

Evaluating Innovation in Micro and Small-scale Business Enterprises in Nigeria.

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Abstract: Governments and international organizations have shown a strong interest in innovation as a way of economic development in recent decades; additionally, there is a growing body of literature and research projects that are devoted to this topic. However, because of the origins of the idea and the academic discussion surrounding it, technological narratives about innovation have emerged as the dominating narratives. Consequently, the innovation described in the literature is a radical product that is the result of cutting-edge innovation that is coined in the industrialized world. It is unintentionally stripped of its contextual influence by this portrayal of innovation that has become a global standard of measurement and is thus occasionally applied to underdeveloped countries, a setting that is vastly different from that of the developed world. This thesis questions the prevalent narrative about innovation, as well as the conceptual frameworks of innovation that have resulted from a focus on large corporations in developed countries. The study contextualizes (i.e., interprets what is innovative to be context dependent) innovation, stripped of its contextual origin, to small enterprises in Nigeria, employing the knowledge spillover theory of strategic entrepreneurship and a case study of selected micro and small firms in Nigeria. The study contributes to the body of information on innovation and its relationship to development. Furthermore, based on strong data, the study shows that rethinking innovation is an essential step in improving firm-level performance to achieve sustainable growth, inclusion, and local economic development.

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Keyword:
Innovation,
Medium and Small-scale
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INTRODUCTION

Innovation is a concept that has been very relevant for development over the ages. It is interesting to understand how the most developed countries, about Europe and America, use innovation as a critical tool to aid economic development, thereby obtaining their

prosperity, and it is indicative of how useful this would be for growth elsewhere. Firms that engage in innovation remain well ahead of others for longer periods as they trailblaze new technologies for the other firms, and through this means, they maintain their dominance because of more aggressive research and development (De Mel, McKenzie & Woodruff, 2009).

Numerous studies have provided an excellent theoretical and empirical explanation for the role of innovation in economic growth, with regard to nation-building and development. (Mytelka, 2000; Longenecker et al., 2006; Wong et al., 2005). The important role of competitiveness in small and medium-sized firms in economic growth was analyzed by Wolf (2006). He thought that "a rise in business competition among SMEs accompanies their innovativeness and technical ability to implement new technologies and environmental-related solutions". In the innovation process, the three (3) connected factors are learning, linkage, and investment; they all need to be combined to successfully increase product and service innovation (Mytelka, 2000). OECD's Oslo Handbook has designed and postulated four key classifications of innovation, namely "product, process, marketing, and organizational innovations" (OECD, 2005).

Foreign direct investment (FDI) is a critical component of the fast-growing worldwide economic interconnectedness known as globalization. According to the OECD (2008), FDI is a way of establishing effective, sustainable, and direct ties among economies.

It's not unusual for scholars and experts to write about the adoption of technology and innovation along with the role of FDI in the developed world, as there are extensive research works within this subject, but it's unusual for researchers to do so in the less developed regions. This research expands on and helps to advance the work done previously in developing nations (Crescenzi et al., 2012; Lorenza and Mohammad, WIPO, 2011). Although not many reports on innovation in micro-sized businesses have been undertaken in the developed nations, there hasn't been any data available for an empirically based study. This is why research on developing countries struggles to make much use of the term "innovation," as there are few companies there that apply it in meaningful ways in their respective environments; as such, there is a knowledge

gap (Dantas and Bell, 2011). As a result of this research, readers would have a better understanding of how Micro and Small Enterprises (MSEs) in Nigeria shape new ideas and innovation. The thesis addresses the calls for further inquiries to provide clearer insight into the same question advocated by those who want more research on innovation in developing countries. Models/frameworks of analysis built in this argument hold that findings coming from studies in the developed economies and their results may not be relevant to those in the developing ones (Hobday, 2005). Due to the different micro/macro-economic realities in developed and developing economies. Even more, creativity is seen as a way to cope with resource shortages that exist in the early stages of development (Sirnivas and Sutz, 2008).

This work's main purpose is to see if small, medium, and large firms in the household goods industry have been innovative enough to create new products in the low-income nation of Nigeria by their desire to satisfy the customer, and how much of an impact this innovation has on their performance collectively. Because of the potential technological spillover effect, this thesis also ascertains whether the presence of foreign direct investments has any impact on the micro, small, and medium-scale enterprises. In order to do this, preliminary research was carried out on small businesses to get ideas for innovation and firm performance. The thesis's discoveries could also enhance efforts to determine the dynamics of FDI inflows in these businesses and their outcome.

The investigation in this research has an exploratory character and is intended to discover LIDC's limited involvement in innovation through data analysis. It demonstrates the empirical and direct observation of innovation in micro and small firms producing things that households use in their homes. This project is ultimately aimed at improving Nigeria's policymakers' decision-making capabilities regarding MSMEs through a better understanding of the innovation ecosystem in Nigeria and seeing if Foreign Direct Investment has a role in Innovative capacities and performance of the MSMEs. Towards reaching the goals established above and based on the knowledge gap in the available data, which is seen by reason of review of related literature, the study aims to increase the depth of knowledge in this area by means of:

- i. Conducting an investigation into how innovation affects the performance of SMEs in Nigeria
- ii. Examining the impediments to innovation in this context.

iii. Identifying the magnitude of impact that FDI has on the nexus of Innovation and firm performance in Nigeria

iv. Determining if the level of FDI in the Nigerian MSME space is viable for innovation

Research Questions

This research aims to use to find out how Nigerian MSMEs innovate with the goal of helping to design public policy in order to help their local economic growth and attract more Foreign Direct Investment into the country. By applying two distinct research questions, the thesis will be guided by them; thus, the focus of this analysis will be on the research questions that are:

Does Innovation have an impact on Firm Performance within Nigerian MSMEs?

In this context, does FDI affect Innovation and Firm Performance in Nigeria?

Significance of the study

One thing that has been discovered through this research is that micro and small businesses, despite the fact that they are prevalent across the world, particularly in developing countries such as Nigeria, are often overlooked in innovation research due to the misconception that they do not innovate. The lens through which we seek innovation in developing nations, on the other hand, has been shown to be a strong supporter of the thesis.

The Organization for Economic Cooperation and Development (OECD) developed a widely accepted definition of innovation, frequently mentioned in research. It sees innovation as the “Implementation of a new or significantly improved product (good or service), process, a new marketing method (e.g., a novel product design), or a unique organizational method in business practices, workplace organization or external relations” (OECD, 2005)

The term is adopted by scholars from underdeveloped nations who attempt to modify it, but are unsuccessful because they interpret "significant improvements" to indicate incremental innovation that is appropriate for the setting in which they are working. However, it should be noted that, as a result of the setting from which the concept was

created - large corporations in advanced economies – what is intended is a product that is trailblazing and completely new in the market.

MSEs supply essential goods to those who are marginalized, but they are confronted with enormous obstacles that make life difficult for them. The entrepreneurs interviewed stated that the most significant constraint they faced was a lack of funding. These businesses are starving for cash and regulations that will assist them in the real world, rather than only on paper, as is now the situation. This is comprehensible because the majority of the profit squeezed out of the business is spent on running costs, leaving little left over for expansion. Notably lack of funding has been a huge obstacle to entrepreneurs with numerous initiatives. As a result, there is a pressing need to provide adequate attention to these businesses, which should be recognized as innovation-driven development and given the same level of attention as R&D, innovation parks, and so on.

Theoretical contribution

Classical innovation literature investigates dissemination from the perspective of the environment, as has been repeatedly stated throughout this study, and from the setting from which the study of innovation emerged: multinational corporations manufacturing grandiose products. Given the circumstance, the MSEs then go to produce replicas, which is called ‘cloning’, or the steady development of a product up to when MSEs are able to produce a truly indigenous version. Following this route, newly industrialized enterprises began with original equipment manufacturers (OEM) and replica products before progressing to the ability to develop fully indigenous products through incremental improvements over time. In this stage of development, Lenovo is an excellent example of a developing-country company that exemplifies this phase of development.

This phenomenon is described as a "creative complement" where new enterprises are forming; however, instead of destroying the current enterprises, they help to enhance them. The concept is important for developing countries located far away from the frontiers of scientific discovery. The process of creative destruction occurs in sophisticated economies that are on the cusp of information, with fresh understanding of products and processes displacing the current knowledge. While fresh knowledge is being generated in developing countries, which are distant from the borders of knowledge,

recombination of previously discovered information to build new firm items is taking place.

These new businesses that are springing up in underdeveloped nations are aimed towards the bottom of the pyramid (Prahalad, 2005), for whom the alternative products of global corporations are out of reach. According to the demography of developing countries, this sector is worth billions of dollars and hence a healthy and increasing market in general. Developing countries can exploit this to elevate their development status, also achieving social inclusion at the same time, if done correctly.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Mappings of Innovation

Of recent, the world has witnessed a significant spike in the necessity for innovation, businesses who are in need of developing new goods and services, politicians that want to implement policies to aid development and rise in their sector, companies who want to achieve a greater standing, and non-governmental organizations who are trying to further their roles of leadership and superiority in their respective industries. The means by which new ideas may enter the realm of existence have also increased; thus, different institutions for examining innovative ideas would also grow in number (Fagerberg and Verspagen, 2009).

According to different scholars, the area of innovation is known by various terms. At the same time, the tag has also developed over time. Science or research policy is one of the first mentioned since it represented the type of work that many scientists and researchers engage in but later dropped because of its narrow connotation of the word "policy", but subsequently fell victim to the less cumbersome and more explanatory label of Research and Development due to the large variety of subfields it covers. With time, scholars gradually recognized other research fields, technological innovation, and science increasingly becoming key, hence the label changed to Science, Technology, and Innovation (STI). The clumsiness of STI was later sorted out with the simple title

"innovation," taking center stage but covering aspects of science and technology (Martin, 2012).

Clusters and Innovation Development

Bringing advancements around the world, innovations have been stimulated by the development of clusters. Some other meaning of cluster as viewed by Boja (2011) describes it as a region with high potential for firms that collaborate for economic advantage where such advantages are not normally attainable in other geographical areas (e.g., unique market niches, strategic market strengths, strong company position, supply connection, supply-demand interdependence, etc.) while also bolstering their collaborative abilities. With regard to geography, it is an interrelated conglomeration of big and small firms within similar value chains providing a platform for cooperation, good business advancement, income generation, regional competitiveness, accompanied by growth and a desire to forge long-term connections (Raimi et al., 2016). In various locations around the world, clusters are seen as highly important in the development of modernity, entrepreneurial growth, technological development, and economic advancements, places like Silicon Valley and Greater Seattle in the United States which is home to big tech companies like Apple, Google, Microsoft Amazon, Boeing etc, in the UK, there is the notable Cambridge cluster, Geneva as a cluster also stands out in Europe, in India's Bangalore Park and Hsinchu Science Park in Taiwan serves as prominent global clusters (Raimi et al. 2016).

Developments in the innovation studies

A succinct description of innovation cannot be provided without the authoritative reference to Joseph Schumpeter (1934), considered the pioneering theorist on entrepreneurship and innovation. He had the unique perspective that recognized innovation, R&D, and entrepreneurial practices as being fundamental to the growth of the economy. (Fagerberg, 2012). In Schumpeter's masterpiece, "The Theory of Economic Development" in his native German under the title *Theorie der Wirtschaftliche Entwicklung*), he called invention a 'source of energy' as well as a means by which new products appeared to depict older goods and services as 'creative destruction'. By detailing innovative individuals as "entrepreneurs" and their relation to their surroundings, he showed how their innovation or openness to change, in turn, could bring about both social and economic gains in the long term. This insight shows the importance of conducting

R&D over a long period of time in order to maintain a competitive position (Schumpeter, 1934,1942).

Economists at the time neglected the new idea that long-term social and economic growth is linked to innovation. That is, before economists started to investigate Schumpeter's theories after his demise, which led to an expansion of the concept. The revival began in the US during the Cold War period, when the US government realized that it needed to keep military strength at the forefront of technological advancement in order to maintain a superior position. Then there was more attention paid to the subject to build military might through R&D and innovation after World War II, particularly through post-war developments (Fagerberg et al, 2012).

Primarily, this effort led to the creation of several initiatives, like that of Research and Development (RAND), which then focused on providing continual technological development to keep the military current with the other branches to promote military capabilities. Somehow, though, this had a spillover effect to non-military settings. It is generally understood that the greatest contributions to the concept of creativity were made by those who later had strong ties to RAND, who were ahead of them in the publishing arena. (Fagerberg et al. 2012)

Disciplinary influence of innovation studies

From the early stages of conceptual innovation, economics as a discipline played a huge part, referencing Nelson and Winter (1982) book “An Evolutionary Theory of Economic Development”, they argued in this book that “technological progress and innovation are vital to economic growth”, intertwining each other like strands of a single, entangled strand of DNA. The development of new technology and its implementation by organizations results brings with it the push for new product and service offerings, as organizations strive to beat their competition. Economic historians like Nelson and Winter have looked at the way in which innovation and advances in technology impact economic growth. A pioneering research in this respect is Rosenberg (1982), who explored the “black box of innovation by uncovering how technology affects performance and competitiveness”, the technology transfer system, the learning process, and the way the improvements in technology are implemented in its relationship to government policies.

Prior to the current studies of innovation, Sociologists have already taken notice of how sectors of the economy evolve with the introduction of new ideas, taking note of how agricultural practices have an important place in the development of new ideas. Battling of the subject was done by a sociologist engaged in a scholarly investigation on the application of innovation, a senior researcher who has widely written on this matter is Rogers (1962 and 2003).

Innovation in developing countries

The Western perspective on innovation dominates the literature on the subject, as this is where the notion and its academic discourse emerged. Resultantly, innovation is frequently understood as “arising from specific inputs” (like R&D) and presuming the presence of specific resources (for example, skilled persons and financial resources) implies the existence of a ubiquitous trend of innovation (Robson et al, 2009).

However, the type of innovation that occurs in poor countries differs from that which occurs in developed countries; it is gradual and progressive (Lastres, 2003). This innovation becomes “invisible” when it is examined via theoretical lenses that have been developed in the West and applied to the Southern context (Srinivas and Sutz, 2008). As stated in the Financial Times, “It is often assumed that innovation requires a large amount of resources, but as companies from developing countries have demonstrated, creativity and a commitment to solving a problem are more important than resources and an equally significant force, innovation in developing nations, although it is not high-tech, should be explored extensively in the same way that prominent innovation in the West has been done” (Srinivas and Sutz, 2008).

Assessing innovation in developing countries

The European Union was a pioneer in the measurement of innovation, establishing a poll known as the Oslo Manual. Since the establishment of this standardized approach, the results of a couple of conducted surveys have been welcomed as international standards in their respective fields. Another version adaptable to underdeveloped countries was formed and named the ‘Bogota manual’. Due to the belief that “Oslo manual is tilted in favor of the first world and is therefore only fit for developed countries”, the backdrop of emerging countries, on the other hand, is distinct since it is characterized by a lack of research and development, diverse and sophisticated technological adaptability, and a lack

of connection. Latin American scholars discovered via their research that “they lacked the fundamental capabilities required for technological exploitation” (Hausman, 2005).

Many countries now employ the method that was originally designed in rich countries but it does barely reflect “the reality of innovation in developing nations, particularly at the level of MSEs” (Chudnovsky et al. 2006). It is possible that a significant portion of their innovative activity will not be recorded by survey instruments created by industrialized economies and huge corporations (Chudnovsky et al. 2006; Hausman, 2005).

Firm-level innovation in developing countries

Prior to this section, innovation at the macroeconomic level was examined. However, this section looks at innovation at the microeconomic level, which is to say, innovation activities carried out at the level of the firm. It has long been recognized in the literature that enterprises in underdeveloped countries passively assimilate technology from developed ones. However, research has revealed that in order to be effective, imported technology “must be adapted to the context of developing countries. This is where innovation comes in; it is necessary to retrofit the imported machines to the conditions in developing countries because they are different from the conditions in the countries from which they were originally imported to be effective” (Oyelara-Oyelakin et al, 1997). These seemingly “insignificant or incremental improvements to foreign technologies that make them more adaptive to the circumstances of developing countries have a significant economic impact” (OECD, 2005), especially when it is taken into consideration that fundamental production capacities are missing. While firms in advanced economies innovate through research and development, firms in underdeveloped countries place a greater emphasis on maintenance engineering and quality control as sources of innovation (Bell and Pavit, 1993). According to Kim (1980), although creativity in research and development is crucial, it is only necessary at a later stage of development.

Innovation, as described by OECD (2005), is “the introduction of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations”. In order to incorporate incremental innovation, which is prevalent in underdeveloped nations, this definition is broad. Its flip side is that, because of the regard

for context, what defines innovation in one environment (development) may not be considered so in another situation [innovation in manufacturing] (developed).

Foreign Direct Investments

According to a different assumption, Morisset (2000) asserts that FDI is a sort of investment that encompasses the injection of foreign capital into an entity that functions in a nation that is not the investor's country. The right to participate in administration and voting is provided to investors who possess more than - or up to 10% of the company's ordinary shares. The holding of shares in an amount less than the declared amount is referred to as portfolio investment, and it is not considered foreign direct investment. This does not include foreign investments in the stock market, which are excluded from the calculation. Instead, foreign direct investment (FDI) refers to the explicit investment of foreign assets in local products and services. According to Sachs and Sievers (1998), foreign direct investment (FDI) is often preferred over equity investment since equity investment tends to depart an economy at the first hint of problems, making countries more vulnerable to shocks in their money markets. Foreign direct investment can be characterized as either inward FDI or outward FDI, depending on the direction in which the money flows. Inward foreign direct investment happens when foreign capital is invested in local resources, whereas outward foreign direct investment (FDI) occurs when foreign money is invested in foreign resources. (UNCTAD, 2007).

Foreign investments provide a chance to improve the cash flow of the business and increase the profits of its owners. So the management of a company is responsible for developing plans that entail the penetration into international markets and that will result in the best profitability. Foreign direct investment (FDI) happens when a company invests directly in operations to manufacture and/or promote a product in a foreign nation. FDI may be divided into two categories: greenfield investment, which is the formation of a new operation in a foreign nation, and brownfield investment, which is the acquisition of an existing business in a foreign country (Loungani and Assaf 2001, p 5). Second, FDI might occur through the acquisition or merger of an existing enterprise in a foreign nation.

Role of FDI on Nigerian Businesses

In recent years, emerging economies have come to recognize the importance of FDI in their economic growth. Since it offers much-needed investment capital, encourages

competitiveness in host-country industry sectors, and facilitates productivity of local businesses by embracing more sophisticated technologies or investments in human and physical capital, foreign direct investment (FDI) is widely regarded as a growth engine (Anyanwu, 2012). As it is more steady than other kinds of capital flows, foreign direct investment makes a significant contribution to economic growth.

The positives of FDI include capital resources, creating jobs, easing access to overseas markets, and delivering both technology and functional spillovers to local enterprises. FDI has a number of advantages over other forms of investment. The general assumption is that FDI will ultimately enhance the interoperability of the receiving country in the globalized trade and strengthen the economy, technology transfer, build capacity, and provide more market access (Hill, 2009, pp. 45-56). Several developing nations, including several in Africa, are seeking FDI as a consequence of the potential role that it may play in spreading industrialization and sustainable transformation. As a result, promoting and soliciting FDI has emerged as a critical component of development policies for poor nations worldwide. With regard to Africa, the role of FDI as a source of capital has grown more essential, not only because of the assumption that it may assist in closing the savings–investment gap, but it can also aid in the achievement of Millennium Development Goal objectives (UNCTAD 2010). Given the low level of income and local savings in the region, as well as its resource demands and limited capacity to generate funds locally, the majority of the region's future financing will have to come from overseas through FDI.

As a result, a number of African nations have set up a variety of policies in addition to enhancing their investment climate with the intention of attracting FDI into their respective economies. According to Anyanwu (2012), these incentives (also known as "sweeteners") are to guarantee that resources are channeled to regions and industries that are desperately required to handle the concerns of employment creation and poverty reduction, while others are purely financial incentives to stimulate business growth. Indeed, when governments compete for FDI, the risk of "race to the bottom" exists in some instances. Whether FDI is being drawn to areas of business that have the most multiplier impact in terms of generating sustainable growth and indirectly relieving poverty is not entirely evident at this time. Another important point to keep in mind is

that, in deriving maximum benefits from the spillover effects of FDI, a country's resource capabilities must be at or above a certain threshold. In order to reap the benefits of this component of globalization, it is necessary to implement the appropriate policies (Ajayi, 2006). According to some experts, the ability of Africa to attract foreign direct investment is mostly dictated by the continent's environmental assets and the magnitude of its domestic markets. For example, Nigeria and Angola, the two nations, are indeed able to get a lot of FDI because of their massive oil resources, despite the fact that their political systems are not completely favorable to investment. The combined effect of these two factors, however, is insufficient to explain FDI movements. FDI flows are influenced by a variety of variables, including not just the politics and policy climate in host countries, but also other aspects (Anyanwu, 2012).

A wide range of FDI-related activities, including labor and management development, technological imitation and direct licensing, and structural links in the manufacturing/supply value chains, are likely to result in spillovers in Nigeria, according to the research by Dustse (2010). Evidence suggests that the economic growth brought about by the spillovers and the consequent economic growth can be influenced by several factors, including domestic competition, labor market standards in the host country, the technological capability of local firms, the narrowing of the disparity between foreign and host country firms in technology (OECD, 2002), the complementary nature of foreign and host country technologies, as well as the motivations and characteristics of foreign investors.

It became clear that Nigeria has experienced an increase in the amount of foreign direct investment (FDI) flowing into its economy. As a result, the level of GDP has expanded significantly, and the economy has a number of growth prospects that are debatable. The paper goes on to examine the critical function that foreign direct investment (FDI) plays in technology transfer and how it might help to improve Nigeria's economic growth. Creating a healthy and favorable business climate that fosters both foreign and domestic investors, provides incentives for innovation, skills improvement, and contributes to a competitive corporate climate are all important factors in allowing the country to reap the benefits of globalization effectively. (Dustse, 2010)

While there are a number of literature that talks about the role of FDI in the Nigerian economy and the impact it has had so far, there are gaps in the existing literature especially

with regards to the moderating role of FDI in terms of innovation and firm performance most especially in Nigeria, this is exactly what this research is undertaking in detail.

METHODOLOGY

This thesis utilizes the 2014 World Bank Enterprise Survey for Nigeria. These Surveys are usually executed within the framework of a two-stage procedure. The first stage employs a screen questionnaire wherein phone calls are made to ascertain eligibility and set up appointments; the second stage involves face-to-face interviews with the manager, owner, or director of each establishment. In cases where the phone numbers were inaccessible within the sample frame, the screeners were applied via physical contact by the enumerators. The objective of the sample design for the Nigeria Enterprise Survey was to obtain interviews at 2,640 establishments from 19 out of the 36 states of the federation which includes Abia, Abuja, Anambra, Cross River, Enugu, Gombe, Jigawa, Kaduna, Kano, Katsina, Kebbi, Kwara, Lagos, Nasarawa, Niger, Ogun, Oyo, Sokoto and Zamfara. However, after cleaning the data and manipulating the variables, 763 valid observations were left for the estimation. Below are the variables, their codes¹, measurements, and transformations (if any). All quantitative variables are log-linearized in order to reduce the incidence of heteroscedasticity. Index, percentage, and binary variables are, however, left in their original form.

The Model

In order to determine the effect of innovation on firm performance, there is a need to ascertain a suitable proxy for firm performance. Within the framework of the present study, the most suitable proxy of firm performance would be the sales volume of the firm. As a result, annual sales would be employed as the dependent variable. The econometric model is specified as thus:

$$\ln \text{sales}_i = \beta_0 + \beta_1 \text{procin}_i + \beta_2 \text{prodin}_i + \beta_3 \text{organin}_i + \beta X_i + u_i \quad (1)$$

¹ These are the actual codes used in the Nigerian Enterprise Survey (2014) to identify the variables

From Equ. (1), the β 's are unknown parameters to be estimated, *procinv*, *prodinv*, and *organinv*

are the 3 innovation variables used in this thesis, which are: process innovation, product innovation, and organizational innovation. X denotes a vector of control variables such as firm size, average wage, capital from banks, top manager's education, value of past sales, and security.

A-priori expectations

Expectations for process, product, and organizational innovation are ambiguous. This is because the three measures of innovation can have either a positive or negative influence on product sales. Product innovation can be costly and may necessitate an increase in the price of the product, which has been improved upon, thus leading to a drop in demand. Innovation can also improve product quality, which would induce an additional increase in product demand. Just like product innovation, process innovation may come with additional costs, which may necessitate price markups on enhanced products. Thus, the effect of innovation on product sales depends on the nature of the innovation undertaken. For control variables, firm size is expected to have a positive relationship with sales because of the existence of a relatively larger distribution network in large firms. Average wage is also expected to increase sales due to a higher incentive to market products.

RESULTS & FINDINGS

This section of the thesis will deal with the results from the data analysis and estimations, which shall be presented in tabular form. The thesis shall first outline the correlation matrix, after which the summary statistics shall be outlined. Finally, the linear regression will be estimated by Ordinary Least Squares (OLS). The estimation shall employ robust standard errors to mitigate the potential effects of heteroscedasticity.

Correlation Matrix

The correlation matrix gives evidence of a strong correlation among the innovation variables. A strong correlation may imply the possibility of multicollinearity amongst the variables. However, it may also imply that important mediation effects may be lost if the

variables are not put in the same equation. As a result, all the innovation variables will be estimated in the same model.

Summary Statistics

From Table 4, the summary statistics show that bank loans and the share of foreign ownership are highly volatile with the implication that there may exist large swings in the data. As a result, it becomes imperative to employ robust standard errors in order to mitigate the occurrence of heteroscedasticity.

Table 3: Correlation matrix of variables

	lnsales	procin	prodin	mktinv	fshare	size	lnavwage	bankloan	maneduc	lagsales	security
lnsales	1.0000										
procin	0.1245	1.0000									
prodin	0.0960	0.6026	1.0000								
mktinv	0.0381	0.6301	0.3914	1.0000							
fshare	-0.032	0.0748	0.0222	0.1011	1.0000						
size	0.2742	0.1245	0.0451	0.1163	0.0528	1.0000					
lnavwage	0.1779	0.0289	0.0438	0.0725	-0.089	-0.022	1.0000				
bankloan	0.0612	0.0692	0.0307	0.0823	0.1733	0.1305	-0.1143	1.0000			
maneduc	0.2020	0.1847	0.0880	0.1399	0.0879	0.2633	0.0752	0.0923	1.0000		
lagsales	0.2521	0.0186	0.0261	0.0178	-0.016	0.1402	0.2522	-0.0862	0.0864	1.0000	
security	0.1834	0.2097	0.1272	0.1843	0.0101	0.1752	0.1255	0.0157	0.1375	0.1159	1.0000

Table 4: Summary statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
lnsales	873	14.56137	2.097211	9.798127	25.52729
procinv	881	.1212801	1.399459	-1.763666	1.713353
prodiv	881	.7860386	.2475293	.5	1
mktinv	881	.7355278	.2497225	.5	1
fshare	889	3.061867	10.13199	0	100
size	889	1.293588	.7339679	0	3
lnavwage	834	9.271004	3.619215	-3.970292	19.51929
bankloan	881	6.065834	13.41819	0	100
maneduc	881	5.46084	1.725774	1	11
lagsales	844	13.18718	5.335385	0	26.71473
security	881	.8433598	.2320454	.5	1

DISCUSSIONS

Estimation results

The estimation results are outlined in Table 5. Process innovation is the only innovation measure with a positive relationship with product sales. Product innovation has no statistically significant relationship with product sales, with the implication that innovative activities oriented towards product differentiation in Nigeria actually yield no dividends. Organizational innovation, on the other hand, has a negative effect on product sales in Nigeria. This may be because organizational innovation may induce production costs, which may increase the mark-up of these products. The increase in markup would increase the price of the products, which may invariably reduce the demand for the products. An increase in foreign ownership has no statistically significant relationship with product sales. This result may be due to the sample size. Out of the 779 firms used in the estimation, only 114 have foreign shares greater than 0. This comes with the implication that there are not enough foreign firms in Nigeria to induce technological spillovers that would improve the innovative process in Nigeria. The size of the firm has

a positive relationship with product sales. Bigger firms have higher distribution networks, which translates to more sales. Average wage has a positive relationship with product sales because of an increased incentive to work. The top manager's education level has a positive relationship with product sales because more educated managers tend to be more intuitive with strategy and ideas that will improve product marketing and sales. Past sales have a positive relationship with contemporary sales due to persistence in firm attitudes.

Table 5: Estimation results

Variables	coefficient	Standard errors
<i>procinv</i>	0.143	0.07**
<i>prodiv</i>	0.248	0.311
<i>orginv</i>	-0.863	0.365**
<i>foreign</i>	-0.010	0.009
<i>size</i>	0.562	0.104***
<i>lavwage</i>	0.071	0.022***
<i>bankloan</i>	0.009	0.007
<i>maneduc</i>	0.120	0.039***
<i>lagSales</i>	0.071	0.015***
<i>security</i>	0.820	0.492***

Note: ** and *** denote statistical significance at the 5% and 1% significance level.

Security, on the other hand, has a positive relationship with product sales, with the implication that safer environments encourage product distribution and deployment, which would improve product sales.

CONCLUSIONS

The present thesis makes an attempt to determine how product, process, and organizational innovation affect firm performance in Nigeria. The World Bank Nigerian Enterprise Surveys dataset is employed. 779 valid cases remained after cleaning the data

and transforming the variables used prior to estimation. The results show that only process innovation has a positive relationship with firm performance. Organizational innovation, on the other hand, has a negative relationship with firm performance. Also, product innovation has no statistical relationship with firm performance. Also, the share of foreign investment in firms has no statistical relationship with firm performance. The results have strong implications for marketing strategy and policy. This is because the innovative process in Nigeria has not gotten to the level where product differentiation would have any meaningful impact on firm performance. Firms in Nigeria need to understand the mindset of Nigerians in order to improve the marketability of their products. Also, there is a need to consider the economic circumstances of the consumers in order to make informed decisions based on markup costs and pricing. This is because innovative products may be too expensive for the average Nigerian, especially when the cost implications may be too high. Another implication of the present thesis may lie in the structure of the data. The data does not differentiate between novel products and significant improvements to already existing products. This is because all the product innovation activities in Nigerian firms may be slightly tilted towards significant improvement to already existing products. As a result, significant improvement may bring about significant costs to the producers, which may lead to a higher cost of production. Novel innovations that have lower costs may also lead to higher sales. However, the negative implication of price markups in products that have undergone significant improvement may cancel out the effects of these novel innovations.

As a result, Nigerian firms need to look at the cost implications of innovative activities. The price dimension should be an important determinant when innovation is being undertaken in Nigeria. This is because of the economic situation of the country. Also, foreign investment in Nigeria is quite low, as can be seen from the dataset. Only 114 firms out of the 779 firms used in the estimation have any type of foreign exposure. As a result, incentives should be put in place by the government and other stakeholders to improve foreign investment and attract foreign ownership of firms in Nigeria. This is because an increase in foreign investment would improve technological spillovers in Nigeria, which would improve firm innovation and performance.

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