency. Paunov (2016) reported that corruption lowers firms' capital investments and the adoption of quality certificates. Consistent with this finding are the studies of Abrate et al. (2013); Yang (2016) that firms in more corrupt environments will be more inefficient. This emphasizes the debilitating effects of these governance environment measures on the technical efficiency of firms in Nigeria. It is suggested that policy reforms that will strengthen good governance and ease firm operations be put in place so that value addition from input use will lead to improved technical efficiency of firms. Other variables that affect firm technical inefficiency are the age of firms, capacity utilization, ICT infrastructure and years of experience of the top manager.

Table 3: Governance Environment and Technical Efficiency

Variables	Coefficient	Standard Error	z	P>|z|
Efficiency				
Log of *capital*	0.0972	0.0992	0.98	0.327
Log of *labour*	0.6037***	0.0917	6.59	0.000
Constant	13.7176***	1.9177	7.15	0.000
Inefficiency				
Corruption	1.4314***	0.4999	2.86	0.004
Rule of law	0.0014	0.8563	0.00	0.999
Regulatory quality	1.4687**	0.7145	2.06	0.040
Control variables				
Age of firms	-0.2974*	0.1650	-1.80	0.071
Foreign Ownership	0.4023	0.2876	1.40	0.162
Capacity utilization	-0.0102**	0.0045	-2.25	0.024
ICT infrastructure	-0.9229***	0.2373	-3.89	0.000
Years of experience of top manager	0.0214*	0.0116	1.85	0.065
Constant	1.9248***	0.6738	2.86	0.004
Wald chi2(2) = 45.20	Log likelihood = -2882.6785		Prob > chi2 = 0.0000	

Note: ***, **, * represent 1 percent, 5 percent and 10 percent levels of significance respectively.

Source: Author's computation using data from the World Bank Enterprise Survey (2014/2015)

Conclusion and Policy Recommendations

Nigeria is currently aspiring to be a major industrial economy as part of the Medium term National Development Plan 2021-2025 envisioned to unlock the country's potential in all sectors of the economy for a sustainable, holistic, and inclusive national development. The findings of this study revealed that the governance environment score was low, implying that weak institutions negatively affect business operations in the Manufacturing sector. The technical efficiency of firms was generally poor and none of the firms operated at perfect efficiency level. The mean technical efficiency was 0.31. This suggests that firms are still producing less than their maximum capacity at the current input level. This is apparently worsened by the poor governance environment which has become a frequent complaint of Manufacturers in the country.

In order to improve firms' technical efficiency, and thus stimulate industrial competitiveness, the findings of the study suggest that firms in Nigeria's manufacturing sector are found to be hindered by poor governance environment (corruption and regulatory impediments) and this has hindered growth. Essentially, this study emphasizes the importance of a better governance environment for improved technical efficiency in Nigeria's manufacturing sector. It, therefore, recommends that corruption should be curbed through the assistance of anti-corruption agencies in the country and enhancing regulatory quality with efforts from NAFDAC, MAN, NESREA, SON and other relevant agencies and stakeholders. Also, human capital should be developed to expedite research and development within firms.

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Appendix

Table A1: Variable description

Variables
Efficiency variables
Output - Annual sales in the previous financial year; Capital-Net book value of fixed assets (vehicles, machinery and equipment), and Labour - number of full-time permanent workers
Governance environment variables
Regulatory quality - Perception of the following as constraints to firm operations (tax rate and administration; business permits and licensing, and customs and trade regulations)
Corruption - Fair or unfair court system and Corruption
The rule of law - Theft and disorder, and political instability and crime
Control variables
Age of firm (years); Educational attainment – the proportion of full-time employees with secondary education; Managerial experience; Capacity utilization (percent); ICT infrastructure - whether the firm owns a website

Source: Barasa *et al.* (2019) and Yang (2016)

The stochastic frontier analysis

The stochastic frontier analysis is a parametric method of estimating technical efficiency (Meeusen and van Den Broeck, 1977). The stochastic frontier analysis gives superior efficiency estimates and allows for random disturbances in an environment characterized by "noise". The method helps to test for hypothesis copes with measurement error by differentiating between inefficiency and "noise". The stochastic production frontier framework, as reported by Faria et al. (2001); Barasa et al. (2019), was employed for the study. The stochastic production frontier analysis is presented as follows:

For a firm using n inputs $(x_1, x_2 \ldots\ldots, x_n)$ to produce a single output, there is an assumption of technical inefficiency, which is given as:

$$Y_i = f(x_i, \beta)\exp(v_i - u_i) \tag{1}$$

Where i = 1, 2... n

$$TE = \frac{Y_i}{Y_i^*}$$
$$= f(x_i, \beta)\exp(v_i - u_i) / f(x_i, \beta)\exp(v_i)$$
$$= \exp(-u_i) \tag{2}$$

Where Y_i is the observed output and Y_i^* is the frontier output;

Assuming a Cobb-Douglas production, following Adeoti and Adeoti (2013), the empirical model was defined as:

$$ln\, Y_i = \beta_0 + \beta_1 ln\,(K)_i + \beta_2 ln\,(L)_i + (v_i - u_i) \tag{3}$$

Where i = 1, 2, ... n; Y= Sales revenue from firm i, K = Net book value of machinery and equipment for firm i, L = size of employees for firm i, v_i= random errors, u_i= inefficiency effects for as captured by the independent and control variables.

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Decadal Changes in Multidimensional Poverty: An Empirical Analysis of Geopolitical Zones in Nigeria

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Abstract

This study investigates the decadal changes (between 2008 and 2018) in the multidimensional poverty levels in Nigeria. During the decade, multidimensional poverty was reduced in most areas. The results of this study reveal that the most deprived regions in Nigeria are North East and North West and that they are most deprived in the dimensions of education, living standards and health. In conclusion, positive context-based interventions by the government and essential stakeholders can turn the tide of multidimensional poverty in Nigeria.

Introduction

Poverty is a complex and overarching development issue in nations, especially in developing countries. Previously, countries measured poverty by applying the basic needs approach (BNA), which uses either income (e.g. Nigeria, UK, and Brazil) or consumption expenditure (e.g. India) as proxies for the multiple deprivations that people face (Chambers, 1988). It is useful because it shows the proportion or percentage of the population who find it difficult to escape poverty. Since there is "no monotonic relationship between income (consumption expenditure) and well-being" (Dimri and Maniquet, 2017), monetary poverty measures fail to reveal the extent and character of poverty among the poor. An example of BNA is using two hypothetical individuals who earn similar incomes (or live below the poverty line), but one among them is better (or worse) than the other because they: 1) "lives in another region and faces different prices, 2) has different preferences" (Dimri and Maniquet, 2017); 3) has returns-yielding assets such as land, 4) has been in poverty for a more extended period and 5) has a more prominent family (Rodgers and Rodgers, 1991).

So the assumption of homogeneity among the poor is the major drawback of monetary poverty measures. Due to that, Amartya Sen proposed the capability approach in the 1990s, which is now the basis for the Multidimensional Poverty Index (MPI). Apart from Sen's work, Narayan's seminal work – the Voices of the Poor, country-based empirical studies, and the indicators of Millenium Development Goals (MDGs) established the multidimensionality of poverty and led to the propounding of the Alkire-Foster method (or MPI) for poverty measurement (Alkire and Sarwar, 2009; Alkire and Foster, 2011a, Narayan et al., 2000). The MPI measures the overlapping deprivations that poor people face simultaneously and captures the heterogeneities among the poor. It gives a broader picture of the character of poverty in any given context.

However, scholars argue that it complements and does not replace the monetary poverty measures (Alkire and Santos, 2010a). Dr Sabina Alkire buttressed this point by likening financial poverty measures to the left eye and MPI to the right eye in a recent YouTube video (Sabina Alkire "National MPIs and Sustainable Development Goals"; (Week 1 Lecture), 2020). She said that just like closing either the left or right eye would inhibit one's vision and precision in carrying out activities, ignoring the income measure or MPI would lead to a narrow and unclear picture of poverty. However, seeing that income poverty has been covered extensively in the Nigerian poverty literature, this study focuses on the MPI.

Literature Review (MPI Studies from Nigeria)

Since the advent of the MPI (around 2008 to 2010), researchers from around the globe have tried to operationalise the MPI in different contexts, either with primary data or with different sources of secondary data. In the study area (Nigeria), we found MPI studies conducted at the community, state, regional, and national levels. It was also found that the two studies on the MPI for farmers

and one study that applied the first-order stochastic dominance approach to discussing the MPI. Given the diversity of MPI studies in Nigeria, we carried out a critical and in-depth review of twenty studies that matched the objectives of our research, and we present the key findings of these studies in the subsequent paragraphs.

First, many of the studies reviewed found severe multidimensional poverty – more than 60 percent of the population studied in each case – in their study areas (Aboaba et al., 2019, Ab-Rahim and Mohammed, 2019, Ataguba et al. 2013, Olarinde et al. 2020). Second, about two studies found that between 10 to 13 per cent of the people living above the income poverty line in Nigeria were multidimensionally poor (Ab-Rahim and Mohammed 2019, Ataguba et al, 2013). Third; the 'living standards' dimension was the common source of deprivation among Nigerians living in multidimensional poverty (Aboaba et al., 2019, Ab-Rahim and Mohammed 2019, Aminu et al., 2021, Joshua et al., 2017).

Also, Nigerians living in large households and in households headed by females, young persons, divorced persons, and uneducated persons were more vulnerable to multidimensional poverty (Adeoti, 2014, Akinbode and Ojediran, 2018, Adepoju, 2018, Aminu et al. 2021, Ataguba et al 2013). Households, where the breadwinner was employed in the agricultural sector rural areas or the Northern part of the country, were equally more vulnerable to multidimensional poverty (Adeoti, 2014, Akinbode and Ojediran 2018, Akinyetun 2022, Ataguba et al., 2013). Finally, the reviewed studies suggested that a reduction in family size, an increase in educational level and appropriate distribution of resources amongst the geopolitical zones and between the urban and rural areas can reduce multidimensional poverty in Nigeria (Adeoti, 2014, Joshua et al., 2017, Oyekale and Oyekale, 2013, Oyelaran-Oyeyinka, 2014).

Nevertheless, these studies overlooked the decadal changes in multidimensional poverty among the six geopolitical zones in Nigeria. This aspect is vital because it reveals the differences in the rate at which zones reduce poverty, which is essential for the allocation of resources at the zonal and state level. Based on this research gap, the current study will look into the MPI for the six geopolitical zones of Nigeria given two time periods – 2008 and 2018.

Objectives
1. To assess the decadal changes of poverty.
2. To compare multidimensional poverty across geopolitical regions in Nigeria.

Methodology
DHS data set was used to calculate the Alkire-Foster (A-F) poverty index, which is also known as the MPI. For more details on A-F method, see Note 1 in the Appendix.

Results and Discussion
The MPI for 2008 was 0.296, with 33.3 percent (H) of the regions deprived in 88.9 percent (A) of the poverty indicators. The six areas, North East was the most deprived as it was deprived in six (Maternal Care, Male Education, Female Education, School Attendance, Sanitation, and Drinking Water) out of the nine indicators. The second most deprived region was North West, which was deprived in four (Maternal Care, Female Education, School Attendance, and Sanitation) out of the nine indicators. Least deprived regions were South East and South West, which were deprived in one (Sanitation) out of the nine indicators. The most common source of deprivation was sanitation (100 percent deprivation), which means that all regions were deprived. North East was the only area deprived in drinking water.

The second most common source of deprivation was maternal care (66.67 percent deprivation), as four (North Central, North East, North West, and South-South) out of the six regions were deprived. Maternal health, four areas (North Central, North East, North West, and South-South) were deprived in terms of the use of health facilities for delivery, and two areas (North East and North West) were deprived in terms of delivery with the aid of skilled medical professionals. In terms of education, two (33.33 percent) regions (North East and North West) were deprived. Most common sources of educational deprivation in these two regions were female education and school attendance. Scenario for educational deprivation was worse in North East as the indicator for male education also revealed a state of deprivation. No deprivation detected by the indicators for nutrition, child mortality, and wealth in all regions, which implies that they contributed nothing to the MPI. Among other indicators, sanitation contributed the most (37.54 percent) to the MPI, and male education contributed the least (4.69 percent) to the MPI.

In 2018, the MPI reduced to 0.167 with, 33.3 percent (H) of the regions deprived in 50 percent (A) of the poverty indicators. Results show that the regions which were poor in 2008 (North East and North West) remained poor in 2018 but their intensity of poverty reduced. For instance, North East moved from being deprived in six out of nine indicators to being deprived in three (Maternal Care, Female Education, and School Attendance) out of nine indicators. In comparison North West moved from being deprived in four out of nine indicators to being deprived in three (Maternal Care, Female Education, and Sanitation) out of nine indicators. Also; the two least deprived regions (South East and South West) in 2008 were free of multidimensional poverty in 2018. It was also observed that the most deprived region (North East) reduced their intensity of poverty faster than other regions during the decade. Most common source of multidimensional poverty by indicator was maternal health (66.67 percent), as four out of six regions – North Central, North West, South-South and North East – were deprived of maternal care, followed by sanitation (33.33 percent; North Central and North West), female education (33.33 percent; North East and North West), and school attendance (16.67 percent; North East).

Also, there were slight improvements in the per-indicator deprivation. In 2008, all regions were deprived of sanitation, but in 2018, all regions were non-deprived except North Central and North West. In 2008, North East was not deprived of male education and of drinking water but it remained deprived in terms of school attendance. Also, more women in North East and North West delivered with the aid of a skilled professional in 2018, which made both regions non-deprived by that indicator. Among indicators, maternal care contributed the most (44.36 percent) to the MPI, and female education and school attendance contributed the least (16.63 percent) to the MPI. Meanwhile, nutrition, child mortality, male education, drinking water, and wealth contributed nothing to the MPI.

The values of the annual absolute (percentage) change for the MPI revealed that the MPI reduced by 0.013 (4.36 percent) per annum throughout the decade. Same also shows that A (intensity of poverty) increased by 0.04 (0.44 percent) per annum throughout the decade. No change observed in the headcount ratio during the decade. The finding shows the edge of the MPI has over the headcount ratio, as the reduction in the MPI shows that the poor economic well-being improved during the decade – even though they did not escape poverty. It also reveals the areas (such as maternal care, female education, school attendance, and sanitation) that kept the poor in the poverty trap during the decade. Meanwhile, the headcount ratio does not reveal this improvement. It shows that the proportion of the population (regions) in poverty did not

change over the decade, which tells a partial story of the poverty scenario in Nigeria. Nevertheless, spearman's rank correlation was used to assess the robustness (mild) of the changes in the indicators over time (Alkire and Santos, 2014). The correlation is 0.806, which means that the MPI is highly robust to changes in the indicators over time. So, if there is a government intervention that leads to an improvement in one indicator over time, that improvement would reduce the MPI.

Policy Implications and Conclusion

This study reveals that there is unbalanced economic development among the six geopolitical regions of Nigeria. MPI as a diagnostic tool for identifying the poor and the dimensions in which they are poor and a monitoring tool for tracking the progress of government schemes, and other poverty alleviation programs, we suggest that Nigeria should design her own national MPI. It will help policymakers capture poverty based on our national goals and our spatial context. It will spur the government to act towards bridging the development gap across regions.

Seeing that most regions were deprived of maternal care, we suggest that the government provides low-cost public health services and good and accessible health infrastructure in the most deprived areas. Again, more healthcare facilities should be built and welfare of medical personnel should be improved. Suggestion such as awareness programs on the benefits of utilizing maternal healthcare facilities be given to communities in the most deprived regions using the appropriate communication channels such as radio, television, religious centers and house to house sensitization. Further, we propose that the government provide schemes that encourage students to attend school. Scholarships should be given to children from poor background and the infrastructure of government schools should be improved, this will encourage children to go to school.

Countries like Seychelles, Tunisia and Mauritius where education is compulsory for all citizens from ages of 6 to 18. In Mauritius, government schools have a minimum of 10 computers, textbooks are free to pupils and transportation is free for all students. These schemes provided by the government in the aforementioned countries had improved the literacy level and helped to improve school attendance in these countries. Therefore, we suggest that Nigeria government should provide schemes or adopts some of the schemes of the aforementioned countries to improve the literacy level and school attendance in the most deprived areas.

We also deduce that since the most deprived regions (especially North West) were also the regions that faced the most terrorism issues in Nigeria, the insurgency could be a reason for low school attendance. Thus, we recommend that the government takes strategic actions to curb insecurity in the deprived regions. All regions were deprived in Sanitation in 2008 which contributed most to the MP1. To enhance sanitations in the affected regions, government can construct high-quality toilets with effective sanitation facilities. Also, proper disposal of hospital waste should be put in check since hospital waste has been identified as a challenge which can cause deadly outbreak of diseases in the neighborhood where it is located. Finally, this study identified that female education was lesser in the deprived areas. So, there should be more enlightenment on gender equality and female empowerment in the deprived areas. The government can give incentives for girl child education by subsidizing the fees of the girl child and providing scholarships for first-generation female learners across the nation but especially in the deprived regions.

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Appendix

MPI Methodology

The MPI was developed by Alkire and Santos (2010b) for the 2010 Human Development Report (Mare et al. 2022). One strength it has over other measures is that it uses a dual cut-off method to identify the poor, unlike other poverty measures that focus on the unidimensional approach, union approach, and intersection approach (Alkire and Foster, 2011a); it is based on the Alkire-Foster Methodology, which applies " a counting based method to identify the poor and proposes adjusted FGT measures to reflect the breadth, depth and severity of multidimensional poverty" (Alkire and Foster, 2011b). Adjusted headcount ratio (M0), otherwise known as the MPI, is calculated by multiplying the incidence of poverty (i.e., the percentage of the population who are poor; symbolized by H) with the intensity of poverty (that is, the percentage of deprivations suffered by each person or household on average; symbolized by A) – that is, M0: H x A, where:

In the equation above, q represents the proportion of the population facing multiple deprivations, and n represents the total population (Rachel, 2021).

$$A = \frac{\sum_{i=0}^{n} c_i(k)}{q}$$

While the above equation, "$c_i(k)$ is the censored deprivation score of individual i, and q is the number of people who are multidimensionally poor" (Rachel, 2021). Also; we used spearman's rank correlation to assess the robustness of the changes in the MPI indicators between 2008 and 2018. Further calculation on the contribution of each indicator to the MPI using the formula below:

$$Contribution\ of\ indicator\ i\ to\ MPI = \frac{w_i CH_i}{MPI} * 100$$

While the above equation, $"c_i(k)$ is the censored deprivation score of individual i, and q is the number of people who are multidimensionally poor" (Rachel, 2021). Also; we used spearman's rank correlation to assess the robustness of the changes in the MPI indicators between 2008 and 2018. Further calculation on the contribution of each indicator to the MPI using the formula below:

$$Contribution\ of\ indicator\ i\ to\ MPI\ = \frac{w_i CH_i}{MPI} * 100$$

A person is considered to be in multidimensional poverty if they are deprived in at least one-third (that is. k = 33.3 percent) of the weight of indicators (Mare et al. 2022). It means that "if a household is deprived in 20–33.3 percent of the weighted indicators, they are considered Vulnerable to Poverty, if they are deprived in 50 percent or more (i.e., k = 50 percent), they are identified as being in Severe Poverty" (Mare et al. 2022). The unit of analysis in this study is a region and the unit of identification is household. An area is deprived if at least 50 percent of the population targeted by the indicator falls below the poverty cut-off. After calculating the MPI, we estimated the annual absolute change and annual percentage change in the MPI, H, and A throughout the decade.

$$Annual\ Absolute\ Change\ in\ MPI = \frac{M_O(Y) - M_O(X)}{t_Y - t_x}$$

$$Annual\ Percentage\ Change\ in\ MPI\ = 100 * \frac{M_O(Y) - M_O(X)}{(t_Y - t_x)(M_O(X))}$$

According to and Mare et al. (2022), there are five ways of determining what dimensions and indicators to include in a nation's MPI. They are: "I) deliberative or participatory exercises, II) enduring consensus, III) theory-base and literature review, IV) convenience and data availability, and V) empirical evidence on people's preferences and behaviors" (Mare et al. 2022). Dimensions and indicators for measuring the MPI in Nigeria were chosen based on consensus (it was adapted from the Global MPI, formulated by consensus), literature review, and data availability. The indicators of the Global MPI that were available in the Nigerian Demographic and Health Survey (NDHS) data were used. If the data for an indicator was not available, we matched the indicators to fit similar indicators that were present in the data set, in some cases, we replaced the indicator (but with the backing of literature).

Non-Residential Fellowship Programme

The NESG Non-Residential Fellowship Programme (NRFP) is an initiative that aims to create a knowledge hub on development issues and policies. This Programme will bring together outstanding high-level intellectuals in academia, research-based institutions, and the private sector to support the research and advocacy work of the NESG. The Programme will encourage collaboration and idea-sharing among experts and facilitate the application of research findings.
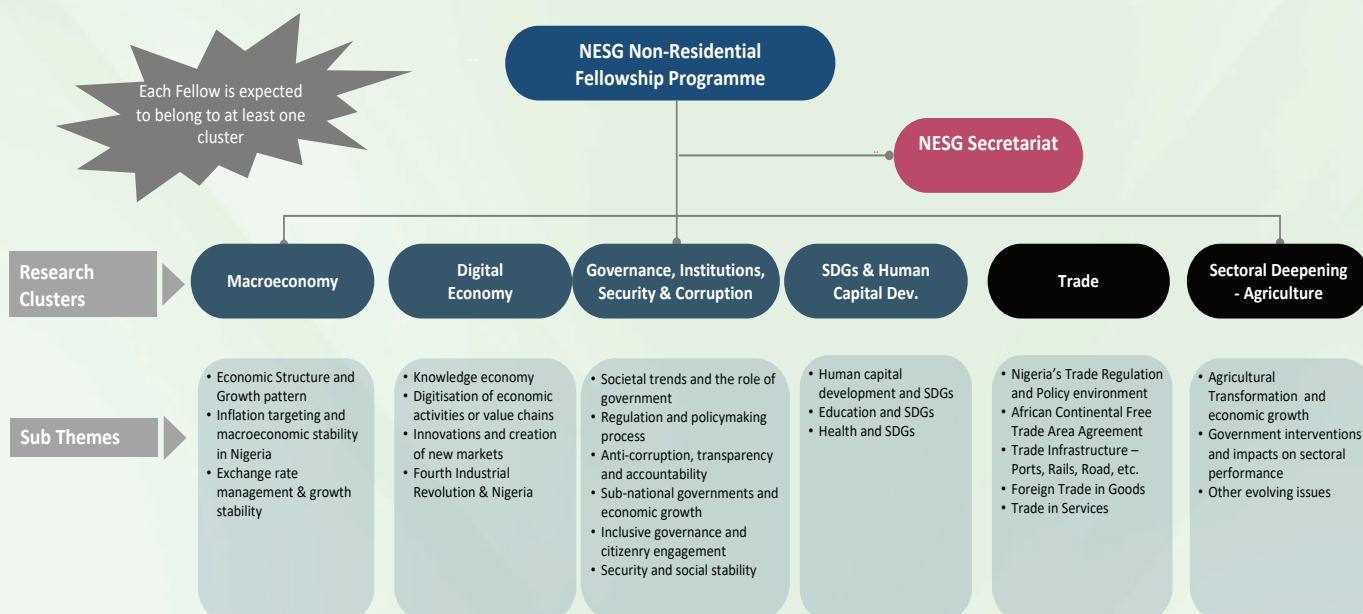
The broad objective of the NRFP is to bridge the gap between socio-economic research and public policy and promote evidence-based policymaking in Nigeria. Other objectives include:
• To encourage interactions among academia, governments, private sector, and non-governmental organisation.

• To promote evidence-based policymaking by transmitting valuable research outputs and interventions into the policymaking process.

The Fellowship's activities are segmented into six research clusters to achieve the Programme's objectives. The six research clusters include Macroeconomy, Digital economy, Governance, Institutions & Corruption, Sustainable Development Goals & Human Capital Development, Trade, and Sectoral Deepening – Agriculture.

At the end of the Programme, the Senior Fellows are expected to have engaged in research projects and produced multiple research publications that are relevant to public policy and private sector development.

NESG Non-Residential Fellowship Programme

Each Fellow is expected to belong to at least one cluster

NESG Secretariat

Research Clusters

Macroeconomy	Digital Economy	Governance, Institutions, Security & Corruption	SDGs & Human Capital Dev.	Trade	Sectoral Deepening - Agriculture

Sub Themes

• Economic Structure and Growth pattern • Inflation targeting and macroeconomic stability in Nigeria • Exchange rate management & growth stability	• Knowledge economy • Digitisation of economic activities or value chains • Innovations and creation of new markets • Fourth Industrial Revolution & Nigeria	• Societal trends and the role of government • Regulation and policymaking process • Anti-corruption, transparency and accountability • Sub-national governments and economic growth • Inclusive governance and citizenry engagement • Security and social stability	• Human capital development and SDGs • Education and SDGs • Health and SDGs	• Nigeria's Trade Regulation and Policy environment • African Continental Free Trade Area Agreement • Trade Infrastructure – Ports, Rails, Road, etc. • Foreign Trade in Goods • Trade in Services	• Agricultural Transformation and economic growth • Government interventions and impacts on sectoral performance • Other evolving issues

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PROJECT BRIEF

Bridging the Digital Divide: A Business Case for Digital Inclusion in Nigeria

Introduction

A digital economy, as defined by the European Commission, is an economy that "encompasses businesses that sell goods and services via the internet, and digital platforms that connect spare capacity and demand"[1]. Digital inclusion involves the activities necessary to ensure equitable access to and use of information and communication technologies for participation in social and economic life, including education, social services, health, and social and community participation[2]. Digital economy sustainability may be defined as "actions that employ digital technologies creatively to meet sustainable development goals."[3]

Digital economy has been identified as a precursor to development and economic growth in the future. It is a reflection of how an economy has been able to develop business or trade transactions that utilize the internet as a means of communication and its ability to initiate collaborations between companies and individuals[4]. It is hinged on the world's increase in the use of information and technology, which is becoming globalized[4,5].

Globally, a digital economy that includes digital skills and capital currently accounts for about 22.5% of the economy[5]. This emphasizes the importance of the digital economy and its contribution to growth and development across the world. For businesses to achieve productivity, there must be a continuous spread of Information and Communication Technologies (ICT)[6].

22.5%
Of the economy Is digital

In Nigeria, ICTs already contribute about 13.8% to GDP calculations, and it is believed that with the implementation of the National Digital Economy Policy and Strategy (NDEPS), the digital technology sector can double its contribution to the economy over the next five (5) years[1]. Nigeria also has one of the largest youth populations in the world, (60% of the country are youths) another positive precursor for developing a thriving digital economy[1,3] and the ground for making Nigeria the foundation of an African Digital economy[1].

To ensure and attain digital sustainability, there is a need for the rapid growth of ICTs with an expectation that massive technical advances are achieved[5]. There is also a need for digital inclusiveness. To ensure an inclusive digital economy, everyone should be able to access, use and benefit from new technologies, and this requires an innovative and coordinated policy effort[7].

In addition to these barriers, attitudes, and cultures of internet use greatly influence digital inclusion[9]. These barriers keep creating a "digital divide" as individuals, households, and businesses are on different socio-economic levels[8]. According to a report, to drive economic growth, particularly in developing

13.8%
ICT's contribution to GDP calculations in Nigeria

The European Union identified multiple barriers to digital inclusion which must be addressed to achieve inclusivity; inaccessibility to the digital world, purchasing power, and lack of skills[8].

countries, it is imperative to increase access and usage of the internet, investments in infrastructure to increase bandwidth, and reduce costs[10]. The place of collaboration between governments and private sectors cannot be overlooked in trying to build a sustainable and inclusive digital economy[5].

Objective

Stakeholder's dialogue was conducted to gain proper insights into the context of the digital economy in Nigeria, understand stakeholders' needs, identify and document policy gaps, and explore existing collaborations and opportunities for future partnerships between public and private sector stakeholders.

Dialogue Design

The multi-stakeholder consultative dialogue was designed to gain insights into the context of the digital economy in Nigeria among public and private sector stakeholders in Abuja and Lagos. The total number of stakeholders in Abuja was 57, and Lagos had 80. Stakeholders in Abuja were drawn from FCDO, the Presidency, MDAs (Ministry of Information and Digital Economy, Ministry of Finance, Ministry of Education, Ministry of Science and Technology, NUC, NCC, NOTAP, etc.), and other stakeholders from the public and private sector. Stakeholders in Lagos were drawn from MDAs; start-ups focused on digital inclusion, FCDO, corporate organizations operating in the digital space, CSOs, and ICT professional bodies.

A survey was conducted to identify stakeholders' needs and capacity gaps in achieving digital inclusion and transformation in Nigeria. Specifically, the dialogue identified policy gaps, and explored existing collaborations and opportunities for future partnerships between public and private sector stakeholders. Participants were divided into four breakout sessions to discuss four key areas that play a major role in the development and growth of a sustainable digital economy:

- Sustainability in Digital Economy
- Broadband Access and Infrastructure
- E-government, Policies, and Regulation
- Inclusion/Digital Divide

Highlights

Demography of Stakeholders

Sex of participants
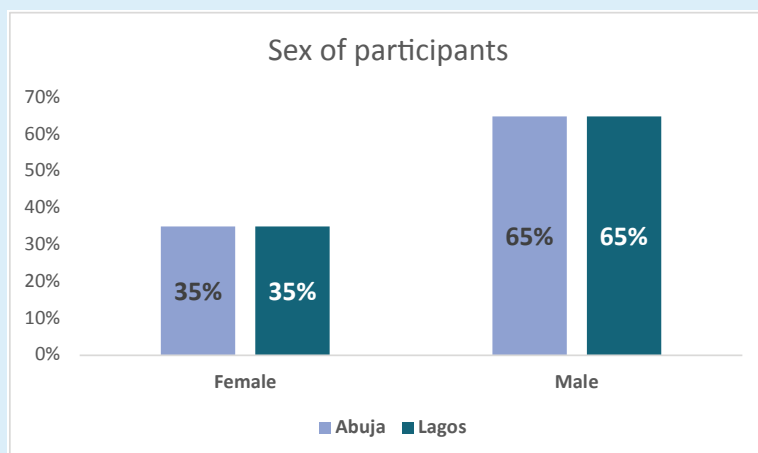
- In Abuja, 57 stakeholders attended the dialogue, while 80 stakeholders attended the Lagos dialogue. The sex distribution of stakeholders in Abuja and Lagos dialogues were (65%) males and (35%) females, respectively.

Categories of participants
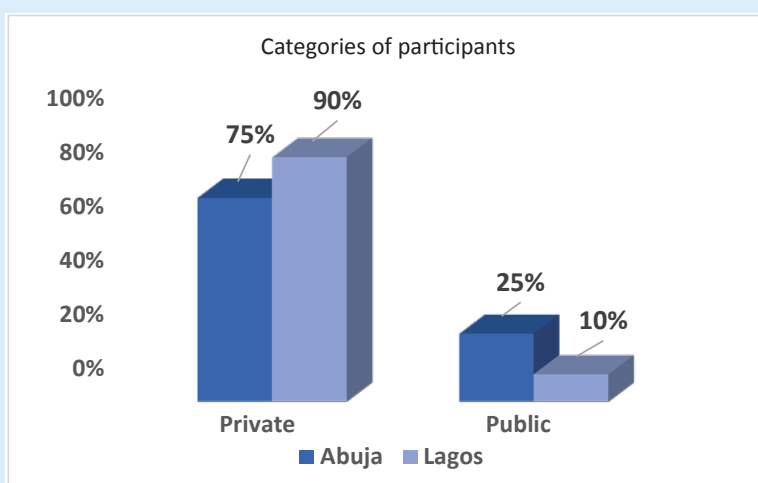
- Regarding the categories of stakeholders in the Abuja dialogue, (75%) were from the private sector, while (25%) were from the public sector. In Lagos, (90%) of the stakeholders were from the private sector, while (10%) were from the public sector.

Needs Assessment

Awareness of the National Digital Economy Policy & Strategy (NDEPS)
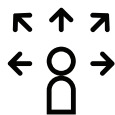
60%
Of the respondents knew about the NDEPS

Perception of the effectiveness of the NDEPS in achieving digital transformation

70%
Of the respondents who had prior knowledge of the NDEPS believed it was effective for achieving digital transformation

Collaboration between the private and public sectors

58%
Of the respondents perceived there were collaborations between the public and private sectors in achieving digital transformation

Awareness of exisiting strategy to support digital literacy and transformation
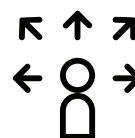
67%
Of the respondents indicated their MDAs had strategies to provide digital literacy skills for staff

Perception of participants on digital transformation working group

49%
Of the respondents reported the presence of digital transformation working groups in the ministry/agency where they work

Government strategy for promoting indigenous capacities

60%
Of the respondents were aware of the governments strategy for fostering indigenous capacities

Government projects promoting digital inclusion

64%
Of the respondents were unaware of government projects promoting digital inclusion for women, youth, people living with disabilities and the elderly

Cost of Right of Way

60%
Of the respondents reported that cost of Right of Way (RoW) was a barrier to digital transformation in Nigeria.

Bridging the Digital Divide:
A Business Case for Digital Inclusion in Nigeria

PROJECT BRIEF

Digital Transformation Gaps

Sustainability in Digital Economy
1. National Policy on ICT in Education is not fully implemented.
2. Poor domestication and implementation of digital economy policy

Broadband access and Infrastructure
1. Vandalization of telcos equipment and infrastructure
2. Inadequate power supply which has hindered internet penetration and increased operational cost

E-government, Policy and Regulation
1. Exclusion of the private sector in the policy process

Foreign and local Investment
1. Poor funding access for start-ups
2. Multiple taxation stifles the growth of start-ups

Conclusion

A sustainable and inclusive digital economy is achievable with good governance, effective polices, effective collaboration between the public and private sectors, and digital literacy. The government needs to pay attention to start-ups as strict regulatory policies might stall their progress. Government should provide an enabling environment for both start-ups and foreign investors. Collaboration between the public and private sectors is essential for an inclusive and a stable ecosystem. A digital economy is highly characterized by technology, so digital literacy should be prioritized across all levels, integrated into the educational system, developed into digital programmes for in-depth training and acquisition of digital skills for both public and private sectors.

Recommendations

- The educational curriculum from primary to tertiary level should be reviewed to accommodate digital literacy.
- There is a need to leverage the existing digital literacy & skills framework in driving the digital literacy programs in Nigeria
- Digital inclusion is critical to closing digital divide. There should be a clear pathway to achieving digital inclusion.
- Policy process should be more inclusive to involve the entire digital ecosystem
- Creating an M&E framework to measure policy performance is critical for effective e-government policy implementation.
- The state government should domesticate the federal government policies on broadband access to reduce the cost of infrastructural development for telcos in Nigeria.
- Firming up security to eliminate the vandalization of telecommunication infrastructure.
- Reliable power generation is critical for internet access.
- There should be availability of different funding models and incentives for start-ups
- Creation of a centralized tax system for start-ups to avoid multiple taxation.

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