

**Structural Transformation and the Dynamics of
Entrepreneurship in Developing Countries: The Nigerian Labour
Market Perspective**

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Kevwe Pela

School of Environment, Education and Development
Global Development Institute

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ABSTRACT

This thesis studies entrepreneurship in the process of structural transformation. It builds on classical literature that understands the structural transformation process as the transition from a factor driven economy (dominated by the primary sector) to an efficiency driven economy (dominated by manufacturing activities), and thereafter an innovation-driven economy (led by an entrepreneurial tertiary sector). Within this framework, the entrepreneur is seen as a key figure, in fact, a driver of successful structural transformation. The thesis starts by re-evaluating this theoretical framework at the backdrop of the current context of urbanisation without industrialisation (Gollin et al, 2015) or premature deindustrialisation (Rodrik, 2015) and tries to find out whether it is at all useful in understanding the new realities. It asks the following questions. What is the place of the manufacturing sector in the process of the new type of structural transformation in sub-Saharan Africa and what is the place of the entrepreneur in this process? What are the factors that constrain the growth of a dynamic, efficiency and innovation enhancing entrepreneurship? What is the role of gender in the development of successful entrepreneurial niches in the labour market? The context of this research is Nigeria, which over the past few years experienced phenomenal growth and substantial urbanization and structural transformation, yet is plagued by a number of socio-economic vulnerabilities.

The core argument of this dissertation is built around three empirical chapters. The first empirical chapter studies: (i) The place of the self-employed individual in the labour market, the focus being on comparison of self-employed individuals, with salaried employees and those who do not work. The main objective is to establish whether self-employment is more akin to dynamic entrepreneurship or to hidden unemployment, and (ii) The allocation of self-employed individuals across the primary, manufacturing and service sectors and the corresponding returns to skills of self-employed individuals in these sectors. This exercise allows us to find out whether there is synergy between the allocation of entrepreneurs in highly productive sectors and their respective returns to skills in these sectors. Clearly, if it is possible for entrepreneurs to identify highly productive niches (in the inherently more productive and dynamic secondary and tertiary sectors), this would result in both higher motivation among individuals to acquire high skills and in the further development of high productivity niches in the economy. We find that although better educated self-employed individuals face higher probability of allocating into the tertiary sector than into either the primary or manufacturing

sectors and also acquire high returns to their skills, the level and returns to skills of those allocated to the entrepreneurial sector are lower than those of salaried employees. The allocation of skilled labour and returns to skills among entrepreneurs in the manufacturing sector are the lowest. This is contrary to stylised perceptions that the manufacturing sector is the most productive sector in an economy and with the classical structural transformation paradigm which identifies the allocation of labour from the primary to a dynamic manufacturing sector as an important step in the process of economic development.

Following up on the interesting results of the first empirical chapter of the dissertation, the second empirical chapter uses the Stochastics Production Frontier to identify factors that reduce the efficiency of micro and small business owners in Nigeria's manufacturing sector. In other words, it delves deeper into the problems associated with productive manufacturing sector entrepreneurial development, identified in the first empirical chapter. We find evidence that improvement in public infrastructure and social capital have positive influences on the performance of micro and small manufacturing firms. On the other hand, the positive effect of access to finance is stronger for urban firms than rural firms. We reflect on some possible explanations of these findings and on their policy implications.

In the third empirical chapter, we address some conceptual controversies associated with female allocation into entrepreneurship. The neoclassical economics literature in the spirit of Becker (1991) argues that lower levels of education and outright discrimination of women in the salaried sector may make the self-employment sector preferable to them compared to the salaried employment sector. Yet, women face higher (asset and network related) barriers to entry in that sector compared to their male counterparts, hence it is exactly not clear which of these sectors will be characterised by greater incidence of female labour. At the same time, the evidence on whether the business success of male entrepreneurs is higher than that of female entrepreneurs is inconclusive. In an effort to throw light into these diverse (and at face value incompatible) sets of evidence, we first calculate the probability for an individual to allocate to either self-employment or salaried employment or not working using Markov Chain analysis to compare these probabilities across the two genders. We then explore the determinants of labour market transitions across these three sectors, drawing on a range of individual/human capital, household and institutional characteristics. Our results suggest that while self-employed women have higher tendency to drop out of the labour force compared to men, they are also slightly more likely than men to move from not working to self-employment. Women

with higher levels of education are less likely to be self-employed, while marriage is a trigger for exiting the state of not working and becoming self-employed. Women from relatively poorer households are also more likely to move from the state of not working to self-employment. Taken together, our findings are consistent with the view that women are (on average) disadvantaged from entering more productive and remunerative sectors in the economy – across both salaried employment and self-employment – and are on average more likely to be self-employed as a push rather than a pull strategy. The overall conclusion of the dissertation is that a holistic approach is needed to overcome coordination failure and create space for both innovative entrepreneurial activities and skill acquisition.

Key Words: Entrepreneurship, Structural Transformation, Manufacturing, Education, Labour Allocation and Gender

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DEDICATION

I dedicate this thesis to my dear Mother, Mrs Happy Pela who passed away on the 4th of March, 2014.

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You all made my PhD programme a memorable and enjoyable one!

1.0 CHAPTER ONE

INTRODUCTION

1.1 Preface

The world is currently undergoing the largest wave of urbanization in history. More than half of the world's population currently lives in cities and by 2030 the number of city dwellers will increase to about 5 billion (UNFPA, 2016). Urbanization rates are highest in Africa and Asia and hence the infrastructural, labour market and environmental consequences of the current urbanization wave are expected to be highest in these two continents. According to latest ILO statistics, global unemployment stands at just over 201 million, with an additional rise of 2.7 million expected in 2018 (ILO, 2017). Although average unemployment rates are roughly similar across developed, emerging and developing countries, the latter two groups are characterised by disproportionately higher rates of employment vulnerability and working poverty. In this context of high levels of urbanization and labour market instability, it is essential to explore the role of entrepreneurship as both a buffer and generator of productive job opportunities.

The classical literature on structural transformation (Rosenstein-Rodan, 1943; Murphy, Shleifer and Vishny, 1989; and Kaldor, 1967) emphasises the importance of manufacturing sector led development, whereby in earlier development stages growth is driven by manufacturing activities before giving way to a dominant service sector. The main argument of this literature is that productivity gains acquired by the manufacturing sector exceed those of both the agricultural and the service sectors. Moreover, a large manufacturing sector has greater capacity than the service sector of absorbing large labour flows released from the low productivity agricultural sector. The classical big-bang type economics literature on structural transformation emphasizes the role of the innovative entrepreneur in creating such job opportunities and guaranteeing successful transition from a primary sector led to a secondary and tertiary sector-dominated economy. Indeed, the classical literature on entrepreneurship builds upon this paradigm and sees the entrepreneur-driven structural transformation process as a transition across three successive development stages (Porter, Sachs and McArthur, 2002). The first stage is the factor-driven stage, characterised by a dominant primary sector and an unqualified labour force. The second stage is the efficiency-driven stage, characterised by industrial sector development, while the third stage is the innovation-driven stage,

characterised by a highly skilled service sector. Expanding on this framework, Ács and Naudé (2013) identify the link between economic development and innovative entrepreneurship. While during the factor-driven stage the level of innovative entrepreneurship is low, accounting for no more than 5% of economic activities, this proportion rises to about 10% during the efficiency-driven stage and to 30% in the innovation-driven stage. As economies move across the stages, knowledge accumulation and absorption increase and play a major role in the development process.

While the classical models of structural transformation are helpful for understanding the historical development of entrepreneurship and the role of the entrepreneur in the economic development of currently advanced economies, there is evidence to suggest that the potential of currently less developed economies to capitalise on this mode of development is limited. Theories and evidence on urbanisation without industrialisation and premature deindustrialisation suggest that a large proportion of less developed economies may need to forego the industrialisation stage in favour of direct movement from a factor driven economy to a service-based economy (Gollin et al, 2015; Rodrik, 2015). Furthermore, although service based entrepreneurial success stories such as that of the ICT sector in India does appear to offer a successful service sector-based way forward in an era of manufacturing sector decline, most of the evidence from emerging markets highlights the dominance of low skilled service sector activities.

Related evidence suggests that rather than being opportunity driven, the majority of self-employed individuals in developing countries are necessity driven (Margolis, 2014). Indeed, for a large cross-section of countries, Naudé (2010) and Gollin (2008) find both large evidence of small business creation and high incidence of forced entrepreneurship. The shares of both small businesses and forced entrepreneurship are higher in lower income countries. This form of entrepreneurship clashes with the core perceptions of the classical entrepreneurship literature that sees the entrepreneur as a major driver of economic development.

This dissertation studies the place of the entrepreneur and the entrepreneur's key characteristics in the process of structural transformation in Nigeria. In doing so, it tries to reconcile conflicting views in the literature and to identify factors and potential policies that can help enhance the potential of entrepreneurs to achieve an efficient and growth-enhancing structural transformation process. The choice of Nigeria as the focus of research is motivated

in part by the fact that the country shares a number of characteristics of countries currently experiencing structural transformation and massive waves of urbanisation. In addition, Nigeria has adopted a number of strategies to achieve an efficient structural transformation. One of such strategy is Nigeria's Vision 20: 2020, which reflects the government's aspiration to enhance entrepreneurial activities and make Nigeria one of the top 20 industrialised economies by 2020. At the same time, there is evidence that most related strategies in the past have not achieved the desired outcome. First, the oil sector continues to be the major driver of the country's growth, accounting for 54% of the country's output and over 95% of the export earnings (Chete et al, 2016). Secondly, Nigeria's weak business environment continues to threaten innovative entrepreneurial activities. The latest Global Competitiveness report ranks Nigeria as one of 17 countries in transition from a factor based to efficiency-based economy, yet the same report ranks the country at 125 place out of 183 countries based on ease of doing business and at 122 place out of 135 countries with regards to education and skills. The report also predicts a reduction in the human capital formation of the population, casting doubt on the country's ability to achieve a smooth transition to a highly skilled innovative economy.

1.2 Conceptualizing the Link between Entrepreneurship and Structural Transformation

1.2.1 The Concept of Entrepreneurship

Following decades of research, the definition of 'entrepreneurship' remains elusive (Nieman, 2006). Historically, entrepreneurship was associated with an individual's ability to recognize and explore opportunities by combining different factors of production and effectively enhancing competition within the economy (Venter, et al., 2010). Economies which accounted for higher numbers of entrepreneurs were presumed to outpace economies with smaller numbers. According to Fillion (1997) entrepreneurial activities date back to as early the 17th century. This was precisely the era which witnessed an emergence of new industrial firms as a result of specialized skills and innovations (Say, 1836; Cantillon, 2001). Many studies have linked the concept of entrepreneurship to the works of Jean Baptiste Say who defined an entrepreneur as an individual who engages in self-employed activities and creates a business. To a large extent, this definition prevails today. For instance, building on these very early definitions contemporary authors define entrepreneurship as any form of self-employed activity that identifies opportunities (OECD, 1997) and creates new ventures by the combination of goods and services (Zimmerer and Scarborough, 2008).

The classical theoretical model in the economics of entrepreneurship views entrepreneurship as an occupational choice. This line of thinking according to Parker (2009) suggests that certain characteristics distinguish an entrepreneur from non-entrepreneurs and these characteristics determine which individual does best by choosing entrepreneurship or an alternative form of employment. Expanding on this view, Lucas (1978) argues that people possess different innate entrepreneurial abilities and individuals choose different levels of entrepreneurship based on their ability to maximize utility. Entrepreneurs with high utility maximization skills will most likely manage larger firms while the ones with lesser utility maximization skills will most likely end up as marginal entrepreneurs. This concept has helped develop subsequent occupational choice models of entrepreneurship and their ability to influence development through their utility maximization ability and skill set.

In the 20th century, great recognition has been given to the work of Schumpeter, who viewed the entrepreneur as an agent of change. This has encouraged prolific research on the link between entrepreneurship and economic performance. The upshot is that entrepreneurs introduce new products, new markets, new processes, new supplies and new organisations which enhance competition and decrease the monopolistic tendencies of traditional firms. By innovating the entrepreneur is able to meet consumer demands and fill economic gaps which on a wider scale enhance economic development. Within the same tradition, Dimitratos and Jones (2009) define the entrepreneur as 1) An opportunity driven person 2) who explores opportunities in an uncertain environment and 3) possess innovative characteristics 4) irrespective of available resources. Acs and Audretsch (2005) viewed the entrepreneur as an individual who possesses the ability to find opportunities invisible to other individuals within the economy. Zimmerman and Scarborough (2008) argue that capitalising on these opportunities is risky and uncertain, yet entrepreneurs engage in cutting-edge activities while bearing all profits and losses.

While there are similarities across earlier and later definitions of entrepreneurship and the entrepreneur, there are some subtle differences in the way key authors in the area perceive the entrepreneurial process, its link to overall economic development and the role of knowledge accumulation in the process.

Schumpeter (1934) is the first to recognise the need for knowledge accumulation. According to him, innovations are the foundation for economic growth and knowledge needs to be enhanced to achieve this innovation. He argues that it is not just any economic activities

by themselves that generates growth but rather creative activities, built upon creative destruction (Schumpeter, 1934). Entrepreneurs are central to this process of creative destruction. Entrepreneurs trigger new developments through their engagement with new knowledge, hence there is consistency in their practices, which forms the foundation for economic development. Entrepreneurs stimulate market forces within the economy as they capture opportunities and continuously explore such opportunities. By this, they create disequilibrium in the marketplace, which heightens competitions and leads to increased productivity. Schumpeter (1974) developed the theory of “station equilibrium”, namely market forces within an economy encouraging perfect competition amongst entrepreneurs, such that there is no involuntary level of unemployment.

Kirzner’s model of development through entrepreneurship is clearly similar to Schumpeter’s (1934) line of argument in that he acknowledges that the survival of the entire market environment is highly dependent on the existence of knowledge in the form of market information which guides the decision-making processes. Just like Schumpeter, Kirzner (1976) takes into account the role of the entrepreneur in economic growth. He recognises the fact that entrepreneurs are alert individuals who facilitate change by identifying opportunities. Unlike Schumpeter who notes that innovations are a result of opportunity exploration, Kirzner argues that opportunity exploring does not necessarily result from innovations, but rather from activities that have already been introduced successfully to the market.

While the focus of some of the earlier classical literature on entrepreneurship is on the entrepreneurial process and mainly on whether the entrepreneur creates opportunities or identifies opportunities that already exist in the market, a number of structural transformation models are preoccupied with the set of stages through which economies go to achieve development, while related literature in the area of entrepreneurship focuses on the link between entrepreneurship and broader patterns of structural transformation. Broadly speaking, the accumulation of physical and human capital and a shift in economic activities (production, employment and consumption) are regarded as core events in structural transformation process (Syrquin, 1988). These events alter existing practices through urbanization, increased human capital, rise in income levels, change in the overall standards of living and demographic transition (Wennekers and Thurik, 1999). One of the earliest models of structural transformation is that of Rostow (1960). According to him, economies undergo different stages

of development: the traditional society, the precondition take-off, the take-off period, the drive to maturity and the age of high mass consumption.

Chenery et al. (1975) build and improves on this by defining three broader stages of economic transformation: the production stage, the industrialization stage and the developed economy. Expanding further Porter et al. (2002) identify the production stage as the factor-driven stage, which is the lowest level of economic development. This first stage is also known as the traditional stage, where labour is unskilled and international competition is largely based on existing natural resources and low-cost unskilled labour. The labour force is highly specialized in agricultural and mineral resource-based production the entrepreneurial base is small. Entrepreneurs at this stage are few, informal and less productive. They apply minimal technology to their entrepreneurial engagements.

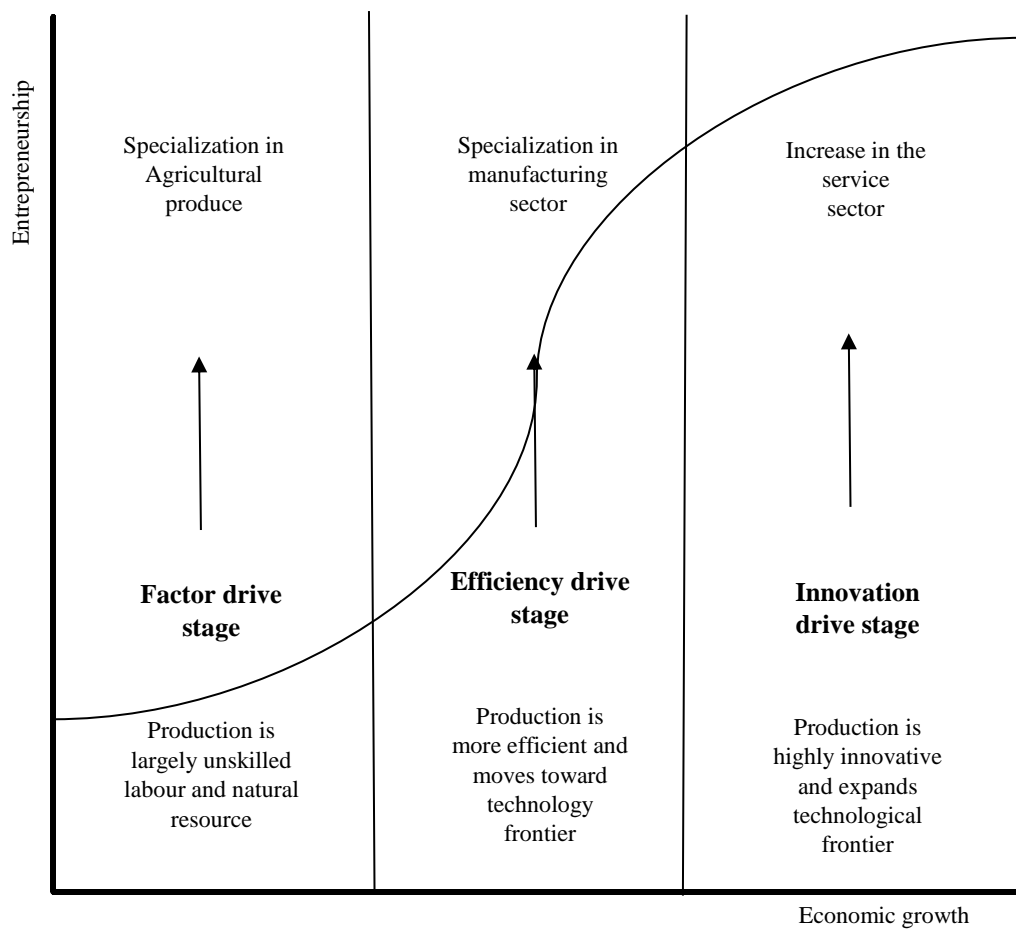
The second stage is industrialization which Porter et al. (2002) denoted as an efficiency-driven stage. As countries combine different factors of production, specialization is realized. Economies at this stage are also labelled as the “managerial economy”, whereby countries build the human capital level of their labour forces and attract foreign direct investment. The economy diversifies out of reliance on natural resources and into developing competitive strength in manufacturing activities. This strength is realised via exploitation of economies of scale, technology adoption, urbanisation and entrepreneurship.

The final stage is the developed economy status, known as the entrepreneurial economy or the innovation-driven stage. At this stage, as more specialized value-added manufacturing activities become dominant, high tech clusters are developed and some firms excel in R&D. The workforce in the manufacturing industry goes down and the service sector share of GDP increases. There is resurgence of technologically advanced SMEs. According to Porter et al. (2002) transition to this stage requires the need for further knowledge accumulation. Porter et al acknowledge the need for joint activities across universities, privately owned businesses and the government as according to him the contributions from these three parties create new knowledge and account for innovation which enhances the shift to an advanced economy.

Ács and Naudé (2013) develop this framework further and see the link between economic development and innovative entrepreneurship as an S-shape type relationship. According to them, the first stage is characterised by challenges in applying new technologies, brain drain of the workforce and outflow of skills, few incentives for local knowledge

commercialization, low technology adoption, and low science and technological capacity. The level of innovative entrepreneurial activities is low, accounting for no more than 5% of economic activities. The second stage is characterised by medium science and technology capabilities, increased activities channelled towards innovation creation, growth in R&D of both public and private entities and 5-to-10% increase in innovative entrepreneurial activities. At the final stage, an economy possesses high science and technology capability, which is highly knowledge driven. Innovative entrepreneurial activity at this stage can contribute to more than 30% of economic activities.

Figure 1.1: Stages of Development Theory



Source: Adopted from Ács & Naudé (2011)

Figure 1.1 illustrates the role of entrepreneurship across the different stages of economic development, largely as a summary of our preceding discussion. To recapitulate, we observe that the first stage entails the creation of firms outside the household. Production at this stage is based largely on unskilled labour and natural resource use. The second stage is denoted by increased economic activities. At this stage, entrepreneurs grow their businesses by

specializing in different sets of economic activities, largely based on manufacturing, employ economies of scale and introduce innovations. The role of wage employment increases as does the standard of living in the economy. At the final stage, entrepreneurs for the role of innovation and knowledge spillover increases. There is also further investment in human and physical capital, creating an avenue for high returns to skills and the further reinvestment in education and opportunities.

1.2.2 Industrialization, De-Industrialization and Developing Economies

Early classical models identified the efficiency-driven industrialisation stage as a key determinant of a country's ability to either remain a developing economy or achieve a transition to a developed nation. Ács and Naudé, (2013) emphasize the importance of this stage and the need for countries to capitalize on it. Others agree with this view. According to Clark (1957), the productivity gain acquired from large-scale manufacturing activities surpasses that of all other sectors and increases the competitive advantage of an economy. Kaldor (1966) focuses specifically on the consequence of increased entrepreneurial activities in the manufacturing industry and argues that manufacturing activities account for higher returns compared to those of other sectors. As a result, manufacturing is a major engine for economic growth.

Kaldor's model linked the concept of dynamic economies of scale to the activities practised in the manufacturing sector. According to him the rapid increase in the output of the manufacturing sector leads to a corresponding increase in its productivity which enhances industrial specialization. Kaldor builds on the concept of learning by doing and argues that specialization occurs only in the manufacturing sector and not in the agricultural or the service sector. Manufacturing activities account for strong backward and forward linkages between the different industrial sectors and determine how fast an economy shifts to the innovation-driven stage. The basic argument for this is that with the rise in demand for goods and adequate human capital across the manufacturing sector, labour-saving technologies and logistical strategies will be sought after, leading to the reduction of employment and the production of high-quality goods (Kollmeyer, 2009). This, in turn, leads to higher returns, higher investment, higher productivity and new technologies, the effect of which is an automatic shift to an innovation-driven economy.

While there is a general consensus in the literature that industrialisation is an important step in a country's development process, or at least has been so historically, the term

deindustrialization has ambivalent meaning. The term emerged in studies conducted in developed countries. A prominent contribution was the early work of Singh (1977) who theorized industrialization to mean efficient manufacturing sector. Singh (1977) acknowledged that the manufacturing sector was capable of enhancing current and potential net exports, thus increasing the competitive advantage of any economy. Rowthorn and Wells (1987) in turn noted that deindustrialization occurs as a result of rapid productivity growth within the manufacturing sector, where organizations become specialized and their overall output increases. As a result, fewer people with high skills are employed in this sector and greater percentages are laid off. Rowthorn and Wells (1987) noted that this situation does not necessarily lead to involuntary joblessness but rather it creates new opportunities for exploration in the service sector. The authors described this situation as a kind of deindustrialization that is economically successful. Rowthorn and Wells (1987) also noted that at times when deindustrialization occurs as result of failing manufacturing sector, individuals who are laid off also move to the service sector in search of employment. However, in situations where the service sector cannot absorb the working population, individuals either become unemployed or seek other forms of employment. Buying and selling can emerge as a form of hidden unemployment as individuals tend to fill in economic gaps and meet customers' demand by importing goods. Rowthorn and Wells (1987) noted that instances like this are characteristics of failed industrialization.

More recently, studies by Rodrik (2015), and Dasgupta and Singh (2006) have discussed the incidence of premature deindustrialization in developing countries. According to them, developing countries have witnessed a fall in employment in manufacturing. Rodrik (2015) argues that this fall is not a result of productivity growth or technology advancement as proposed by Rowthorn and Wells (1987). Furthermore, according to Aromolaran (2004), the current human capital level in most developing countries, especially Sub-Saharan Africa is low, forcing individuals to engage in less productive activities. Rodrik (2015) notes that such countries have not yet built their manufacturing sectors to advanced standards. In fact, modest manufacturing firms which were built in the early 50's and 60's have since witnessed a decline. One important reason for this decline in manufacturing employment is foreign trade displacing local production.

One important consequence of premature deindustrialization is rising unemployment (Rowthorn and Wells, 1987). Emmenegger (2012) notes that deindustrialization has created

persistent unemployed among certain groups in the population. Hence, the rate of unemployment among uneducated people in most developing countries remains as high as 50%. Furthermore, there is evidence that the service sector has been unable to absorb those seeking jobs in most developing countries. Coupled with the low productivity growth within this sector the gap between the rich and the poor and unskilled and skilled individuals has increased (Iversen and Wren 1998). Fleckenstein et al. (2011) argue that this pressure has created a division between the highly skilled and less skilled – where the highly skilled are more likely to secure a job in salaried employment and the less skilled are more likely to be unemployed or underemployed.

Azmat and Samaratunge (2009) argue that a salient feature of entrepreneurs in developing countries is that majority of them are forced into self-employment as a survivalist strategy rather than being the classic innovative entrepreneur, driven by challenges, market opportunities and independence. In line with this perspective, Estrin et al (2018) note that the pattern of entrepreneurial activities in developing countries is very different from that of other economies- the pattern is more of a U-curve where entrepreneurship rates are the highest in less developed countries, goes down in middle income countries and increases again in the most advanced economies. They note that the high level of entrepreneurship observed in developing economies is far more necessity driven than opportunity driven as most entrepreneurial projects are undertaken to provide basic family income support when opportunities in salaried employment are scarce. Further research (ILO, 2002) notes that a significant number of entrepreneurs in developing countries are generally at the bottom level of the poverty chain, have little or no education and are likely to be driven by environmental motives as they struggle to survive. Their activities are largely small-scale and family operated. As a result, the International Labour Organisation (ILO) identify entrepreneurship in developing countries with self-employment. Expanding on this view, Naude (2010) argues that the term entrepreneurship can be used interchangeably to describe any form of business activity that an individual engages in regardless of their firm size since as high as 50% - 70% of firms in developing countries account for fewer than 50 employees, and in some cases, choose to remain small. Gindling and Newhouse (2014) thus emphasise that in order for contemporary developing countries to achieve an efficient structural transformation process and attain an advanced economy status, they must employ strategies that will enhance the overall performance of self-employed individuals/ business owners.

1.3 Context of Nigeria

1.3.1 Overview of Nigeria's Economy

The structure of Nigeria's economy is similar to that of other countries at similar levels of development, and highly dependent on the primary sector. The oil and gas continue to account for the majority of the country's exports, while the majority of the population is employed in the agricultural sector (Chete et al, 2016). At the same time, there are signs of diversification. Sectors such as telecommunications, real estate, manufacturing, construction and entertainment are becoming increasingly important (World Bank, 2014).

Interestingly, although available statistics (Table 1.1 and Table 1.2) indicate that Nigeria is currently undergoing its structural transformation process, the move is largely one from a factor based to a service-based economy. Agriculture, which contributed as high as 68.8% to Nigeria's GDP as at 1961, declined to about half of this size through the 1980s-1990s and increased slightly to about 40.2% by 2011. The service sector's contribution to GDP, on the other hand, increased from 19.79 in 1961 to 39% in 2011. The decline in the manufacturing sector's contribution to GDP even before achieving optimal growth signifies a premature deindustrialization trend. Between 1961 and 2011, the sector's contribution lagged behind at Between 4 and 7%. In terms of employment share, agricultural employment (see Table 1.2) dropped from 68% in 1970 to about 45% in 2014, while the service sector increased from 18% in 1970 to 44% in 2014. Manufacturing, on the other hand, dropped from 12% in 1970 to 6% in 2014.

Table 1.1: Distribution of real GDP by sectoral group, 1961-2011 (%)

Sectoral Group	1961	1966	1970	1977	1981	1987	1990	2003	2007	2009	2011
Primary Sector	70.54	69.68	66.99	62.1	58.4	60.25	55.68	68.36	61.92	58.44	55.3
Agriculture	68.88	66.95	49.45	28.37	28.37	29.24	22.99	34.62	42.02	41.69	40.2
Secondary sector	9.67	12.55	16.15	13.05	12.14	12.6	9.04	10.51	9.24	9.05	6.2
Manufacturing	4.73	7	7.66	6.3	5.6	5.95	5.12	4.32	4	3.72	4.2
Tertiary sector	19.79	17.77	16.86	24.85	29.46	27.16	35.28	21.13	28.84	32.51	39
Wholesaling and Retailing	19.36	15.4	13.56	14.21	14.17	14.19	8.68	12.92	16.16	18.14	19.4
Other Service Activities	0.43	2.37	3.29	14.64	15.29	14.97	26.6	8.21	12.68	14.37	-

Source: National Accounts Statistics of Nigeria (2011)

Table 1.2: Employment Distributions (%)

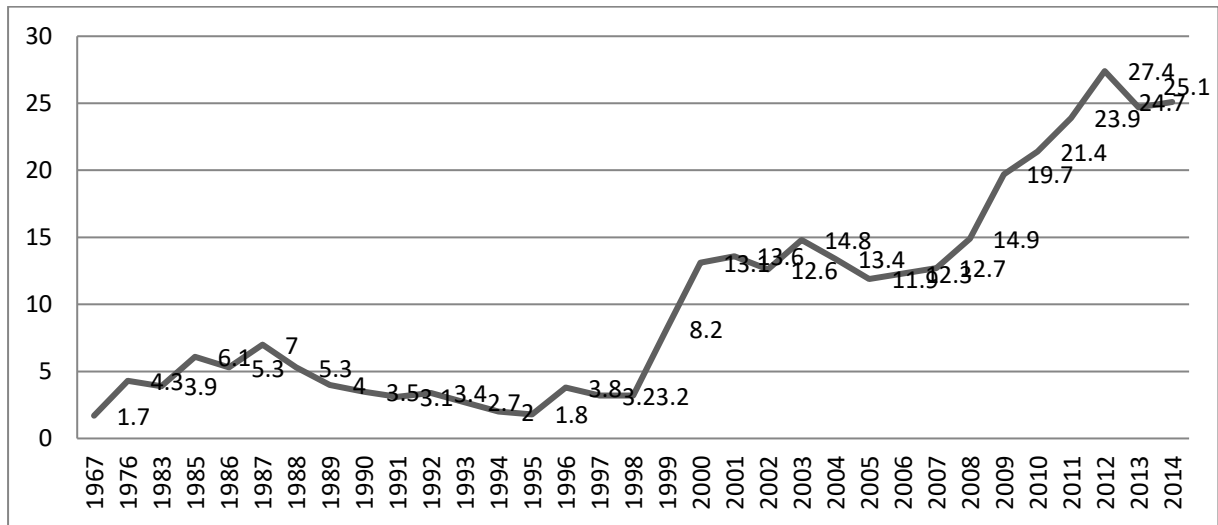
Sectoral Group	1970	1980	1990	2000	2005	2010	2011	2012	2013	2014
Agriculture	68	68	60	51	52	49	49	47	46	45
Manufacturing	12	11	14	11	9	7	7	6	6	6
Services sector	18	20	23	24	34	39	40	41	43	44
Others	1	2	3	4	4	5	5	5	5	5

Source: Nigeria Institute of Social and Economic Research (2015)

1.3.2 Profile of the Labour Force

Consistent with studies by Rodrik (2015) and Kormawa and Jerome (2015) who question the ability of the service sector to absorb the labour force of a prematurely deindustrialising economy, Figure 1.2 highlights the growing rate of unemployment in Nigeria. Statistics from the NBS indicates that while the working age population in Nigeria increased by an average of 2.8% yearly between 2000 and 2010, job creation increased by a yearly average of only 1.4%, accounting for about 1.1% rise in the rate of unemployment yearly. In line with this thinking, Treichel (2010) notes that a key feature of the unemployed population is that the majority of them are discouraged to seek paid employment due to the limited salaried sector opportunities. As in Table 1.3, statistics suggest that wage employment in Nigeria is relatively low, at 15%, 10.4%, 10% and 14.3% in 1999, 2004, 2006 and 2011 respectively. Self-employment, on the other hand, is relatively high at 30.8%, 36.6%, 37.8% and 24.7% respectively for agriculture and 24.1%, 25.8%, 22.9% and 23.4% respectively for non-agriculture during the same years. The decline in the share of self-employed individuals in agriculture as of 2011, suggests a transition out of the agricultural sector. The fact that people are queueing for salaried sector jobs is further emphasised by the high incidence of unemployment even among those with high levels of post-secondary education (Figure 1.3).

Figure 1.2: Increasing rate of Unemployment in Nigeria (%)



Source: National Bureau of Statistics (2014)

Table 1.3: Types of Employment as Percentage of Sample Population

Sectors	1999	2004	2006	2011
Agriculture	30.8	36.6	37.8	24.7
Non-Agriculture	24.1	25.8	22.9	23.4
Wage employment	15	10.4	10	14.3
Not Working (unemployed and Voluntary Joblessness)	28.1	25.1	27.4	37.4

Source: Adapted from Nigeria Living Standards Survey 2003–04, 2010–11 and General Household Survey 1999–2006.

As highlighted in Table 1.4, and consistently with Fleckenstein et al. (2011), there is also a skill gap between individuals in wage employment and self-employment. On average individuals with higher levels of education are more likely to be in wage employment than self-employment (with self-employed individuals in agriculture accounting for a lesser degree of education than non-agriculture). There are two possible explanations of this evidence. Either the skills provided by the formal education system are not appropriate for the development of genuine entrepreneurship, or potential entrepreneurs are unable to locate high skill niches where they can effectively use higher levels of education acquired. In line with evidence from other contexts (e.g. Dimova et al, 2016) it is possible that both these factors play a role and

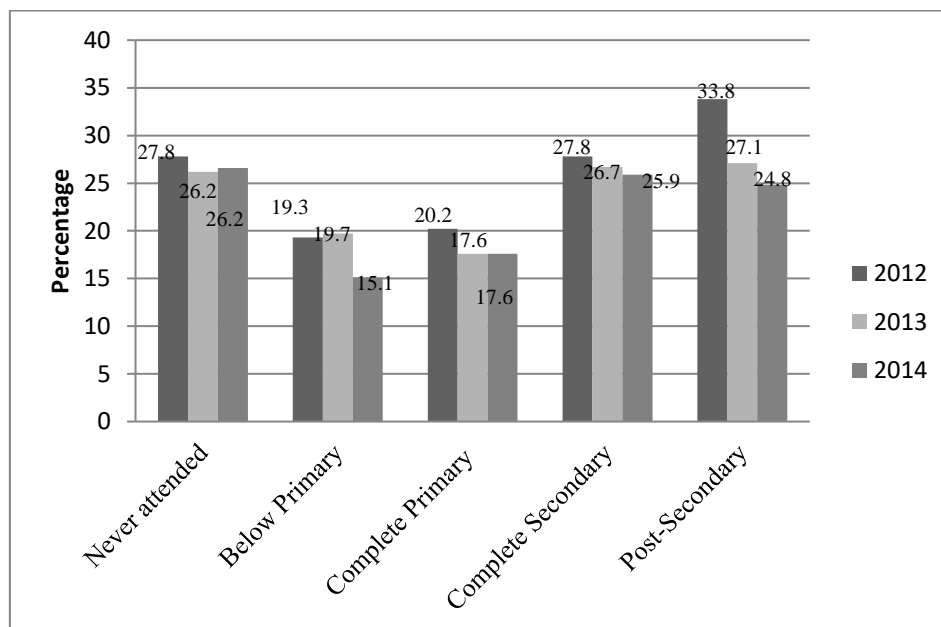
their contributions will be assessed more rigorously in the study of allocation of labour and returns to skills in the first empirical paper of this dissertation.

Table 1.4: Average Years of Education by Sector

Sectors	1999	2004	2006	2011
Family Agriculture	2.7	3.5	3.5	4.4
Non-Agriculture	5.6	6.3	6.3	6.4
Wage employment	9.8	10.8	10.8	10.7

Source: General Household Survey 1999–2006 and Nigeria Living Standards Survey 2010-11

Figure 1.3: Unemployment rate (%) by educational group, 2012–14



Source: National Bureau of Statistics (2015)

1.3.3 Historical Policy framework for Structural Transformation in Nigeria

For the last 50 years, Nigeria has employed numerous strategies to achieve an efficient structural transformation. However, most of these strategies have not achieved their desired outcomes. The first deliberate attempt by Nigeria was the introduction of the First National Development Plan (1962-1968) which focused on achieving structural transformation through improving the activities of start-up firms in the manufacturing sector (Chete, et al. 2016). Under this plan, Nigeria embraced the Import Substitution Industrialization (ISI) policy by introducing import taxation, which protected local start-up firms from foreign competition, and also saw the development of infrastructures such as energy plants (Kanji dam and the Ughelli

thermal plants), and developmental banks, which served as a catalyst for the industrial sector take-off. The plan was however criticised as the country's production process relied heavily on foreign technology and know-how. Domestic raw materials and skills were neglected during the period.

The Second National Development Plan (1970-1974) was developed to address the limitations of the First National Plan (Marcellus, 2009). It placed emphasis on local production of raw materials and equipment, with the hope of generating employment in the manufacturing sector to increase the earning power of the country's population. This period also coincided with Nigeria's oil boom period, hence the economy benefitted from foreign exchange inflow and invested in costly industrial projects such as the production of iron and steel, cement, fertilizer, pulp and paper, salt, sugar etc. However, the country's weak business environment, poor technological capacity and limited infrastructure hindered the growth of these projects. Moreover, Chete, et al. (2016) notes that Nigeria also lacked the necessary managerial capabilities and skills required for an efficient industrial sector growth. The majority of the projects created during this period are virtually non-existent today, while the few that are in existence are of low capabilities.

The Third National Development Plan (1975-1980) was also at the peak of Nigeria's oil boom period. Emphasis remained on developing the industrial sector; however, the strategy employed was not focused on enhancing the entrepreneurs or the growth of small businesses but rather on public sector investment in the industry (Oyelaran-Oyeyinka, 1997). Private investors thus opted for low-cost technology which was again largely dependent on foreign imports, hence this period failed to advance industrialization in Nigeria.

The Fourth National Development Plan (1981-1985) on the other hand, coincided with the beginning of a global recession which saw the decline of Nigeria's foreign exchange earnings. The manufacturing sector was largely hit as the majority of its raw materials needed for production was depended on foreign imports. Indeed, this period exposed Nigeria's weak industrial structure as it was evident that the foundation for sustainable growth and development was yet to be developed. Moreover, the sources of the government revenue and production of the economy were yet to be diversified and the economy did not have its own driving force and was therefore highly susceptible to external factors (Okojie, 2002).

The Structural Adjustment Programme (SAP) of 1986 - 1993 was launched as an alternative framework to address the weakness of past policies. It was intended to promote economic investment through the development of the non-oil sector, as well as provide a foundation for private sector growth. Indeed, this framework saw the commercialization and privatization of government-owned enterprises, as well as the utilization of local production. The implementation of SAP also saw the launch of the National Science and Technology (SandT) policy and the National Economic Reconstruction Fund (NERFUND) (Bamiro, 1994). S and T was set to enhance the transfer of knowledge to local firms and marked the recognition and importance of research, science and technology for industrial sector development. NERFUND, on the other hand, focused on raising the efficiency of private firms by improving their access to finance (oyelaran-Oyeyinka, 1997). Evidence from Chete, et al. (2016), suggests that the SAP economic framework was unable to reverse the recession as the 1990s decade was mostly a period of economic and political crisis for Nigeria and had no defined development structure.

The end of Nigeria's of military rule saw the implementation of the National Economic Empowerment and Development Strategy (NEEDS) 2003-2007, which sought to sustain development outside the oil sector and ensure diversity in the country's production processes (National Planning Commission, 2007). Although NEEDS is a federal government plan, its implementation process encourages the states and local governments to play a critical role in the country's development process through the development of the State Economic Empowerment and Development Strategy (SEEDS), and the Local Government Economic Empowerment and Development Strategy (LEEDS), respectively. It is worth noting that the intervention under NEEDS introduced a Seven Point Agenda (SPA) targeted at seven specific sectors for development planning. The seven key areas of development include infrastructure, Niger Delta region, food security, human capital, land tenure changes and ownership, national security and wealth creation. The current blueprint - Nigeria Vision 20:2020 is an extension of NEEDS. It addresses the challenges in critical areas within the economy such as the institutional linkage, infrastructure, capacity building, venture capital, entrepreneurship, information and communication and intellectual property rights amongst others (National Planning Commission, 2009).

1.3.3.1 Nigeria Vision 20:2020 (NV20:2020)

The NV20:2020 economic transformation blueprint is a long-term strategy by the Nigerian government to stimulate development and shift the country towards industrialization. This vision is an outcome of the American Investment Bank research which predicted Nigeria to be amongst the top 20 industrialized economies by 2020 based on the country's advantage of abundant natural and human resources. Indeed, Nigeria is the most populous country in Africa with about 180 million people and the 11th largest oil exporter in the world. By 2020, Nigeria hopes to have an economy with a minimum GDP of \$900 billion and per capita income of \$4000 per annum (National Planning Commission, 2009). However, in the face of the current economic challenges facing the country the idea of achieving NV20:2020 appears to be a mirage. 68% of the population live in abject poverty (UNDP, 2013), and over 20 million youths are unemployed (Abdullahi, 2012). Individuals from low-income households are more likely to become poorer since they lack access to basic social amenities (Ajogwu, 2016).

While NV20:2020 encompasses the key principles of NEEDS, it recognises and identifies the important role Nigerian citizens' have to play in achieving the visions' set targets. The plan focuses on four crucial areas: Social Dimension, Environmental Dimension, Economic dimension and Institutional Dimension. The Social dimension ensures that all citizens have a sense of belonging to improving their well-being. At the core of this plan is the need to reduce poverty, tackle hunger, improve health facilities, facilitate gender equality and enhance the performance of the population. Hence, it employs a decentralised approach to the development and implementation of pro-poor programmes. The development programmes are designed, monitored and implemented by the citizens themselves which give credence to a system that allows development strategies that are in line with the populations' current circumstances at a local level rather than a more generalized development approach based on foreign policies.

The economic dimension recognises the relevance of the micro and small firms as the current and potential drivers of development. It builds on the need for economic diversity and identifies the need to move Nigeria from an oil-dependent economy to a sustainable economy built on manufacturing sector activities. NV20:2020 targets greater global competitiveness in the production of processed and manufactured goods by effectively linking industrial sector's activity with the other key sectors of the economy such as the agricultural and service sector for an efficient structural transformation process. Through this strategy, the government seeks to ensure that manufacturing contributes no less than 25% to the country's GDP levels. On the

other hand, the environmental dimension ensures that all natural resources of the economy are well preserved for the benefit of present and future generations. In this regard, Nigeria seeks to avoid negative consequences from climate change and shocks by employing environmentally friendly practices. One such policy includes enlightening citizens and corporate organisations on ways and methods to go green, in an aim to reduce waste and pollution. Another strategy includes embarking on effective and sustained public awareness campaigns to reduce, recycle and reuse solid waste. Finally, the institutional dimension ensures that the country builds an open, efficient, effective and globally competitive environment that will enhance the sustainable development of businesses. This dimension is targeted towards employing market-friendly policies that will attract foreign and domestic investment in the country. It seeks to improve the business environment of the country by supporting adequate infrastructural development to ensure the full mobilisation of all economic sectors.

It is however unfortunate that Nigeria continues to struggle with achieving the goals outlined in NV20:2020. Worthy of note is that the former minister of National Planning Commission (NPC) Dr Shamsudden Usman highlighted that the vision is under probability as it is yet to realise its stated objectives due to the country's current skill gap and weak business environment characteristics that have hampered its structural transformation process (Ajogwu, 2016). Coupled with the recent collapse of the global oil price, Nigeria faces an economic meltdown. In 2015, the country's GDP growth rate was 3%, which is less than its previous figure of 4.19 in 2014, 7.6% in 2011 and 7.4% in 2010. This downward trend in the country's growth pattern suggests the need for rethinking past strategies employed. Moreover, it also gives credence to new and relevant developmental frameworks that are specific, realistic and time-bound, which takes into consideration the holistic view of Nigeria's current economic situation and the need to address more pressing issues.

1.4 Dissertation outline

The structure of the dissertation is highlighted in Figure 1.4

The introductory section revisits theories of development that see the link between entrepreneurship broader aspects of economic development in concrete structural transformation stages. This structural transformation process is seen as a transition from an economy dominated by the primary sector to one dominated by manufacturing activities, and thereafter service sector activities. In the process of this sequential transition, entrepreneurial

activity increases as does knowledge. At the same time, in countries currently undergoing or about to undergo their structural transformation process, the structural transformation process is neither smooth nor linear. In many cases, less developed countries appear to be skipping the industrialisation stage. In such a context it is important to understand whether any synergy between successful skill generation and entrepreneurial growth can be achieved. Part of this task involves finding out to what extent small business development masks hidden unemployment as opposed to dynamic and innovative entrepreneurship in less developed economies. In other words, there is scope for rethinking contemporary applicability of traditional models of relatively smooth structural transformation and on the role of the entrepreneur in that transition. The introductory section also reflects on the history of Nigeria's economic development and highlights key current characteristics of the economy, its labour market and entrepreneurship.

The key highlights of the three main empirical chapters are as follows:

Chapter Two: This chapter revisits the place of the entrepreneur in the process of structural transformation and economic development, using representative data from Nigeria. The main objective is to reconcile conflicting views in the broad conceptual literature on entrepreneurship and conflicting evidence on economic diversification and entrepreneurship in the process of structural transformation. The focus is on the allocation of self-employed individuals with different skill levels across sectors – primary, secondary and tertiary - and on its link to selectivity corrected returns to skills in these sectors. Our results suggest that while self-employment is dominated by service sector activities and these activities attract more skilled individuals than do the manufacturing and primary sectors, the level of skills across all three entrepreneurial sectors is lower than that of both salaried workers and individuals who do not work. Returns to skills among self-employed individuals in the manufacturing sector are particularly low. This is at least partially explained by constraints to productive entrepreneurial activities and is inconsistent with the idea of smooth structural transformation towards innovative entrepreneurship. We discuss some conceptual and policy implications

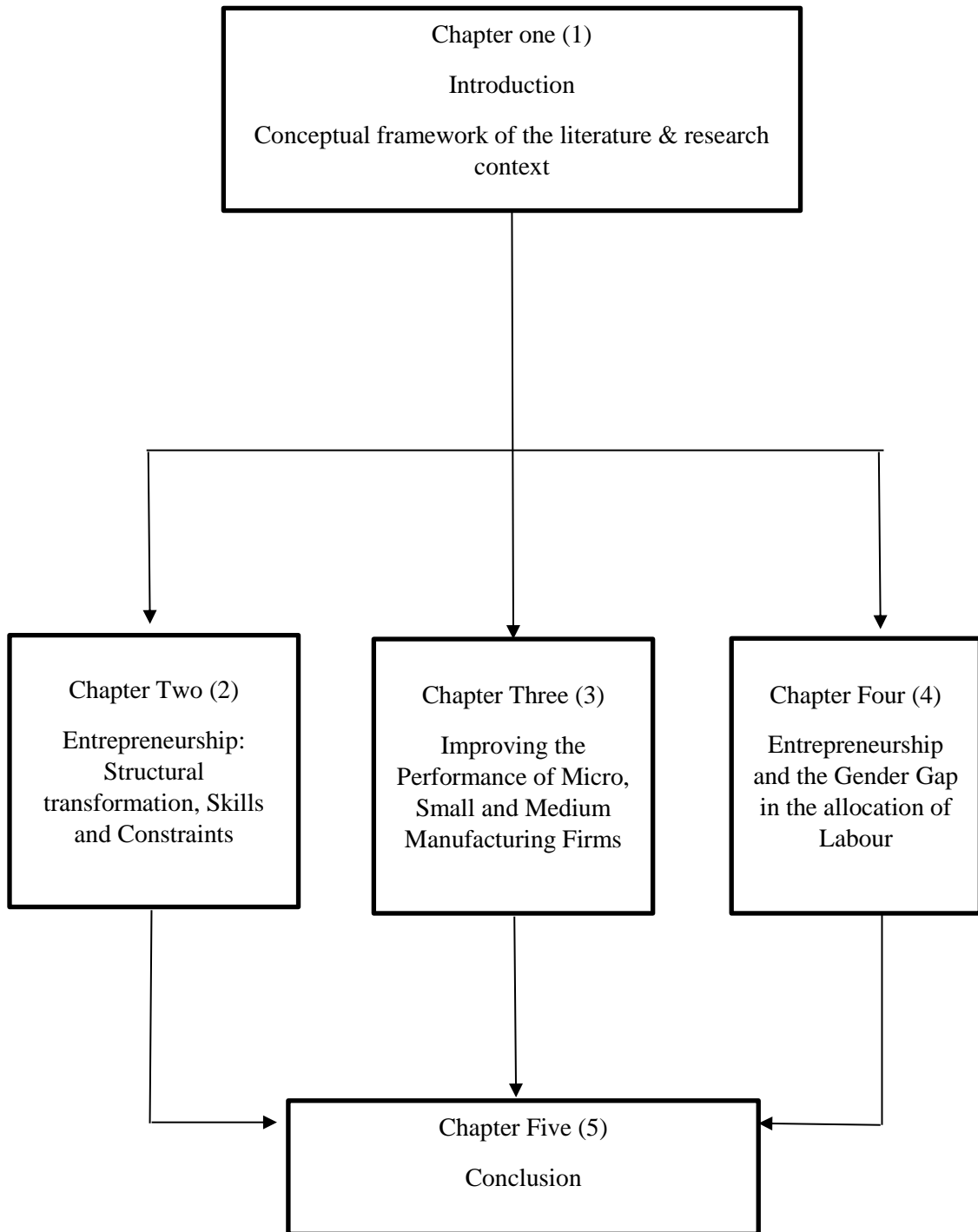
Chapter Three: This chapter is a follow up on findings related to entrepreneurship within the manufacturing sector of Nigeria, highlighted in Chapter two and explores in detail factors that constrain small and medium firm efficiency in the manufacturing sector. The chapter revisits the ongoing debate on the factors that improve the performance of micro and small manufacturing firms in a developing economy context, using representative data from Nigeria.

The focus is on the characteristics of the business environment in which these firms operate. Our results suggest that the business environment in which small and medium manufacturing firms in Nigeria operate is weak and this has negative implications for their performance. The empirical evidence presented in this chapter indicates that an increase in social capital, entrepreneurial activities and public infrastructure, would influence the performance of micro and small manufacturing firms in the urban and rural region positively. On the other hand, the positive effect of access to finance is more for urban than rural firms.

Chapter Four: Given the controversies in the broad literature on gender gaps in the labour market, and on the necessity versus opportunity nature of entrepreneurship identified in chapter two, this chapter uses evidence from Nigeria to explore the nature of female entrepreneurship in a developing economy context. The focus is on female labour reallocation across three states – self-employment, salaried employment and not working. Self-employment does appear to be a less desirable sector for highly educated women in that education has a positive impact on allocating into salaried employment, and a negative impact on allocating to self-employment from any of the three initial states. Being married is an important trigger for exiting the state of not working and becoming self-employed. Women from relatively poorer households are also more likely to move from the state of not working to self-employed. All of these characteristics are consistent with the perception of self-employment as a necessity rather than opportunity phenomenon and the weaker position of women compared to men not only with respect to entrepreneurship but the labour market broadly speaking.

Chapter Five: Summarizes the findings in the main chapters, and then discusses both these findings as well as their policy implications. It also identifies areas for further research.

Figure 1.4: Outline for the Thesis



2.0 CHAPTER TWO

ENTREPRENEURSHIP: STRUCTURAL TRANSFORMATION, SKILLS AND CONSTRAINTS

2.1 Introduction

The focus of this empirical chapter is on reconciling some conflicting views on the role of entrepreneurship in the process of structural transformation and arriving at policy recommendations on how to ensure adequate synergy between generation of skills and their effective use in the process of structural transformation in Nigeria. To recapitulate, the classical entrepreneurship literature in the spirit of Schumpeter and Kirzner sees the entrepreneur as a driver of economic development, irrespective of whether the entrepreneur herself epitomises the process of growth-enhancing innovation (Schumpeter, 1934) or is somebody who identifies profitable ideas that have already been introduced successfully to the market (Kirzner, 1976). While others also see the entrepreneur as a promoter of economic development, their focus is on her place in the process of structural transformation. For instance, drawing on the experience of currently developed economies Porter, Sachs and McArthur (2002) describe the different roles played by entrepreneurs across three stages of economic development, namely (i) a factor driven stage, characterised by a dominant primary sector and unqualified labour force, (ii) an efficiency-driven stage, in which entrepreneurship drops because large firms hire most of the workforce and (iii) an innovation driven stage, in which the service sector becomes more important and the start-up of new businesses, producing sophisticated products, increases. Ács and Naudé (2013) build upon this framework and see the link between economic development and innovative entrepreneurship as an S-shape type relationship. In the early, factor-driven stage of development, the level of innovative entrepreneurial activities is low, accounting for no more than 5% of economic activities, but rises to 10% in the efficiency-driven stage and 30% in the innovation-driven stage. Moving onwards through the stages, the importance of knowledge accumulation and absorption increases. This model is thus particularly useful in understanding the synergy between skill development and entrepreneurial innovation as economies develop.

At a different end of the analytical spectrum, new theories and evidence of structural transformation question the ability for emerging economies to capitalise on traditional industrialisation options. In particular, urbanisation without industrialisation and premature de-industrialisation have recently lead to a direct movement of labour from the primary to the

tertiary sector (Gollin et al, 2015; Rodrik, 2015), thus in the spirit of the Porter, Sachs and McArthur (2002) and Ács and Naudé (2013) frameworks largely skipping the second or efficiency-driven stage of the entrepreneurial structural transformation process. In other words, even though the Porter et al (2002) and Ács and Naudé's (2013) models are very helpful in understanding the historical development of entrepreneurship among currently advanced economies, it is not entirely clear to what extent they are useful as a basis for analysis and policy advice for a range of countries that are currently undergoing or about to undergo structural transformation.

There are several questions in this context that are largely unanswered. What does a structural transformation that largely skips the efficiency-enhancing industrialisation stage look like and what is the place of the self-employed individual in this process? Is it possible for such an economy to ensure the type of synergies between skill generation and innovation highlighted in the Ács and Naudé (2013) model? What are the determinants of allocation of self-employed individuals across sectors and what kind of skills pay off? There is some debate in the literature on whether in the context of premature de-industrialisation the service sector can become the driver of economic development and innovation.

On the one hand, entrepreneurial success stories such as the ICT sector in India offer a service sector-based way forward in an era of manufacturing decline. At the same time, a number of analysts question the employment (and innovation) augmenting potential of skill-intensive services as an alternative to large-scale manufacturing (Rodrik, 2015; Szirmai, 2009). Furthermore, while stimulus for small business creation is often seen as a panacea for high levels of unemployment in the context of de-industrialisation and decline in salaried employment (Dimova, Elder and Stephan, 2016), there is evidence suggesting that the vast majority of (service sector based) small businesses in less developed countries share closer resemblance to hidden unemployment than dynamic entrepreneurship (Margolis, 2014).

If potential entrepreneurs find it difficult to locate opportunities with high returns to skills and innovation, this would have an obvious bearing on not only the utilisation of accumulated human capital but also on incentives for future human capital accumulation. Although much of the post-1960s international development agenda has prioritised investment in education as a key policy objective, there is evidence from several parts of the world that unemployment among highly educated youth is on the rise (Dimova, Elder and Stephan, 2016; Kouakou, 2011). There is also evidence to suggest that – on average – returns to skills are lower

in the generally largest (non-agricultural) self-employment sector in less developed countries than in salaried employment, and there is high correlation between low availability of skill-intensive job opportunities and low returns to skills, on the one hand, and low incentives to acquire skills, as well as high drop-out rates from schooling, on the other (Dimova, Nordman and Roubaud, 2010).

In this paper, we revisit the issue of structural transformation in the process of economic development and the role of the entrepreneur and skill acquisition in this process with the use of evidence from Nigeria. The case of Nigeria as an emerging market undergoing structural transformation is particularly interesting. The country was flagged as a developmental success story when a rebasing exercise led to estimates of a GDP of US\$509 billion, making Nigeria the largest economy in Africa and the 26th largest in the world (World Bank, 2014). Importantly, recent statistics revealed the economy as much more diversified than that highlighted in earlier estimates. Although oil and gas, as well as sectors that service the local market (agriculture, trade, food and various services) continue to be important, these are estimated to account for only 54% of the Nigerian output (compared to earlier estimates of 84%). Sectors such as telecommunications, real estate, manufacturing, construction and entertainment are becoming increasingly important. Amongst these positive developments, the role of the entrepreneurial small and medium business sector is seen as catalytic in the achievement of Nigeria's Vision 2020 to be among the 20 most industrialised economies by 2020 (Kadiri, 2012). For the purposes of this study, it is particularly illuminating to note that the latest Global Competitiveness Report defines Nigeria as one of 17 countries in transition from factor based to efficiency-based economy (World Economic Forum, 2017).

At the backdrop of these positive developments, economic health continues to be dependent on the oil sector, as indicated by the budgetary and growth difficulties experienced in the aftermath of the sharp decline in oil revenues upon fall of oil prices between June 2014 and January 2015 (Barungi et al, 2015). Although the sheer size of the small and medium enterprise sector has increased dramatically – by 14.3% from 32,414,844 to 37,067,416 in just 3 years between 2010 and 2013 – estimates indicate that close to half of the working age population is unemployed (Small and Medium Enterprises Development Agency of Nigeria, 2013). There is also concern that the quality of education provided may not be at par with the potential of the economy to innovate. Indeed, the same Global Competitiveness Report that identifies Nigeria as being in transition from factor to efficiency based economy also gives its education and skill base a rank of 122 out of 135 countries. This raises the question of what

proportion of the SME sector is truly entrepreneurial as opposed to a form of hidden unemployment.

The main purpose of this paper is to reconcile conflicting views in the broad conceptual literature on entrepreneurship and conflicting evidence on economic diversification and entrepreneurship in the process of structural transformation in Nigeria with the aim of drawing some generalisations and policy recommendations. We build on the International Labour Organization's definition of entrepreneurship that sees the entrepreneur as a self-employed individual who engages in any form of business activity. This definition is in line with the context of Nigeria where more than 60% of entrepreneurs are self-employed individuals operating small and medium scale businesses (Chu and Benzing, 2008).

Using a sophisticated econometric methodology, we first explore the allocation of labour belonging to different skill groups across different entrepreneurial sectors – primary, secondary and tertiary – salaried employment and not working and the related returns to skills across the different entrepreneurial sectors, after correcting for potential selection biases. This exercise helps us establish (i) whether entrepreneurs are a negatively selected sample of the overall working age population, or, in other words, possess observed and unobserved characteristics inferior to those of salaried workers and non-working individuals, and (ii) whether there are niches within the secondary and/or tertiary entrepreneurial sectors, which attract high skill workers and provide high returns to observed skills, thus creating incentives for acquisition of such skills among potential labour market entrants. If we see that the (small) manufacturing sector both attracts highly skilled individuals and provides high returns to skills, this would be consistent with Nigeria's Vision 2020 of becoming an industrialised country. If the service sector appears to be the major generator of high skill opportunities, this could be seen as an alternative to the Porter et al (2002) structural transformation story. We supplement this empirical exercise with detailed statistics that help us go beyond the averages inherent in an econometric analysis and delve further into the specific characteristics of entrepreneurs and their specific occupations. Building on the interesting story generated, we further disaggregated self-employed individuals into those who hire others and those who do not hire others to identify patterns and trends for fostering innovative and dynamic entrepreneurship in achieving an efficient structural transformation process.

The rest of the chapter is organized as follows. Section 2 describes the econometric methodology used for the core empirical analysis. Section 3 describes the data and highlights

some preliminary descriptive statistics. Results from the core econometric analysis are highlighted in Section 4 and these are supplemented in Section 5 with results from more detailed descriptive analysis and further robustness checks based on the differentiation between necessity and opportunity entrepreneurs. Section 6 concludes.

2.2 Empirical methodology

Our key objective is to assess the link between the allocation of entrepreneurs with different skill levels across sectors – primary (agriculture), manufacturing and services – and the returns to these skills in each of these sectors. This relationship is captured by the following system of equations:

$$[1] \quad Y_s = X_s \beta_s + U_s$$

$$[2] \quad Y_s^* = Z_s \gamma_s + \eta_s, \quad s=1 \dots M$$

where Y_s refers to earnings associated with each sector, while Y_s^* is a discrete choice variable, indicating the sector of allocation of entrepreneurs. X_s and Z_s are demographic and other explanatory variables, such as age, education, gender, sector, parents' occupation, access to bank, access to local markets and adequate transportation system (see table A1-6). While U_s and η_s are error terms. Equation [2] is estimated using a multinomial logit model, while U_s satisfies $E(U_s|X) = 0$ and $V(U_s|X, Z) = \sigma^2$.

Note that if we rely on an OLS model, each of the latent (wage) equations in [1] would be estimated separately. As such, for each of the sectors of interest to us, we can use stylised Mincer type specification, where the key regressors in the wage-skill relationship are measures of observed skills, such as education. We can thus produce estimates of returns to skills in the primary, secondary and tertiary entrepreneurial sectors, ignoring the fact that individuals may not be randomly selected into each of these sectors. However, given that choosing an employment sector is unlikely to be a result of a random process - such that U_s and η_s are not independent - the least squares estimates of β_s are biased.

To correct for this potential bias we use the Bourguignon, Fournier and Gurgand's (BFG) (2001). This leads to the modification of equation [1] into:

$$[3] \quad Y_i = X_i \beta_i + \sigma_i \left[\rho_i m(P_i) + \sum_{j \neq i} \rho_i \frac{P_j}{(P_j - 1)} m(P_j) \right] + v_i$$

where β_i are the bias corrected estimates of returns to individual attributes in each of the entrepreneurial sectors of interest, while X_i is the vector of these attributes. The key difference between equation [1] and equation [3] is the added $\sigma_i \left[\rho_i m(P_i) + \sum_{j \neq i} \rho_i \frac{P_j}{(P_j - 1)} m(P_j) \right]$ term, which identifies the direction of the selectivity bias. Notationally, $m(P_s)$ represent the probabilities of ending in any one of the possible sectoral choices, while $(\sigma_1 \rho_1, \dots, \sigma_s \rho_s)$ are the corresponding estimates of selectivity bias associated with each respective sector.

Intuitively, these selectivity correction coefficients tell us whether entrepreneurs that end in say the manufacturing sector are either positively or negatively selected in that sector compared to entrepreneurs allocated to either the agricultural or the service sectors. If for instance, we see that the selection coefficient associated with service sector employment in the earnings equation of entrepreneurs allocated in the manufacturing sector is negative and significant, we would argue that entrepreneurs in the manufacturing sector are negatively selected compared to those employed in the service sector. Their unobserved skills are more appropriate for employment in the service sector, but they are misallocated to the manufacturing sector. In other words, aside from providing unbiased estimates of returns to observed skills, such as education, the BFG method allows us to indirectly assess the influence of unobserved skills (such as being inherently entrepreneurial), which are difficult to measure but tend to play important role in allocation of entrepreneurs across employment opportunities.

As discussed at the outset of this section, our main interest is in assessing the allocation of entrepreneurs across entrepreneurial sectors and their returns to skills in those sectors. However, if we only focus on the sample of entrepreneurs, we would be working with a selected sample due to the fact that entrepreneurs are not randomly selected from the working age population at large. To correct for this additional source of selectivity, we work with the full sample of working age individuals but include two additional choices in the first stage of our empirical model, those accounting for allocation of individuals into salaried employment and into not working. In addition to helping us alleviate the potential selectivity problem, these labour market choices allow us to find out whether entrepreneurs are positively or negatively selected (or, in other words, have either superior or inferior observed and/or unobserved characteristics) compared to those allocated to the salaried sector and those who are not employed. This aligns neatly with development economics literature which tries to answer the question of whether self-employment is a form of dynamic entrepreneurship (Maloney, 1999;

2004), or whether instead, it is more akin to hidden unemployment (Mazumdar, 1983; Fields, 1990).

In sum, we estimate the following system of equations (see table A1-6):

$$[4] \ln Wages = \alpha_0 + \alpha_{1i} Education_1 + \alpha_{2i} Education_2 + \alpha_3 Age + \alpha_4 Female + \alpha_5 Year + \alpha_6 Urban + u$$

$$[5] Sector = \beta_0 + \alpha_{1i} Education_1 + \alpha_{2i} Education_2 + \beta_3 Age + \beta_4 Female + \beta_5 Year + \beta_6 Urban + \beta_7 FatherNotAgriculture + \beta_8 MotherNotAgriculture + \beta_8 AccessToBank + \beta_9 CloseToMarket + \beta_{10} AccessToTransportation + v$$

whereas discussed earlier the Sector variable in [5] includes the following categories: (i) Entrepreneur in Agriculture, (ii) Entrepreneur in Manufacturing, (iii) Entrepreneur in Services, (iv) Salaried Employee, and (v) Individual that does not work. It is estimated with the use of a multinomial logit model. Equation [4], in turn, gives unbiased estimates of returns to entrepreneurial skills in the three sectors of entrepreneurial allocation considered, where in each case we are able to assess whether entrepreneurs in the sector of interest are positively or negatively selected compared to individuals in the remaining 4 labour market categories. While the earnings equations' specification is a version of a stylized Mincer equation, following related literature (Dimova et al, 2011; Dimova and Karim, 2016) in the selection equation we include variables that directly affect the choice of a sector, but do not directly (other than through the choice of a sector of employment) affect the earnings of entrepreneurs. These include the sector of employment of mothers and fathers of the respondent (as a proxy of intergenerational transfer of occupational status) and infrastructural variables, capturing whether the community of residence of the respondent has access to a bank and public transportation as well as whether that community is close to a market. Given that the majority of respondents' parents were employed in the agricultural sector, we use dummy variables of whether either the father or the mother of the respondent had employment outside of agriculture. Aside from serving as excluded variables for the identification of our system, the infrastructural variables are key proxies of entrepreneurial constraints. In keeping with the literature on the links between access to finance and industrialisation and in particular the part of this literature, exploring the constraints faced by entrepreneurs in both entering profitable manufacturing sector niches and being able to grow after they create a business (Kerr and Nanda, 2009), we are particularly interested in the effect of the access to finance variable in our selection equation. Since a household level version of this variable in the employment

selection equation would be endogenous, we rely on a community level version of this variable. The choice of these infrastructural variables is consistent with those identified by the World Economic Forum (2017) as constraints to entrepreneurial activities that can plausibly be measured at the community level.

2.3 Data and preliminary statistics

The empirical analysis in this paper is based on the Living Standards Measurement Survey (LSMS) of the World Bank. This is a General Household Survey, established in the early 1980s in collaboration with statistical offices around the world, generating high-quality representative household data. The Nigerian surveys were conducted in collaboration with the National Bureau of Statistics and the Bill and Melinda Gates Foundation in 2010/2011 and 2012/2013. The two waves can be used either as a panel or as individual cross-sections and are collected in two rounds each year: during the post-planting period and the post-harvest period. Given the nature of our econometric model, we do not exploit the panel element, but simply pool the two annual cross-sections together and include a yearly dummy variable to account for a time fixed effect.

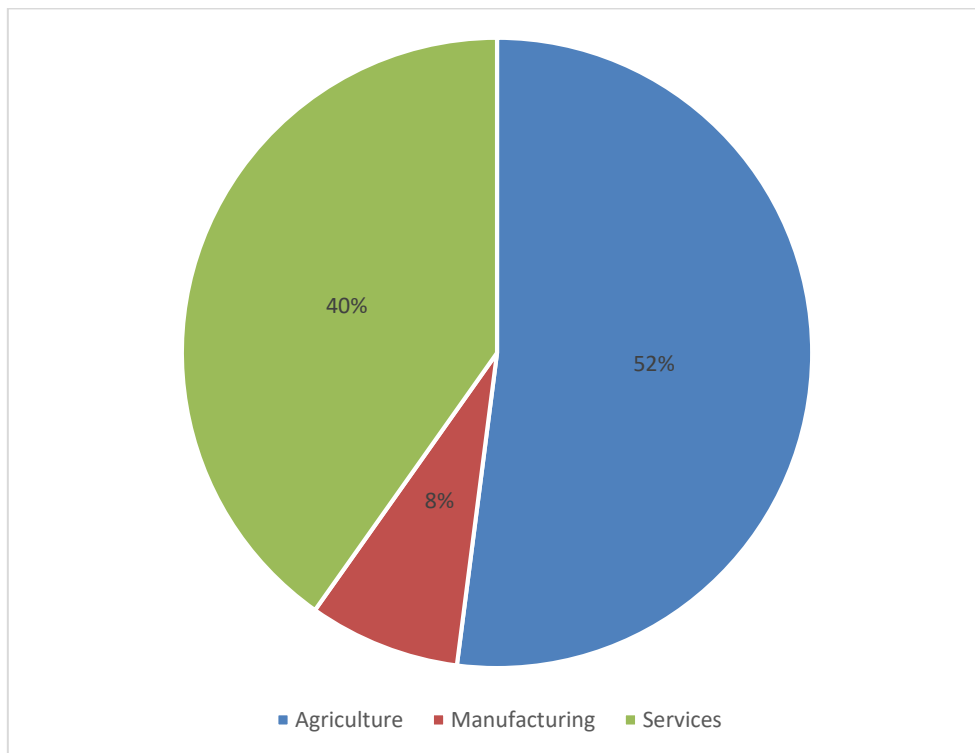
The dataset is fairly rich. Aside from very detailed consumption/expenditures and incomes modules, it provides very detailed demographic information, as well as labour market/occupational information and community characteristics. To ensure consistency with the labour economics literature, we limit our samples to exclude individuals who fall outside the working age population. The sample for this study thus only includes individuals in the 15-65 age group. Due to data limitations in the recording of hours of work, we use monthly (take home) incomes as a proxy for earnings from entrepreneurial and non-entrepreneurial activities. In keeping with the definition of entrepreneurs, highlighted at the outset, we define entrepreneurs as individuals involved in self-employed activities. We then further categorise the occupational sectors of entrepreneurs in three different groups: agriculture, manufacturing and service¹.

Given the limited number of observations in high education categories, we club different degrees together and capture educational attainment by two different categories: “complete

¹ Note that only a minuscule number (2-3) entrepreneurs defined themselves as belonging to the oil sector- perhaps not surprisingly due to the largely capital-intensive nature of that sector and hence the low ability to capture such entrepreneurs in a representative household survey. We therefore dropped them from our analysis. But allocating them to the agricultural primary sector did not significantly change our results.

primary education and incomplete secondary education”, “complete higher secondary and above”. This allows us to avoid inconsistencies in the recall of actual years of education and is consistent with the alternative specification that we attempted. The omitted category includes entrepreneurs with no education or with informal education. All infrastructural variables are taken from the community module and are dummy variables indicating whether there is either a bank or a market in the enumeration area and whether the enumeration area has access to public transport.

Figure 2.1: Sectoral distribution of entrepreneurs



Source: LSMS, author's calculations

Figure 2.1 highlights the sectoral allocation of entrepreneurs. We see that the self-employment sector is dominated by services. The service sector accounts for 52% of the self-employed activities. At the same time, the manufacturing sector accounts for only 8% of the self-employed activities. This pattern is not necessarily inconsistent with the Porter, Sachs and McArthur's (2002) conceptual framework whereby the efficiency-driven (typically manufacturing based) stage of the structural transformation process is characterised by an entrepreneurial decline due to the dominance of large firms hiring most of the workforce. At the same time, additional statistics from Nigeria (and the majority of the rest of the African continent) indicate that the low level of self-employment in manufacturing is a reflection of the low level of manufacturing activities overall (across both self and salaried employment), alongside dominance of service sector based non-agricultural employment (World Bank, 2013). The pattern is more consistent with trends of premature deindustrialisation than the low level of small and medium sector manufacturing activities due to manufacturing sector dominance by large firms.

Table 2.1 below report some key characteristics of entrepreneurs in the agricultural, manufacturing and service sectors and compares them with the characteristics of salaried employees and labour force members who do not work. One of the most interesting observations is the fact that self-employed individuals are significantly less educated than both salaried employees and those who do not work. While more than a quarter of the salaried individuals and the individuals who do not work have completed secondary or tertiary education, a significantly smaller percentage of those who are self-employed have these higher educational degrees. Self-employed people in the agricultural and in the manufacturing sectors have the lowest levels of education (only approximately 9% of those in the manufacturing sector have completed secondary education or above and this is true for only 10% of those in the agricultural sector). The incidence secondary or higher education among self-employed individuals in the service sector is slightly higher- approximately 18% - but even then, less than that of salaried employees and those who do not work. The cross-sectoral educational differences are less stark when looking at individuals who have completed primary or some secondary education, but even then, self-employed individuals in the manufacturing sector are the least educated.

Table 2.1: Descriptive Statistics

	Entrepreneur Agriculture	Entrepreneur Manufacturing	Entrepreneur Services	Salaried	Not Working
Age	39.3646 (13.9726)	36.3069 (11.4131)	39.0021 (12.1847)	36.3696 (12.7733)	27.8410 (12.1066)
Primary or Incomplete Secondary	0.2676 (0.4427)	0.2019 (0.4016)	0.2839 (0.4509)	0.2943 (0.3957)	0.2486 (0.4322)
Complete higher secondary or Above	0.1054 (0.3071)	0.0898 (0.2861)	0.17884 (0.3832)	0.2678 (0.4429)	0.2530 (0.4347)
Female	0.4116 (0.4921)	0.8229 (0.3818)	0.6267 (0.4836)	0.4398 (0.4964)	0.5921 (0.4914)
Father (non-Agriculture)	0.0740 (0.2619)	0.1770 (0.3818)	0.2991 (0.4579)	0.2738 (0.4459)	0.1927 (0.3944)
Mother (non-Agriculture)	0.2376 (0.4256)	0.6494 (0.4773)	0.5530 (0.4972)	0.3667 (0.4819)	0.2995 (0.4580)
Access to Bank	0.2441 (0.4295)	0.2363 (0.4252)	0.1978 (0.3984)	0.2183 (0.4131)	0.2316 (0.4218)
Closeness to Market	0.5783 (0.4938)	0.5765 (0.4943)	0.5800 (0.4935)	0.5526 (0.4972)	0.5824 (0.4931)
Access to Transportation	0.4421 (0.4966)	0.4395 (0.4965)	0.4778 (0.4995)	0.4413 (0.4966)	0.4643 (0.4987)
Urban	0.0723 (0.2591)	0.2766 (0.4475)	0.4531 (0.4978)	0.3971 (0.4893)	0.3549 (0.4785)
2012/2013	0.4612 (0.4985)	0.5258 (0.4995)	0.5470 (0.4978)	0.5831 (0.4930)	0.4877 (0.4998)
Log Monthly income	9.1468 (1.1256)	9.0432 (1.2001)	9.6345 (1.1872)	10.1739 (1.1460)	
Observation	7,730	1,154	5,971	4,461	14,032

Source: LSMS, author's calculations

The educational distributions across sectors are consistent with the pattern of cross-sectoral average incomes: on average, incomes in the salaried sector exceed those of self-employed individuals; while among self-employed individuals those employed in the service sector earn more than those in the other two sectors. Taken together, these patterns are consistent with evidence elsewhere in Africa whereby low returns to skills, especially in the dominant sector of self-employment, discourage individuals from pursuing higher levels of education (Dimova et al, 2010). In addition to interesting patterns related to the key variables of interest to us, namely education and earnings, we observe interesting differences in the means of the infrastructural variables across sectors. Perhaps most interestingly, the mean of the access to a bank variable is significantly lower in the service self-employment sector than in the rest of the

sectoral categories. It is possible that better-educated individuals allocate to the service sector not because of better (average) opportunities, but because of constraints that prevent them from allocating into more capital-intensive sectors. In the next section, we shall explore this possibility in greater rigour.

2.4 Empirical results

Tables 2.2 and 2.3 below highlight the results of our rigorous empirical analysis. Table 2 reports the marginal effects from the multinomial logit model on labour allocation across salaried employment, not working and the three entrepreneurship sectors of interest to us – agriculture, manufacturing and services – while Table 3 presents the estimates of returns to different types of education, after accounting for potential biases due to non-random allocation of people across the different labour market sectors. Recall that our main interest is in finding out whether entrepreneurs are able to locate skill intensive niches in the entrepreneurial market, especially in the secondary and tertiary sectors, and obtain high returns to their observed skills. Indirectly, answering this question- especially in comparison with the allocation of labour to salaried employment and not working- will also indicate whether the entrepreneurial sector is dynamic, with the potential to generate innovation, or whether it is instead a form of hidden unemployment.

The marginal effects of the complete secondary or higher education variable are negative and significant in the agricultural and manufacturing sectors and positive and significant in salaried employment and the service entrepreneurial sector. In addition, the marginal effects of the complete primary or some secondary education variable are positive and significant in all but the manufacturing sector equation. The marginal effect of both educational variables is negative and significant in the manufacturing entrepreneurial sector, highlighting the clear negative selectivity- based on observed skills- into that sector. Furthermore, while the marginal effect of completed secondary education and above is positive and significant in the service sector, the size of this effect is substantially smaller than that of the marginal effect of this variable in the salaried employment sector and even not working. Overall, high levels of education do not matter - in fact, have negative implications - for being self-employed as opposed to salaried employed, except in the service sector which tends to host relatively educated self-employed people.

Table 2.2: Multinomial Logit 2010 - 2013

	Entrepreneur Agriculture	Entrepreneur Manufacturing	Entrepreneur Services	Salaried	Not Working
Age	0.0066*** (0.0001)	0.0002 (0.0000)	0.0059*** (0.0001)	0.0033*** (0.0001)	-0.0162*** (0.0002)
Primary or Incomplete Secondary	0.0100** (0.0051)	-0.0047*** (0.0019)	0.0751*** (0.0064)	0.0179*** (0.0054)	0.0402* (0.0077)
Complete higher secondary or Above	-0.1000** (0.0051)	-0.0161*** (0.0020)	0.0125** (0.0070)	0.0650*** (0.0068)	0.0386** (0.0086)
Female	-0.1335*** (0.0046)	0.0326*** (0.0019)	0.0620*** (0.0045)	-0.0638*** (0.0043)	0.1027*** (0.0061)
Father (non-Agriculture)	-0.0988*** (0.0053)	0.0094*** (0.0018)	0.0498*** (0.0062)	0.0628 (0.0062)	-0.0043 (0.0081)
Mother (non-Agriculture)	-0.0806*** (0.0044)	0.0413*** (0.0026)	0.1222*** (0.0053)	0.0201*** (0.0045)	-0.0627*** (0.0067)
Access to Bank	0.0217 (0.0058)	0.0055* (0.0024)	-0.0340 (0.0056)	-0.0010*** (0.0056)	0.0078 (0.0079)
Closeness to Market	0.0003** (0.0051)	-0.0005 (0.0019)	0.0021*** (0.0053)	0.0101** (0.0050)	-0.0088** (0.0072)
Access to Transportation	0.0215** (0.0053)	-0.0063 (0.0020)	-0.0229*** (0.0055)	-0.0036*** (0.0052)	0.0086*** (0.0074)
Urban	-0.2326** (0.0041)	0.0018*** (0.0017)	0.0869*** (0.0053)	0.0373*** (0.0047)	0.1102*** (0.0068)
2012/2013	-0.0588*** (0.0045)	-0.00245*** (0.0017)	0.0376 (0.0048)	0.0615 (0.0046)	-0.0379*** (0.0065)
Observation	7,730	1,154	5,971	4,461	14,032

Note: The results reported are marginal effects. ***, ** and * indicate significance at the 1%, 5% and 10%, respectively. The figures in brackets are standard errors. The results meet the Independent and Irrelevant Alternatives condition

Infrastructural variables have a significant impact on labour allocation across sectors, with the expected sign. The marginal effect of access to finance is positive and significant in the potentially most capital-intensive manufacturing entrepreneurial sector but is negative and significant in the salaried employment sector. This is consistent with evidence that access to finance is one of the largest constraints to productive entrepreneurship in less developed countries. At the same time, closeness to markets has a positive impact on being self-employed in either the agricultural sector or the service sector as well as on being a salaried employee and has a negative effect on not working, while access to transportation matters most for entrepreneurs in the agricultural sector. As expected, family background also plays an important role for labour allocation, with all coefficients having the expected signs. The general

story is that having parents with non-agricultural employment has positive implications on children's non-agricultural employment, either as self-employed individuals or as salaried employees. In sum, the main message from this stage of the analysis is that tinkering with policy variables, such as those related to infrastructural - and in particular financial sector-development may have positive implications for the creation of productive entrepreneurial sector niches. At the same time, in keeping with the descriptive statistics presented in the previous section, there is a paucity of high skill opportunities in the entrepreneurial sector.

Table 2.3: Earnings estimations

	Entrepreneur Agriculture	Entrepreneur Manufacturing	Entrepreneur Services
Age	0.0213 (0.0157)	-0.0165*** (0.0416)	-0.0130 (0.0140)
Primary or Incomplete Secondary	0.2388*** (0.2163)	0.0725 (0.9896)	0.16889*** (0.1309)
Complete higher secondary or Above	0.6339 (0.7538)	0.8890 (1.5957)	0.1378** (0.2679)
Female	-0.0981*** (0.5059)	-0.7140 (1.4201)	0.5038 (0.1830)
Urban	1.3116*** (0.9404)	0.2383 (0.4480)	-0.3550 (0.1808)
2012/2013	0.1171** (0.0553)	-0.3020 (0.0981)	-0.1954 (0.0378)
M1	-1.1413 (1.0047)	-0.5569 (3.6821)	-2.6920*** (0.7236)
M2	0.3758 (2.9587)	0.6572** (2.8437)	0.7365 (1.9795)
M3	2.2641 (1.6327)	-2.4815 (4.7811)	-0.6686 (0.4332)
M4	-1.3340 (2.2263)	1.1312 (0.6411)	-4.0692*** (1.1793)
M5	-1.8196** (1.7378)	1.7305 (0.1535)	-0.6039 1.1448
Cons	8.4812*** (1.1358)	9.1644 (1.7436)	8.9752 (1.5105)
R-Squared	0.0856	0.3471	0.2089
Observation	7,730	1,154	5,971

Note: The figures in brackets are standard errors

The results from the second stage of the empirical analysis (Table 3) are consistent with the story emanating from the first stage. Both educational variables are positive and significant only in the service sector. In the agricultural sector, completed primary and incomplete secondary education provides positive returns, while none of the educational variables are significant in the manufacturing sector. Age has significant (and negative) effect only on self-employment in manufacturing². Unobserved characteristics appear to have a stronger effect on returns to skills in the three different self-employment sectors than do observed skills, as indicated by the significance of the selectivity correction variables. Perhaps most interestingly, the selectivity correction term associated with agricultural self-employment in the service self-employment equation is negative and significant, highlighting a negative selection out of agriculture into services. In other words, self-employed individuals who would have performed better in the agricultural sector allocate into the service sector. The same is true for the coefficient associated with salaried employment in the service sector equation, suggesting that capable individuals may be queuing up for salaried jobs, but instead opt for self-employed activities in the service sector. This is consistent with dual market models of structural transformation and casts some doubts on the success of structural transformation.

2.5 Further empirical analysis and discussion

2.5.1 Further insights from alternative descriptive statistics

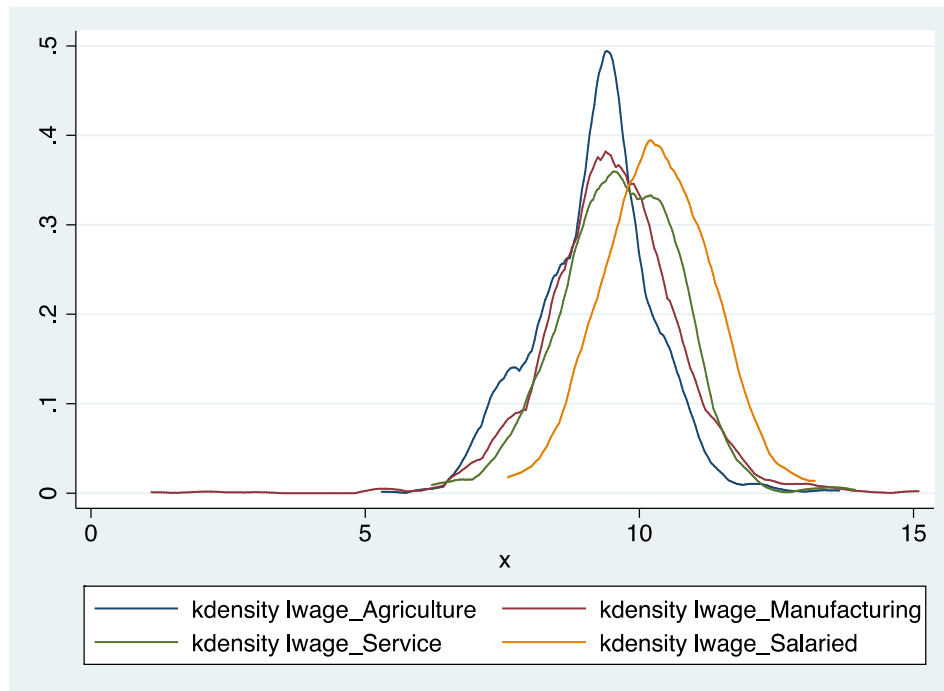
The analysis conducted so far is based on average estimates across the five different employment sectors of interest to us. Among the key findings is the fact that salaried employment is the one sector that both attracts individuals with high levels of education and provides significant positive returns to that education. Among self-employment sectors, only the service sector appears to be a profitable venue for skilled individuals, suggesting that the country may be skipping the industrialisation stage of the stylised structural reform process and moving straight away to the stage of deindustrialisation. At the same time, skilled labour allocation in that sector is inferior to that of salaried employment - as witnessed by both the descriptive statistics and the more rigorous empirical analysis. This is consistent with the fact that the wage distribution in the salaried self-employment sector lies substantially to the left of that for salaried employees, although it is clearly to the right of self-employed individuals in the manufacturing and agricultural sectors (Figure 2.2). In other words, the deindustrialisation

² Experimenting with non-linearity in the age-employment relationship indicated that the effect is linear.

process in Nigeria does not seem to share the characteristics of successful deindustrialisation in the process of structural reform, described by Porter et al (2002).

Figure 2.2: Monthly income distribution across sectors

Kernel densities for Monthly Income 2010/2013



To overcome the constraints of working with sectoral averages and get more detailed insight into the nature of work across the different self-employment sectors and salaried employment, Table 2.4 delves deeper into the concrete occupational niches within which individuals across salaried employment and the three self-employment sectors operate. We see that within manufacturing, the dominant sub-sectors are food, beverages and tobacco, textiles, apparel and footwear and wood and wood products, all of which tend to be at the bottom of the value chain and hence associated with low skill activities. This is consistent with the results of our empirical analysis in that the manufacturing self-employment sector attracts both some of the lowest skill individuals and provides low returns to skills. Moreover, the incidence of salaried employment in the manufacturing sector is low, which is contrary to traditional models of industrialisation, characterised by large-scale manufacturing production.

Table 2.4: Types of activity

	Agriculture	Manufacturing	Services	Salaried
Agriculture	7,730	0	0	1,591
Manufacturing (Food, Beverage and Tobacco)	0	583	0	62
Manufacturing (Textiles, Apparel and Footwear)	0	424	0	25
Manufacturing (Wood and Wood Products)	0	120	0	24
Manufacturing (Chemical and Pharmaceutical Products)	0	15	0	1
Manufacturing (Plastic and Rubber Products)	0	10	0	3
Manufacturing (Electronic)	0	2	0	10
Professional/scientific	0	0	190	250
Electricity/water/gas/	0	0	14	45
Transportation	0	0	310	190
Buying and selling	0	0	3,460	261
Financial/insurance/r	0	0	20	55
Personal services	0	0	1,340	229
Education	0	0	181	643
Health	0	0	144	215
Public administration	0	0	176	710
Other service activities	0	0	136	147
Observation	7,730	1154	5971	4,461

Note: The figures reported are numbers of observations per cell

While professional and scientific occupations are available in the self-employment service sector, roughly at par with the incidence of these same types of occupations in the salaried sector- they represent a minuscule fraction of the overall range of job opportunities. Indeed, the self-employment service sector is by far dominated by buying and selling activities, followed by personal services, neither of which is known for high levels of skill intensity and innovation capacity. The service sector does absorb some professionals and education and health specialists, but their representation in that sector is minuscule compared to the dominant two sets of activities. By contrast, the dominant salaried sector is that of public administration,

followed by the education sector. While high skills and corresponding adequate earnings in a countries' public administration sector is important for strengthening of a countries' institutions and governance, absorbing a disproportionate part of the skilled workforce in that sector may have a crowding out effect on innovative private sector activities. In comparison, salaried sectors like health – that are inherently skill intensive – are relatively smaller.

Table 2.5: Further Characteristics

Where do they sell their products			
	Agriculture	Manufacturing	Services
home (inside resident)	1363	523	1322
home (outside resident)	558	155	1119
Industrial site	18	15	71
Traditional market	550	79	930
Commercial area shop	133	66	622
Roadside	139	33	314
Other fixed place	80	24	222
Mobile/no fixed location	350	36	580
Other	40	4	37
Who do they sell their products to			
final consumers	2,664	804	4,743
traders	602	118	613
other small businesses	222	55	277
large established bus	32	7	64
Institution (i.e. schools)	29	4	67
Export	14	0	2
Manufacturers	11	4	22
Other (specify)	84	6	128
	3,658	998	5,916
Number of hired workers who are not family members			
None	2113	817	3862
1-5 people	560	154	859
6-10 people	9	4	31
10 and above	15	2	14

Note: the figures reported are numbers of observations per cell

Table 2.5 highlights some further information, some of which needs to be interpreted with caution, due to the fact that on occasions – for instance with respect to whether entrepreneurs hire people from outside the family or not – there are a lot of missing observations. The information provided is generally inconsistent with the perception of self-employment as a

sector of dynamic entrepreneurship. While one of the most popular definitions of a dynamic entrepreneur is one of an entrepreneur who is able to expand her business and create employment (Chen, 2014; Margolis, 2014), we see that the majority of entrepreneurs in our sample do not hire anyone from outside the family, while only a handful hire between 1 and 5 labourers. The propensity of entrepreneurs to export is also very low and the majority of self-employed individuals sell directly to final customers as opposed to exploring forward and downward linkages. Finally, a dominant proportion of self-employed individuals either work from home or at a roadside, which is characteristic of some of the worst forms of employment (Chen, 2014).

2.5.2 Further conceptual insights and empirical robustness checks

To provide further insights into the nature of entrepreneurship in Nigeria, especially given the conceptually mixed results so far on entrepreneurship in the service sector, we delve even deeper into the notion of necessity versus opportunity entrepreneurship highlighted at the outset of the paper. Specifically, we use one of the most popular stylised ways of differentiating between necessity and opportunity entrepreneurs in the literature (Poschke, 2010) whereby the former are defined as self-employed individuals who expand their businesses by hiring labour from outside the family, while the latter are own account self-employed individuals who do not hire any non-family labourers. We thereafter all the first group of self-employed people “employers” and the second group “own account self-employed”. The focus is on whether these two different groups of entrepreneurs are fundamentally different. As indicated in the preceding section, due to a relatively large incidence of absence of response to the question of whether these self-employed individuals hire labourers, the results should be treated with caution and are therefore only reported in the Appendix.

Looking first at the descriptive statistics based on this differentiation (Table A1 in the appendix), we see that – as expected – among non-agricultural self-employed individuals, employers tend to be characterised by greater incidence of completed secondary or higher education than own account self-employed individuals. Employers in the service sector are also characterised by higher incidence of completed primary or some secondary education than their own account counterparts, but the opposite is true for the incidence of completed primary education of their manufacturing sector counterparts. There are no other very remarkable differences across the two different types of self-employed individuals, except that

(consistently with their higher levels of education) employers tend to earn slightly more than own account individuals, though once again significantly less than salaried employees.

Tables A1-2 and A1-3 in the appendix highlight the corresponding multinomial logit and earnings equations results associated with equations [1] and [2]. Once again, the conceptual distinction with respect to Tables 2.2 and 2.3 is the differentiation between employers and own account individuals among the self-employed in each of the three entrepreneurial sectors. The marginal effects from the multinomial logit model reveal some interesting distinctions among the two categories of self-employed individuals. Perhaps most interestingly, while the complete secondary education or above variable has a positive and insignificant effect on being an employer in the service sector, the effect of this variable on becoming own account self-employed individual in the service sector is negative and significant. This is consistent with our expectations based on the literature indicating that employers are better-endowed opportunity entrepreneurs, while own account self-employed individuals are more likely to be necessity entrepreneurs. At the same time, the marginal effects of this higher education variable are negative and significant in all the remaining entrepreneurial niches, although for their sizes are larger among employers in the agricultural and manufacturing sector than among their own account counterparts. By contrast, the marginal effects of the secondary or higher education variable are positive and significant in both the salaried workers and non-working individuals' equations. For all types of self-employed individuals, the marginal effect of the primary or some secondary education variable is positive and significant in the agricultural sector and the service sector, but negative and significant among employers in the manufacturing sector. This is yet another indication of the negative selection of entrepreneurs in the manufacturing sector. In sum, the association between education and labour market allocation gives further support to the general finding that self-employed individuals as a whole are a negatively selected sample of the overall working age population.

The rest of the results from the multinomial logit model are consistent with their Table 2 counterparts. Among the most interesting highlights is perhaps the fact that the access to a bank variable has a positive impact on becoming an employer in the manufacturing sector but has no significant effect on becoming an own account individual, once again emphasising the importance of access to finance for becoming a productive entrepreneur in this capital-intensive sector.

Finally, the earnings estimates highlighted in Table A1-3 are consistent with those in Table 2.3, whereby only in the service sector self-employed individuals obtain significant positive returns to higher levels of education, while in the agricultural sector self-employed individuals obtain significant positive returns to completed primary or incomplete secondary education. In both cases, the returns are significantly higher among employers than among own account individuals. With respect to selectivity based on unobserved characteristics, perhaps the most clear, visible and easiest to interpret pattern is that of the negative selection of self-employed individuals in the manufacturing sector out of the self-employed service sector. This is consistent with the rest of the story emanating from our empirical research.

2.6 Concluding comments and extensions

Using representative data from Nigeria, this chapter revisits the place of the entrepreneur in the process of structural transformation and economic development from the point of view of an economy that has undergone significant movement out of the primary employment sector, but is at a relatively low position in the global industrial value chain, has a small manufacturing sector and is dominated by a service sector that is the largest absorber of relatively skilled self-employed individuals. In doing so, we cast fresh light on theories of entrepreneurship that see the link between entrepreneurship and broader forms of economic development in concrete structural transformation stages, whereby exit from the primary sector and growth of self-employment in the secondary and service sectors is seen as a proxy for successful economic development. While the self-employment sector is dominated by service sector activities and these activities attract more skilled individuals than do the self-employed manufacturing and primary sectors, the level of skills across all the three entrepreneurial sectors is lower than that of both salaried workers and individuals who do not work. Allocation of skilled labour and returns to skills among entrepreneurs in the manufacturing sector are particularly low.

Aside from skill allocation patterns, there are several additional signs that the self-employment as a whole is more akin to necessity than opportunity entrepreneurship. The majority of businesses either do not hire outside labour or hire no more than five workers, exemplifying limited growth potential of the entrepreneurial sector and hence the limited potential of exploiting economies of scale. There are high infrastructural – in particular credit related – constraints to allocation of labour into potentially productive occupations. Moreover, while models of economic development through industrialisation emphasize the advantage of backwards and forwards linkages, our evidence suggests that such linkages are limited in the

Nigerian context. This is contrary to a stylized view of successful structural reform led by either efficiency or innovation, highlighted at the outset, and is consistent with evidence from elsewhere in the Global South, in particular the rest of the African continent (Margolis, 2014; Chen, 2014; Böhme and Thiele, 2014; Dimova et al, 2011).

As the evidence on infrastructural and credit constraints to business growth is pervasive in the literature on entrepreneurship in less developed countries, this literature agrees on at least two related productive ways forward. On the one hand, there is a consensus that releasing financial constraints would stimulate investment in capital intensive sectors and activities (The World Bank, 2008). At the same time, evidence on positive implications of ensuring access to finance on (small) firm performance and growth is inconclusive (Grimm, 2016; Karland and Morduch, 2010). Indeed, there is evidence that, in risky environments, individuals that are wealthy and hence not credit constrained tend to over-invest at the start of their business but adjust their capital stocks downwards subsequently (Grimm et al, 2011). This suggests that lifting financial constraints alone may not be a panacea when the institutional setting does not provide adequate risk management mechanisms. On the other hand, authors argue that the problem of infrastructural constraints is best addressed in the context of industrial clusters. In the current state of globalisation and de-coupling of production, where exploiting manufacturing economies of scale within a single national geographical context may be limited, the potential of industrial clusters for entry and movement up a value chain should certainly not be underestimated. This idea, however, clashes with counter arguments that the evidence of success with broad based development and movement up the technological ladder on account of industrial clusters and value chains is either limited or unequal (Yusuf, 2003; Brookings, undated).

One proposition that not only receives increasing consensus in the conceptual literature on economic development but also has large amount of support from historical evidence, is that fundamental institutional change is a necessary ingredient to broad based economic development (Shirley, 2008; North et al, 2009; Rodrik, 2008). This gives credence to an institutional change driven holistic approach to economic development that creates space for positive synergies between skill generation, on the one hand, and innovation enhancing entrepreneurial activities, on the other. This is consistent with the idea of entrepreneurial and national self-discovery, which provides a broader and more flexible analytical framework than those categorizing the links between entrepreneurship and development in concrete stages and propose one-size-fits-all policy answers.

Appendix

Table A1-1: Descriptive statistics based on distinction between employers and own account individual

	Agriculture		Manufacturing		Services		Salaried	Not Working
	Employers	Own account self-employed	Employers	Own account self-employed	Employers	Own account self-employed		
Age	38.5169 (14.1356)	38.7017 (13.0374)	35.97112 (11.1476)	37.9285 (12.1926)	38.8458 (12.1997)	36.6867 (12.1167)	36.4988 (12.8200)	27.03806 (11.6001)
Primary or Incomplete Secondary	0.2228 (0.4173)	0.2974 (0.4572)	0.2349 (0.4243)	0.3469 (0.4809)	0.3050 (0.4605)	0.2188 (0.4142)	0.2464 (0.4311)	0.3046 (0.4603)
Complete higher secondary or Above	0.1335 (0.3402)	0.1485 (0.3566)	0.1060 (0.3081)	0.0816 (0.2766)	0.2434 (0.4292)	0.2830 (0.4513)	0.3800 (0.4855)	0.3029 (0.4595)
Female	0.4100 (0.4918)	0.2456 (0.4317)	0.7857 (0.4178)	0.8117 (0.3911)	0.6424 (0.4793)	0.6169 (0.4873)	0.4195 (0.4935)	0.5962 (0.4906)
Father (non-Agriculture)	0.0764 (0.2657)	0.0701 (0.2561)	0.1912 (0.3934)	0.1785 (0.3900)	0.3074 (0.4614)	0.2935 (0.4565)	0.2926 (0.4550)	0.1990 (0.3993)
Mother (non-Agriculture)	0.2378 (0.4258)	0.3859 (0.4882)	0.6673 (0.4714)	0.8214 (0.3900)	0.5601 (0.4964)	0.5870 (0.4935)	0.3825 (0.4860)	0.2939 (0.4556)
Access to Bank	0.24466 (0.4299)	0.2348 (0.4477)	0.2380 (0.4217)	0.2369 (0.4217)	0.1920 (0.3858)	0.1907 (0.4390)	0.2281 (0.4197)	0.2339 (0.4233)
Closeness to Market	0.5731 (0.4930)	0.5747 (0.4942)	0.58462 (0.4912)	0.5842 (0.4600)	0.57033 (0.4954)	0.5706 (0.4743)	0.5709 (0.4963)	0.5825 (0.4931)
Access to Transportation	0.4446 (0.4969)	0.4312 (0.5013)	0.4385 (0.4755)	0.42629 (0.4947)	0.4776 (0.4989)	0.4774 (0.5009)	0.4615 (0.4985)	0.4653 (0.4988)
Urban	0.0754 (0.2641)	0.1111 (0.3151)	0.2898 (0.4539)	0.2828 (0.4973)	0.4617 (0.4985)	0.42288 (0.4952)	0.4257 (0.4945)	0.3517 (0.4833)
2012/2013	0.5050 (0.5000)	0.6081 (0.4895)	0.4970 (0.5002)	0.5714 (0.5039)	0.5312 (0.4990)	0.6417 (0.4806)	0.5273 (0.4993)	0.4106 (0.4919)
Log Monthly income	9.22576 (1.1840)	9.1626 (1.0768)	8.8068 (1.2590)	8.6029 (0.8955)	9.5896 (1.2101)	9.4880 (1.3600)	10.0161 (1.1470)	
Observation	584	2113	158	817	904	3862	4,461	14,032

Table A1-2: Multinomial logit results, based on the distinction between employers and own account self-employed individuals

	Agriculture		Manufacturing		Services	Salaried	Not Working	
	Employers	Own account self-employed	Employers	Own account self-employed	Employers	Own account self-employed		
Age	0.0050*** (0.0002)	0.0004*** (0.0000)	0.0005 .0001	0.0000 (0.0000)	0.0097*** .0003	0.0007*** (0.0001)	0.0025** (0.0002)	-0.0191 *** (0.0004)
Primary or Incomplete Secondary	0.0189*** (0.0068)	0.00611*** (0.0016)	-0.0096** (0.0044)	0.0013 (0.0012)	0.0541*** (0.0122)	0.0081** (0.0037)	-0.0003 (0.0094)	-0.0122 (0.0135)
Complete higher secondary or Above	-0.0714*** (0.0069)	-0.0076*** (0.0017)	-0.0317*** (0.0046)	-0.0024*** (0.0012)	0.0100 (0.0129)	-0.0032** (0.0039)	0.0731*** (0.0108)	0.0333* (0.0143)
Female	-0.1339*** (0.0071)	-0.0137*** (0.0021)	0.0509*** (0.0045)	0.0033*** (0.0011)	0.0950*** (0.0093)	0.0028** (0.0032)	-0.0777*** (0.0075)	0.0732*** (0.0109)
Father (non-Agriculture)	-0.0609*** (0.0074)	-0.0065*** (0.0019)	-0.0168 (0.0045)	-0.0007 (0.0011)	0.0785*** (0.0128)	0.0122** (0.0047)	0.0149 (0.0094)	-0.0208 (0.0140)
Mother (non-Agriculture)	-0.0129** (0.0064)	-0.0035** (0.0015)	0.0479*** (0.0052)	0.0055*** (0.0016)	0.0826*** (0.0102)	0.0166** (0.0039)	-0.0187 (0.0076)	0.1176** (0.0116)
Access to Bank	0.0022 (0.0079)	0.0041 (0.0023)	0.0131** (0.0057)	-0.0002 (0.0012)	-0.0233** (0.0118)	-0.0040 (0.0039)	0.0104 (0.0093)	0.0024 (0.0137)
Closeness to Market	-0.0027 (0.0072)	-0.0013 (0.0018)	-0.0099** (0.0049)	0.0006 (0.0011)	-0.0056 (0.0111)	-0.0045 (0.0039)	-0.0020*** (0.0085)	0.0256 (0.0127)
Access to Transportation	-0.0167** (0.0073)	-0.0014 (0.0018)	-0.0073 (0.0048)	0.0007 (0.0011)	0.0379*** (0.0112)	0.0058 (0.0039)	0.0084 (0.0086)	-0.0273** (0.0130)
Urban	-0.1350*** (0.0063)	-0.0103** (0.0018)	-0.0102** (0.0042)	-0.0003 (0.0010)	0.0431 *** (0.0103)	0.0115** (0.0038)	0.0160** (0.0077)	0.0852** (0.0119)
2012/2013	-0.0394*** (0.0063)	-0.0151** (0.0022)	0.0019 (0.0039)	0.0014 (0.0010)	0.0172* (0.0095)	-0.0039 (0.0033)	0.0484*** (0.0073)	-0.0106 (0.0110)
Observation	584	2113	158	817	904	3862	4,461	14,032

Table A1-3: Earnings estimations based on the distinction between employers and own account individuals

	Agriculture		Manufacturing		Services	
	Employers	Own account self-employed	Employers	Own account self-employed	Employers	Own account self-employed
Age	0.0554 (0.0392)	-0.0874 (0.1716)	-0.0807 (0.0624)	-0.0001 (0.0001)	-0.0018 (0.0192)	-0.0056 (0.0760)
Primary or Incomplete Secondary	0.4999* (0.4793)	0.03082* (0.0072)	0.1669 (0.5848)	-0.0003 (0.0055)	-0.0839 (0.2069)	0.4451 (0.5650)
Complete higher secondary or Above	-0.2799 (0.2348)	0.3282 (0.3320)	0.2872 (0.5629)	-0.1222 (0.0742)	0.7377*** (0.1738)	0.0379*** (0.5937)
Female	-0.8532*** (0.0637)	-0.2134 (0.4205)	0.5863 (0.6669)	-0.1430 (0.1298)	-1.2301** (0.3651)	-0.7864** (0.0345)
Urban	0.1095 (0.4860)	-0.6791 (0.1000)	-0.6505 (0.7781)	-0.0220 (0.6605)	0.1031 (0.2396)	-0.9866 (2.2542)
2012/2013	0.3009** (0.1380)	0.3017 (0.4761)	-0.2802 (0.1747)	0.4111 (0.9534)	0.0220 (0.0662)	0.5499*** (0.2125)
M1	0.4706 (0.4456)	-2.3913 (0.1859)	-3.3413 (0.1014)	0.20002** (0.0218)	-0.5739 (1.7323)	0.8591 (0.7740)
M2	0.5717 (0.4764)	0.5920** (0.4470)	-0.3181 (0.1157)	-0.1111 (0.1705)	-0.7443 (2.0703)	0.0958 (0.9288)
M3	-0.9032 (0.8103)	-0.1010** (0.0399)	1.6300 (1.5531)	-0.0002 (0.0028)	2.2743 (2.3877)	-3.1771 (3.4980)
M4	2.7897 (3.0097)	-0.2414 (0.2486)	2.2698 (2.7123)	0.1327 (0.1117)	-5.1669 (1.7868)	2.2098 (1.2363)
M5	-0.7729* (0.1053)	1.4206 (0.9317)	2.5761 (0.9839)	-0.3333 (0.0234)	-2.1881** (0.9639)	1.3872 (0.8971)
M6	4.91071 (3.0744)	0.9741 (0.8949)	-1.6417** (2.4463)	-0.2112** (0.6796)	7.283812 8.9375	-6.978887 (0.8477)
M7	-2.040455 (3.8312)	-0.3170 (0.5340)	-0.5405 (0.0390)	-0.0470 (0.0039)	-1.03252 1.9711	3.0791 (0.3011)
M8	-4.2663 (3.4475)	0.5549 (0.4883)	2.0973 (2.8603)	-0.6222 (0.2115)	-1.03252 1.9711	3.2402 (1.0088)
Cons	3.9866 (4.7362)	-3.6428 (2.0623)	5.7817 (4.8998)	0.7210 (0.0271)	2.7858*** (2.4873)	3.6006 (2.7126)
R-Squared	0.1049	0.6223	0.3847	0.3875	0.194	0.3476
Observation	584	2113	158	817	904	3862

Table A1-4: Small-Hsiao tests for IIA assumption related to Table 2

Omitted	lnL(full) lnL(omit)	chi2	df	P>chi2	evidence
1	-25200	51.843	36	0.142	for Ho
2	-35400	34.111	36	0.559	for Ho
3	-25800	46.719	36	0.109	for Ho
4	-27300	40.86	36	0.265	for Ho

Table A1-5: Small-Hsiao tests for IIA assumption related to Table A2

Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	evidence
1	-5363.931	-5332.929	62.005	72	0.794	for Ho
2	-6791.604	-6760.873	61.46	72	0.808	for Ho
3	-6185.564	-6156.299	58.529	72	0.874	for Ho
4	-7058.544	-7029.316	58.457	72	0.875	for Ho
5	-4566.581	-4534.496	64.171	72	0.733	for Ho
6	-6615.146	-6585.604	59.085	72	0.863	for Ho
7	-5361.787	-5332.918	57.736	72	0.889	for Ho

Table A1-6: Definition of Variables

Variable Details	Definition and units
Outcome Variables by Sector	
Self-Employment	Individuals who own an income generating activity
Salaried Employment	Individuals in paid employment, including employment by the federal government, state government, local government, parastatals, the private sector, NGO's, cooperatives, international organisations and religious organisations
Not Working	Individuals who fall under the working age group and are unemployed as at the time of the survey
Outcome Variables (Monthly Returns)	
LnWages	Natural log of monthly Income
Explanatory Variables	
Age	The average age of an Individual
Education_1	Dummy = 1 if individual has Primary or Incomplete Secondary education, otherwise = 0
Education_2	Dummy = 1 if individual has Complete higher secondary education or Above, otherwise = 0
Female	Dummy = 1 if individual's gender is female, otherwise = 0
Urban	Dummy = 1 if individual is in the urban area, otherwise = 0
Father (non-Agriculture)	Dummy = 1 if individual's fathers' occupation is not in the agricultural sector, otherwise = 0
Mother (non-Agriculture)	Dummy = 1 if individual's mothers' occupation is not in the agricultural sector, otherwise = 0
Access to Bank	Dummy = 1 if individual operates in a community that has a formal Bank, otherwise = 0
Closeness to Market	Dummy = 1 if individual operates in a community that has a local market, otherwise = 0
Access to Transportation	Dummy = 1 if individual operates in a community that has a public transportation system (bus/bus station), otherwise = 0

3.0 CHAPTER THREE

IMPROVING THE PERFORMANCE OF MICRO, SMALL AND MEDIUM MANUFACTURING FIRMS

3.1 Introduction

As a result of the recent plunge in oil prices, some analysts argue that Nigeria may be nearing an economic collapse (PWC, 2015). They build on the notion that for over a decade growth achieved in Nigeria has been largely linked to its oil sector and hence a decline in oil prices would lead to a corresponding decline in the country's overall growth. Nigeria, which was a few years ago identified as one of the world's fastest growing economies due to its average GDP growth rate of about 6.3%, 7.6% and 7.4% in 2009, 2010 and 2011 respectively (Chete, et al., 2016), now experiences growth of only about 3% (NBS, 2015). This figure is projected to decline further due to other prevailing issues affecting the country's oil production, such as the insurgent militant activities in the Niger Delta region - which includes the abduction of foreign oil workers, destruction of pipelines, piracy, and illegal oil bunkering (PWC, 2015). Although the service sector offers a way forward in an era of oil decline, past studies (Gollin et al., 2015; Rodrik, 2015) question its development potential, emphasising the productivity gains and interlinkage opportunity that come with an industrial sector led growth. Given the numerous attempts made by the Nigerian government to achieve an efficient structural transformation process and its failed attempts, this paper investigates what works and what does not work for the performance outcome of the micro and small manufacturing firms in Nigeria. This exercise also neatly complements the evidence from our preceding chapter where we saw that the manufacturing self-employment sector performs poorly in both attracting high skilled individuals and providing adequate returns to skills. It is worthwhile delving further into understanding key determinants of the poor performance of this sector, which has traditionally been seen as the major driver of structural transformation and economic development.

As indicated in Chapter one, for over a decade the Nigerian government has attempted to diversify the country's sources of income by adopting policies aimed at facilitating growth in the industrial sector as a preventive mechanism for economic crisis. The first comprehensive attempt was the introduction of the First National Development Plan (1962-1968), which was

intended to stimulate start-up and growth of the industrial sector (Chete, et al., 2016). At the core of this strategy was the Import Substitution Industrialization (ISI) policy, which protected local start-up firms from foreign competition. A later notable attempt highlighted by Adeoti (2016) was the introduction of the Structural Adjustment Plan (1986 – 1993), which employed various initiatives to facilitate industrialisation. One of them featured the privatisation of government-owned assets, as well as the concentrated effort to raise the efficiency of Small and Medium Scale Enterprises (SMEs). Indeed, it incorporated the National Economic Reconstruction Fund (NERFUND) which was set to address the financial constraints faced by SME's, on the one hand, and the Science and Technology (SandT) policy which was set to enhance the transfer of knowledge to local firms through ICT, on the other hand. The current economic policy blueprint - Nigeria Vision 20:2020, reflects the need by the government to transform Nigeria from a mono-product economy to a more diversified industrialised economy. The goal is to make Nigeria one of the top 20 industrialised economies by 2020. As such, a key feature of the blueprint is to harness the talent and productivity of the people by laying the foundation for the private sector to play a key role in Nigeria's structural transformation process. In other words, the direction of the reform nurtures the growth of Nigeria's industrial sector through the activities of entrepreneurs in the Micro, Small and Medium Industry (MSMIs). To achieve this goal, the Vision 20:2020 focuses on four crucial areas, namely (i) Social dimension, which ensures an equitable and harmonised society, where all citizens are represented and feel a strong sense of national identity and are supported by a quality health care system that caters for all, (ii) Economic dimension, aimed at developing a globally competitive economy through increased activities in the manufacturing sector that would contribute significantly to the country's Gross Domestic Product (a minimum of 25%), (iii) Institutional Dimension, which ensures the availability of adequate infrastructure aimed at achieving a market-friendly and globally competitive business environment, and (iv) Environmental dimension, which ensures that all natural resources of the economy are well preserved for the benefit of present and future generations (National Planning Commission, 2009; Olaseni & Alade, 2012; Chete, et al., 2016).

This paper is closely linked to the second and third dimension of the Vision 20:2020 economic blueprint, considering the fact that there is little evidence on how successful Nigeria has been in achieving these objectives. Indeed, scant existing evidence suggests that the success of past policies related to the performance of micro and small manufacturing firms has perhaps been minimal. For instance, while much of the success story in the manufacturing sector has

been linked to Large Scale Manufacturing, which experienced an increase in output from N6.8 trillion in 2010 to N8.1 trillion in 2011 (National Bureau of Statistics, 2014), the micro and small manufacturing firms continue to experience low output. Adegbite, et al. (2007) and Eniola and Ektebang (2014) note that small and medium-sized manufacturing firms represent at least 90% of the industrial sector in terms of the sheer number of enterprises and account for more than 70% of its employment, yet their contribution to GDP is no more than 1%, accounting for only 10% of the manufacturing sector's output. Furthermore, Essien and Bello (2007) show that the activities of SMEs are marginal and their growth pattern is stagnant. In other words, the majority of them remain small in size and their productivity does not increase over time. This realisation raises doubts about the nature of policies employed by the government to enhance the performance of small and medium enterprises. If there are constraining factors hindering the activities of small entrepreneurs then this would have a negative effect not only on their business performance but also on their contribution to economic growth and employment generation.

In a well-functioning business environment, SMEs are an engine for pro-poor growth through their ability to convert limited resources into productive ventures (Schumpeter, 1934). Moreover, they have the potential to create job opportunities, which is crucial in a country like Nigeria where there is evidence of high unemployment rates and extreme poverty among the majority of the population. Indeed, according to UNDP (2013), about 68% of Nigerians are currently living on less than \$1.25 a day.

It is against this backdrop that we investigate what works and what does not work for the performance outcome of the micro and small manufacturing firms in Nigeria. This endeavour is especially important, considering that the lack of high-quality data on the micro and small manufacturing firms in Nigeria has limited our understanding of factors that promote positive outcomes and increased performance for SMEs (Adeoti, 2016; National Bureau of Statistics, 2014). Although a handful of empirical studies exist these studies have focused largely on the impact of demographic, socioeconomic factors and formal institutions on the performance of SMEs (Uma et al., 2010; Adeoti, 2016). While the insights from these studies are important, they do not tell us much about key business environment characteristics that influence SMEs performance, which are at the core of contemporary policy making with respect to SMEs in the country. On the one hand, Estrin et al (2018) notes that entrepreneurs in emerging economies rely more on informal institutions than do entrepreneurs in developed economies. This is because informal institutions provide a substitute for weak formal institutions. At the same

time, the impact of informal institutions in the form of social capital is understudied. This is a significant gap in the literature not only in the context of Nigeria but also in other sub-Saharan African countries.

This paper contributes to addressing this gap by exploring the role of key business environment characteristics (such as public infrastructure, access to finance and social capital) on SMEs performance. Evidence from the broad conceptual literature on SMEs performance in less developed countries discussed in the next section is mixed. This analysis is, therefore, useful for two reasons. Firstly, we are able to reconcile the conflicting views in the broad conceptual literature on the factors that improve firm performance in a developing economy context. Secondly, the study allows us to identify channels through which government's investments may positively influence the performance of micro and small manufacturing firms. Hence, we are able to draw generalizations and policy recommendations for developing economies that want to achieve their development objectives through increased performance of micro and small manufacturing firms.

In line with key development concerns and past research, we use productive efficiency as our measurement for the performance of SMEs, with the use of the Stochastic Production Frontier method. The Stochastic Production Frontier (SPF) is a widely used technique employed by scholars to measure technical efficiency in a range of industries including the manufacturing sector (Le & Harvie, 2010; Burki & Khan, 2011; Amornkitvikai, et al., 2013). It allows us to assess the impact of a range of business environmental and other characteristics on the performance outcomes of firms.

After controlling for factors such as firm location, years of operation and manager's education, we find evidence that improvement in public infrastructure, social networks and entrepreneurial clustering have a positive influence on the performance of micro and small manufacturing firms in Nigeria. The positive impact of access to finance on firm efficiency is more for urban firms than rural firm. This is consistent with evidence on Nigeria, indicating that while access to finance is important for firms' entry into the market, some incumbent small enterprises do not use external finance to expand their activities as they rely more on informal funding from family and friends (Adebowale & Dimova, 2017) - perhaps, this may also be the case for small-scale rural manufacturing firms in Nigeria. Our results, do not entirely rule out the importance of access to finance for firm performance but identify the need for innovative practices in this respect.

The rest of the chapter is organised as follows. Section 2 provides an overview of the literature on the performance of SMEs, chapter 3 describes our model for technical inefficiency. Section 4 describes the data and highlights some preliminary descriptive statistics. Results from the core regressions are highlighted in Section 5 and Section 6 provides our concluding remarks.

3.2 Review of the literature on productivity

There has been a proliferation of papers that have examined various aspects of the factors that impact firm performance. Despite the proliferation of research, conceptual and empirical debates persist.

One of the most popular debates in this regard is on the impact of public infrastructure on firm performance. The theoretical literature agrees that increased access to public infrastructure improves firm's efficiency through its complementary relationship with other factors of production (Romer, 1986; Barro and Sala-i-Martin, 1995; Anwar, 1995). Empirical findings on this issue, however, are controversial. While most findings are of a positive effect of public infrastructure on performance (Aschauer, 1989; Munnell, 1990; Ford, 1991), others (Evans, 1994; Holtz-Eakin, 1992; Romp and De Haan, 2005; Straub and Vellutini, 2006), highlight insignificant or minimal impact. This contrasting evidence can be explained, in part, by the variation in country characteristics in terms of infrastructural quality and quantity (World Bank, 2005). Consider, for example, Korea which is a higher income country than Mexico. The impact of public infrastructure on firm performance for these two countries will obviously be different (with Korea having a more positive impact on firm performance) since the level and quality of infrastructure, as well as other intervening factors, are fundamentally different. In this light, The World Bank (2005) notes that Mexico would need to invest more than 7% of their expenditure per year for the next 20 years to reach the level and quality of infrastructure of Korea. Studies by Mitchell (2005) and Romp and De Haan (2007) however found government expenditure to be expensive and largely dependent on taxes, while an increase in tax rates to improve infrastructure would lead to a corresponding increase in business operating cost for SMEs.

A second plausible but often ignored argument for the negative effect of infrastructural development on firm efficiency streams from earlier studies (Regan, 2017; Lin & Doemeland, 2012) which found that the limited government spending in developing countries has resulted to the widening of the productivity gap between firms in metropolitan cities and other regions.

Specifically, the concentrated effort by the government in developing certain regions at the expense of the others has led to the inefficiency of firms that have minimal access to public resources thereby making them less competitive.

More recent research (Fafchamps, 1997, 2003; Fisman, 2003) documents instances in developing countries where market imperfection and a weak infrastructural system has given rise to exploring the benefits of social networks. Estrin et al (2018) note that although culture may play a role in terms of what is morally right within a community, formal institutions in developing countries are weak. This leads business owners to rely more on informal social structures than formal structures to enable business activities based on mutual trust and enforceable social norms of cooperation (Puffer, McCarthy & Boisot, 2010; Tan, Yang & Veliyath, 2009). While a significant number of studies show that social capital is ‘good’ for improving the activities of entrepreneurs (Munshi, 2014), other studies have noted that such connections distort the economy by giving select individuals an unfair advantage. Indeed, Banerjee and Munshi (2004) identify instances of resource misallocation amongst individuals within regions with active community networks. Hsieh and Klenow (2009) further note that such unfair advantage could help explain why less-efficient firms continue to operate in developing economies on the one hand, and why firms with the potential to be more efficient, continue to be less efficient, on the other hand.

Another popular debate in the literature on firm performance is that of access to finance. The literature on financial sector development and firm performance is very rich. Early theoretical frameworks of Schumpeter (1911) and Gerschenkron (1962) highlight the importance of financial capital for the entry of new firms and increased investment rates for the performance of existing firms. But, once again, the empirical evidence is mixed. While a voluminous number of studies (Khandker, et al, 2013; Akoten, et al., 2006; Ayyagari, et al., 2010; Shinozaki, 2012) found access to finance to be important for SMEs in developing countries, a growing number of studies have questioned its magnitude of impact. For instance, a study by Buckley (1997) on three developing countries – Kenya, Malawi and Ghana, found little evidence to suggest any significant and sustained impact. Similarly, Coleman (1999) and Diagne and Zeller (2001) found no significant impact. Rewilak (2013) identifies instances in developing countries where funds available to individuals are stored rather than used to grow their business. Furthermore Grimm, et al. (2011) document instances where individuals in developing countries reduced their capital stock over time due to lack of markets for their products. At the same time, a large body of research (Bouri, et al., 2011; Abdulaziz &

Worthington, 2013) shows that the majority of SMEs rely on internal funds (i.e. funds from family and friend or retained earnings) for their survival and growth. Moreover, they do not possess the requirements needed for access to finance due to restrictions imposed by the banks and hence access to financial institutions within their area of operation may matter less for performance.

Given the contrasting views identified above on the characteristics that influence the performance of micro and small manufacturing firms, in what follows, we continue exploring the determinants of small and medium firm efficiency in Nigeria with the aim of casting fresh light on existing debates.

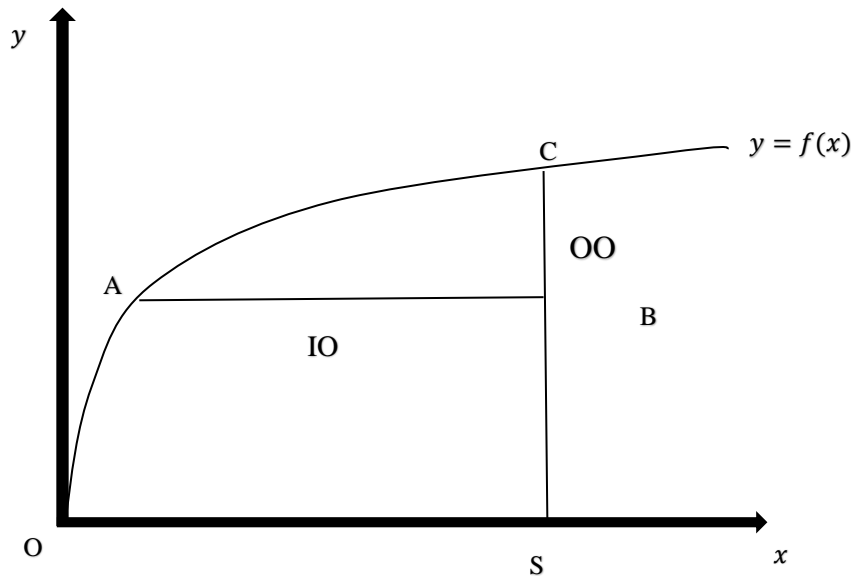
3.3 Modelling Micro and Small firm efficiency

In line with past research on the subject, we use efficiency as our measurement for performance. The reason for opting for this type of productivity related methodology is the availability of a relatively short panel of only two years, which restricts the use of alternative state-of-the-art methods such as those developed by Olley and Pakes (1992). The DEA (Data Envelopment Analysis) and SFA (Stochastic Frontier Approach) are the two most popular methods commonly used to estimate productive efficiency (Elizabeth, 1998; Cordeiro, et al., 2012; Hossain, et al., 2012; Andor and Hesse, 2011). The main advantage SFA has over DEA is that it considers stochastic noise in the data and also allows for the statistical testing of hypotheses concerning production structure and degree of inefficiency. DEA does not account for such noise but assumes that all deviation from the frontier is as a result of inefficiency, thus resulting in biased estimations.

A key assumption of neoclassical production theory is that all activities occur at the frontier of a production set (although subject to random errors), where the frontier itself is defined as the maximum achievable output a firm can realize, given a set of inputs (output-oriented measure) and/or the maximum achievable output a firm can realize employing the least set of inputs (Bhaumik & Dimova, 2011). At the same time, much of the literature on production efficiency relaxes this assumption noting the possibility that production activities could actually occur beneath the frontier due to technical inefficiencies. Technical inefficiency, itself could be either output oriented or input oriented, where the former represents the possibility that the actual output produced by a firm is less than the frontier output of a given input, and the latter represents the possibility that the actual amount of input used is greater than the

minimum required input for a set of output (Babatunde, et al., 2012). Graphically, the foregoing is reflected in Figure 3.1

Figure 3.1: Graphical Representation of Technical Inefficiency



Where $y = f(x)$, represents the production frontier and point B is a state of production inefficiency which could arise due to two reasons. Firstly, if the maximum output produced is AO given the current level of input usage ($x = OS$), then distance AB is the amount of output that is lost due to technical inefficiency. This forms the foundation for output-oriented (OO) technical inefficiency measurement. Alternatively, distance BA represents the amount by which input can be reduced without reducing output, and hence, this forms the basis for input-oriented (IO) technical inefficiency measurement.

Formally, the production relationship, in this case, is represented by:

$$[1] \quad y_i = X_i\beta_i + (v_i - u_i)$$

$$[2] \quad u_i = \mathbf{Z}_i\delta_i + w_i \text{ where } i = 1, 2, \dots, N$$

Where y_i is the output (total sales) of each firm. X_i is a vector of factor inputs, v is an unsystematic error which is perceived to be identically and independently distributed (iid) and independent of u_i . This includes measurement errors and random factors that are beyond the control of a firm e.g. weather. u_i is the inefficiency component of the error term. It follows a half normal distribution (see Kumbhakar and Lovell, 2000) and is itself is modelled by equation [2]. \mathbf{Z}_i is a vector of explanatory variables related to the technical inefficiency for the i th firm,

and δ_i is the set of inefficiency parameters to be estimated. w_i is the error term. Equations (1) and (2) are estimated simultaneously.

Note that if we rely on the OLS model, we would automatically imply that the micro and small firms in Nigeria's manufacturing sector are technically efficient since OLS assumes that all deviation from the estimated frontier is due to noise (i.e. measurement error, missing variables) and inefficiency is unobservable. By contrast, the stochastic production frontier analysis (captured by equations [1] and [2]), creates a balance by using two error terms (one for noise and the other for inefficiency), and hence, we are able to obtain unbiased estimates of inefficiency in firms' operations. We adopt the Battese and Coelli (1995) approach to modelling output and inefficiency, and further employ robust clustering of standard error at the EA (enumeration area) level to generate results.

3.3.1 Empirical Specification

Following the stylised literature, we model output (equation [3]) as a translog function of material inputs, labour and capital, and simultaneously model inefficiency, controlling for firm-level characteristics (such as firm location, firm age and managerial education) and a number of environmental factors, including public infrastructure, access to finance and social capital (see table A2-1 for interpretation).

$$[3] \quad \ln Output = \beta_0 + \beta_{1i} \ln MaterialCost + \beta_{2i} \ln LabourCost + \beta_{3i} \ln CapitalCost + \frac{1}{2} [\beta_{4i} \ln MaterialCost^2 + \beta_{5i} \ln LabourCost^2 + \beta_{6i} \ln CapitalCost^2] + \beta_{7i} \ln MaterialCost \times \ln LabourCost + \beta_{8i} \ln MaterialCost \times \ln CapitalCost + \beta_{9i} \ln LabourCost \times \ln CapitalCost + v_i - u_i$$

$$[4] \quad Inefficiency = \delta_0 + \delta_{1i} FirmLocation + \delta_{2i} FirmAge + \delta_{3i} ManagerialEducation + \delta_{4i} CommunityGroups + \delta_{5i} CommunityGroup_Urban + \delta_{6i} Infrastructure + \delta_{7i} Infrastructure_Urban + \delta_{8i} AccesstoFinance + \delta_{9i} AccesstoFinance_Urban + w_i$$

To specify the inefficiency equation, we use the following set of variables (see Table A2-1).

Business Environment Characteristics: To avoid issues with endogeneity and subjectivity in responses provided by managers, all environments related variables are taken from the community questionnaire. Components of the community questionnaire are selected by identifying groups of villages in rural or urban areas within an Enumeration Area. We include a dummy variable indicating if a firm operates in a community that has a financial institution (formal bank). This in line with past literature that has identified access to finance

as a major obstacle for SMEs in developing countries (United Nation, 2006; Claessens, 2006; Johnson & Nino-Zarazua, 2011) and has used the availability of commercial banks as a proxy for access to finance (Gallardo, et al., 2003; Seibel, 2004). Sjauw-Koen-Fa and Vereijken (2005) note that commercial banks in developing countries are significantly fewer or non-existent in certain regions, hence we test to see if access to formal finance improves the performance of SMEs in a developing economy context. The second dummy variable of interest to us is social capital, which helps us measure the importance of informal social networks. We use community support groups as a proxy for social capital in line with the growing literature that has documented the relevance of support networks improving business activities in developing countries, particularly Nigeria (Akinola, 2007; Nkonya, et al., 2010). We, therefore, create a variable indicating whether a firm operates in a community that has an active community support system.

Finally, we create an index of Public infrastructure by summing the dummies for transportation facilities, ICT and availability of markets. Transportation facilities indicate whether a firm operates in a community that has a public transportation system (bus/bus station), ICT indicates if a firm operates in a community that has a cell phone distributor and availability of market represents if firm operates in a community that has a local market or close to a local market. In this case, an enterprise that records a total number of 3 means that the enterprise has access to all three infrastructural components, while an enterprise that records zero (0) means that the enterprise does not have access to any of our infrastructural components. To further normalise this variable to fall between 0 and 100 we employ a standardised formula $\left(\left\{ \frac{X_{max} - X_i}{X_{max} - X_{min}} \right\} * 100 \right)$ where X_i represents the individual index value for each observation (which can take the form of 0, 1, 2, 3), X_{max} represents the maximum index value from all observations (in this case 3), and X_{min} represents the minimum index value from all observation (in this case 0). In this way, an observation with a final index of value of 0 would represent the lowest obtainable infrastructural score, and vice versa for an observation with index value 100.

Firm's location: Arguably, one of the most important factors that could affect a firm's efficiency is the location of the business since conventional wisdom assumes that firms that have access to economic resources would potentially do better than firms that have lower access. The inception of the analysis related to location and firm performance can be traced back to early works of Marshall (1920) who identifies the snowball effect resulting from

urbanisation. Marshall (1920) notes that firms within the urban area benefit from higher diversity in terms of labour specialisation and efficiency in production processes. On the other hand, Henderson (1974) challenges this view suggesting that in equilibrium, urban agglomeration may have a counterbalanced effect such as high cost of labour due to increased competition and high rental costs resulting from increased housing demands. These combinations may result in higher inefficiency in urban locations compared to rural areas. The possible performance variation resulting from numerous influences provides us with a basis to consider location (in the form of urban region and rural region) as a determining factor for firm performance differences.

Firm's age: We control for firm age following a study by Coad, et al. (2013) who identifies a variation in performance across the life cycle of firms. The authors argue that although younger firms are smaller in size, in their early years they experience higher growth rates in terms of sales, profit and productivity than older firms due to their flexibility and ability to adopt new technologies. Moreover, young firms may also seek to achieve Minimum Efficient Scale (MES), hence utilising resources efficiently to survive their initial years in business (Lotti, et al., 2009). However, once they survive, growth may actually lose its momentum (Coad & Halvarsson, 2014). Moreover, younger firms face constraining factors including; (i) access to markets (ii) access to technology (iii) access to human capital (iv) access to finance and (v) access to information (Harvie, 2002) which could limit their productivity. Older firms, on the other hand, benefit from gained experiences. Their ability to survive reflects their efficient use of resources (Adeoti, 2016). We, therefore, employ business years of operation to control for firms' age. Our measurement is continuous.

Managerial education: Welch's (1970) argument that education improves an individual's ability to collect and process information has undoubtedly received great recognition, especially in a country's development process where new technologies are required to improve the business environment. In this case, it is expected that managers with higher levels of education would effectively utilise market information and technologies to increase their competitive advantage, and in likewise, account for increased productivity compared to managers with lower levels of education. Our null hypothesis is that higher manager's education will have a positive effect on firm performance. Our variable is years of education. The full list of variables used in our empirical analysis is provided in Table 1 in the Appendix.

3.4 Data

The data employed for the empirical analysis of this paper is the Living Standards Measurement Survey (LSMS) made available by the World Bank Development Research Group. It is a General Household Survey conducted in collaboration with the National Bureau of Statistics as a result of the partnership which was established between the Federal Ministry of Agriculture and Rural Development (FMARD), the National Food Reserve Agency (NFRA), the Bill and Melinda Gates Foundation (BMGF) and the World Bank (WB). The Nigeria LSMS data has both the panel and cross-sectional element, which is collected twice a year (during the post-planting period and post-harvest period). Two waves are available, LSMS 2010/2011 and LSMS 2012/2013. Both samples are representative at the national level and provide a consistent estimate for key variables discussed in this paper. Aside from very detailed information about the non-farm enterprises that household members engage in - such as their enterprise expenditure (in terms of capital, labour cost, material cost) and output (in terms of total sale), it also provides very detailed characteristics of the community they operate in. Given our research focus, we restrict our samples to exclude micro and small firms that are not in the manufacturing sector. 1,488 manufacturing sector firms are selected from a total of 14,855 household enterprises firms across wave one (LMSM 2010/2011) and wave two (LSMS 2012/2013). The small proportion of manufacturing enterprises is not surprising. NBS (2014) acknowledges that Nigeria's manufacturing sector accounts for fewer enterprises than other sectors (agriculture and services)

Table 3.1: Descriptive Statistics

	Mean	S. D
Social Capital		
Community Development Groups	0.7275	0.4861
Index of Infrastructure		
Transportation Facilities	0.4517	0.4865
ICT	0.3330	0.4693
Existence of Local Market	0.4840	0.4931
Financial Institution		
Access Financial Institution	0.2594	0.2947
Entrepreneurship	0.4453	0.4693
Number of Observation	1488	

Source: Author's computation from the Nigerian LSMS 2010/2011 and 2012/2013

Table 3.1, highlights characteristics of the environment in which the micro and small manufacturing firms operate. Overall, our statistics indicate that the quality of public infrastructure is relatively low. The means of all three infrastructural variables of interest to us are below 0.5, indicating that less than half of the communities in our sample have transportation facilities and access to ICT and markets. These results are similar to those in the wider literature on Nigeria and other parts of Africa which highlight the existence of very poor infrastructure (see Ondiege, et al. 2013). Moreover, the World Bank (2006) notes that while in regions such as China, Indonesia and Bangladesh there has seen significant improvement in public infrastructures, such as bridges, roads, markets, in Africa only 16% of the roads are paved. Moreover, transportation prices in Africa are among the highest compared to other regions.

Access to finance is particularly low; only about a quarter of the communities in the sample have access to a commercial bank. At the same time, the role of informal institutions and networks is important as indicated by the proportion of community-level networks of 72%. In sum, the low mean values recorded for infrastructure and access to finance indicate that the

performance of small and medium enterprises in Nigeria is likely to be constrained by poor business environment.

3.5 Empirical Results

Table 3.2 highlights the results from the stochastic frontier model, captured by equations (1) and (2). The statistical significance of the parameter γ highlighted in Table 3.2 suggests that inefficiency exists in the production relationship. In other words, the ordinary least squares (OLS) methodology would not have been an optimal choice to estimate our production function. Recall that our main interest is on the impact of business environment characteristics on firm-level efficiency (such public infrastructure, access to finance, and social capital). Hence, we do not discuss the coefficient estimates of the production function itself, but rather, we first report the distribution of technical efficiency across the micro and small manufacturing firms, as well as, across its sub-sectors (Figures 3.2 and 3.3, respectively) and then discuss the estimates of firm-level inefficiency to provide direct answers on factors that limit the performance of micro and small firms in Nigeria.

Figure 3.2: Kernel Density Estimate of Efficiency Score for Micro and Small Manufacturing Firms

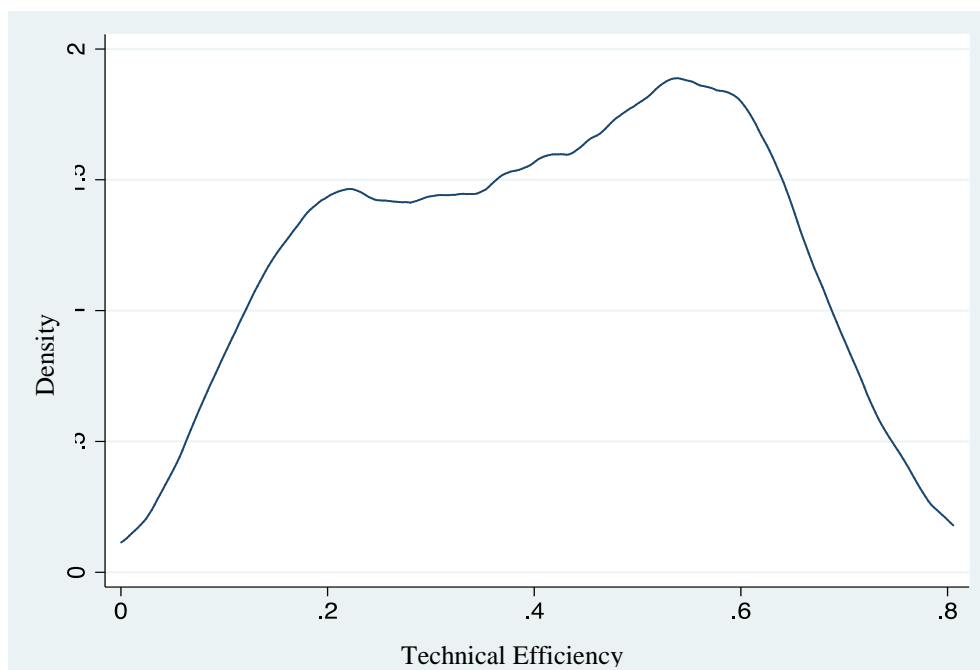
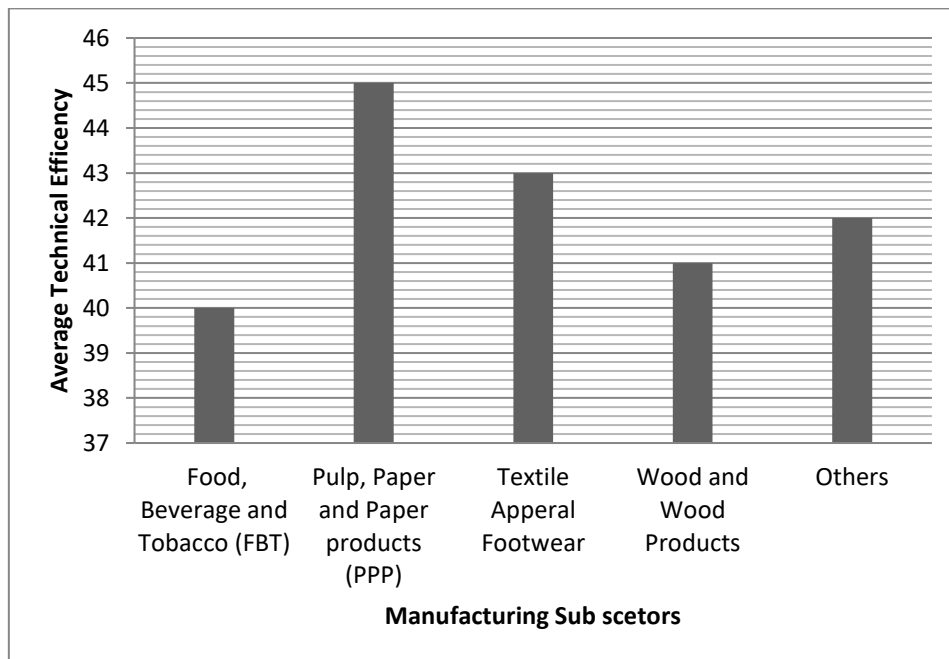


Figure 3.3: Variation in Technical Efficiency across the Manufacturing Sub-sectors for Micro and Small Firms



Source: Author's computation from the Nigerian LSMS 2010/2011 and 2012/2013

Figure 3.2 shows that majority of the micro and small manufacturing firms are fairly far from the frontier, with a significant number, clustered in 0.2, and the majority clustered between 0.5 and 0.6 when the frontier level efficiency is 1. The average technical efficiency is about 0.4161 with a median of 0.4311. This result is expected considering numerous studies highlighting the challenges and difficulties confronting small businesses in Sub-Saharan Africa. Moreover, our descriptive statistics suggest a weak business enabling environment due to limited infrastructural facilities. Figure 3.3 indicates that the average efficiency of micro and small firms varies significantly across the manufacturing subsectors. Contrary to expectations efficiency is smallest in the Food, Beverage and Tobacco (FBT) sector and largest in the Pulp, Paper and Paper Products (PPP) sector. This clashes with wider manufacturing sector evidence for Nigeria, indicating that the FBT sector contributes most to the total output (about 53%) realised from the manufacturing sector (NBS, 2014). A possible expectation is the absence of linkages (and gains from backwards and forward linkages) between the small and micro FBT firms, and the larger FBT firms. Another possible explanation is that high output in the production process by itself does not indicate that resources are used in the most efficient manner.

Table 3.2: Impact of Business Environment Characteristics on Efficiency

	(1)	(2)	(3)	(4)
Production Function Frontier				
Labour	-0.3610** (0.1451)	-0.3879** (0.1614)	-0.3496*** (0.1303)	-0.3232** (0.1314)
Material	-0.4988*** (0.1567)	-0.5348*** (0.1236)	-0.5427*** (0.1194)	-0.5310*** (0.1006)
Capital	-0.1401 (0.1330)	-0.1105 (0.1329)	-0.1084 (0.1286)	-0.1106 (0.1229)
Capital*Labour	-0.0016 (0.0066)	-0.0028 (0.0064)	-0.0027 (0.0051)	-0.0027 (0.0165)
Capital*material	0.0062 (0.0044)	0.0058 (0.0047)	0.0065 (0.0042)	0.0299 (0.0147)
Labour*material	-0.0022 (0.0031)	-0.0030 (0.0033)	-0.0025 (0.0029)	-0.0021 (0.0023)
Labour Square	0.0482*** (0.0146)	0.0515*** (0.0163)	0.0470*** (0.0133)	0.0500*** (0.0630)
Material Square	0.0137 (0.0112)	0.0110 (0.1113)	0.0109 (0.0109)	0.0010 (0.1113)
Capital Square	0.0549*** (0.0171)	0.0595*** (0.0133)	0.0595*** (0.0131)	0.0595*** (0.0133)
_cons	9.8036*** (0.2308)	9.7232*** (0.2690)	9.7600 (0.2438)	9.2232*** (0.3690)
Inefficiency Equation				
Urban	-0.0675** (0.2327)	-1.6718** (0.1442)	-1.2140*** (0.4250)	-1.3718** (0.0442)
Years of Business Operation	0.0082* (0.0105)	0.0127*(0.0111)	0.0125* (0.0120)	0.0027 (0.0011)
Managers Education	0.0114 (0.0230)	0.0043 (0.0254)	0.0076 (0.0241)	0.0142 (0.0231)
Social Capital	-0.0416*** (0.2126)			0.5966*** (0.2454)
Index for Infrastructure		-0.0152** (0.1505)		
Access to Finance			0.0104 (0.0030)	
Entrepreneurship clustering in Community				-0.0122** (0.1105)
Social Capital*Urban	-0.0598*** (0.2663)			
Index for Infrastructure*Urban		-0.0379 (0.0153)		
Access to Finance*Urban			-0.0217** (0.0056)	
Entrepreneurship clustering in Community*Urban				0.0379** (0.0153)
_cons	0.7309*** (0.3616)	-2.788** (1.6053)	-0.1453*** (0.5400)	-2.786** (1.6153)
Log Likelihood	-608.57303	-605.4643	-601.69838	-603.1643
LR χ^2 (Prob > χ^2)	152.78 (0)	165.52 (0)	176.26 (0)	160.51 (0)
γ	0.7119*** (0.1059)	0.7382*** (0.0113)	0.7272*** (0.1009)	0.7082*** (0.0123)
Number of Observation	1488	1488	1488	1488

Source: Author's computation from the Nigerian LSMS 2010/2011 and 2012/2013. The values within parentheses are robust standard error. Significance at ***1%, **5% and *10%, respectively.

We now proceed to the discussion of determinants of technical inefficiency, the key focus being on four business environment variables: (i) infrastructure, (ii) access to finance, (iii) social capital and (iv) Community entrepreneurship behaviour. In four different columns in Table 3.2 (namely columns 1, 2, 3 and 4) we report the individual effects of these four variables. The coefficient estimates of our inefficiency equation indicates the following: (i) inefficiency decreases with firms location to the urban area, (ii) inefficiency increases with firm years of operation, (iii) social capital in form of community network reduces inefficiency, even more so for urban firms (iv) the overall improvement and access to infrastructures (such as transportation, local markets and ICT) reduces the inefficiency of firms operating in both rural and urban locations (v) access to finance reduces inefficiency more for urban firms than rural firms (vi) communities with higher level of entrepreneurship increases the efficiency of firms, even more so for rural firms. These results are robust to the choice of our measure of business environment employed to estimate firm performance, accounting for inefficiency³.

Our observation is consistent with those of Babatunde, et al. (2012) who highlight a positive effect of an enabling environment on increased performance of firms in developing countries. Interestingly, we observe that the degree of impact of our environmental characteristics on firm's efficiency varies with respect to our measurement of the environment firms operate in. It is moderate (approximately 4%) and highly significant (at the 1% level) for social capital, and it is small (approximately 1%) and moderately significant (at the 5% level) for the index of infrastructure. A further analysis of interaction terms of our variables of interest with the urban dummy variable show a moderate efficiency enhancing effect of access to finance, entrepreneurial clustering and social capital.

The stylised literature on factors that determine firm performance identifies location as an indispensable factor that shapes and determines the success or failure of firms and their business activities. Our results agree with the part of the literature that shows that firms that exist in urban centres benefit from better access to resources (such as access to finance, infrastructure and social capital) in enhancing their efficiency. In line with this argument, our results imply that micro and small manufacturing firms in the urban centres have higher levels of efficiency compared to firms in the rural areas. Tran et al. (2008) explain the greater efficiency of urban firms with the better access to market opportunities and information, which

³ For this case, our framework (as in (Tripathy, 2006; Burki & Khan, 2011; Bhaumik & Dimova, 2011) implies that all negative coefficients signs of the technical inefficiency model report the relationship about technical inefficiency. Hence, all negative signs must be converted to positive for their relationship to be technical efficiency or vice versa (Charoenrat & Harvie, 2012).

gives urban firms relative advantage compared to rural firms. Typically, firms clustered in urban areas benefit from technological spill-overs and non-tradable intermediate inputs which not only increase their competitive advantage but also account for their business growth (Dixit & Stiglitz, 1977; Tripathy, 2006). Note, however, that in the reverse case, as urban areas grow, firms are faced with high costs of immobile factors (such as increased land prices and rental properties, higher wages and salaries, and higher commuting time for workers), as well as, increased competition, which could reduce their overall efficiency. Notwithstanding, in the case of Nigeria, urban firms appear to have higher technical efficiency, and this result is robust to the inclusion of measures of other environmental/external influences such as public infrastructure, access to finance and support networks.

3.6 Conclusion

Using household-level data from Nigeria, this paper discusses the impact of business environmental characteristics on the performance of micro and small manufacturing firms. We use production efficiency as our measure of firm performance (as opposed to profitability and sales) following past studies which identified the relevance of the efficient use of limited resources for greater developmental implications in a developing country context. As expected, our results indicate that micro and a small firm in Nigeria's manufacturing industry are highly inefficient. Moreover, they operate in a weak environment characterised poor access to finance, lack of ICT, insufficient transportation facilities and poor market links which taken as a whole hinders the efficiency of their performance.

Our results also suggest that better business environment characteristics such as public infrastructures, access to finance and social capital, improve the productive efficiency of small and medium manufacturing firms. This indicates that government effort should be placed on improving the business environment with a major focus on the rural region. A salient feature of our results is that the government should encourage interlinkage opportunities with larger manufacturing firms, which has the potential to facilitate knowledge spill-over through collaborative practices (Carvalho & Lee, 2013)

APPENDIX

Table A2-1: Definition of Variables

Variable Details		Definition and units
Outcome Variables		
Log Output		Natural Log of Total Sale
Production Frontier Variables		
Log Material		Natural Log of Cost of raw materials used by firm
Log Capital		Natural Log of Capital stock of firm
Log Labour		Natural Log of Cost of Labour
Inefficiency Variables		
Environment Variables		
Social Capital		Dummy=1 if firm operates in a community that has an active community development group, otherwise = 0
Public Infrastructure	Transportation Facilities	Dummy=1 if firm operates in a community that has a public transportation system (bus/bus station), otherwise = 0
	ICT	Dummy=1 if firm operates in a community that has a cell phone distributor, otherwise = 0
	Market	Dummy=1 if firm operates in a community that has a local market, otherwise = 0
Access to Finance		Dummy = 1 if firm operates in a community that has a formal Bank, otherwise = 0
Control Variables		
Urban		Dummy = 1 if firm is located in the urban region, otherwise = 0
Years of Business Operation		The average years the business has been in operation
Managers Education		The average years of the manager's education

NB: Components of the community questionnaire are selected by identifying groups of villages in rural or urban areas within an Enumeration Area.

Table A2-2: Correlation Matrix of Variable

	Labour	Material	Capital	Urban	Years of Business Operation	Mangers Education	Access to Finance	Social Capital	Infrastru cture	Access to Finance* Urban	Social Capital*Urban	Infrastructure *Urban
Labour	1											
Material	0.2459	1										
Capital	0.2451	0.4129	1									
Urban	0.0953	0.0304	-0.0316	1								
Years of Business Operation	0.1176	-0.2308	-0.1253	-0.1495	1							
Mangers Education	-0.3802	0.1626	-0.0523	-0.4382	0.1331	1						
Access to Finance	0.0453	0.0481	-0.4297	0.0778	0.1326	-0.1164	1					
Social Capital	-0.4513	0.2694	0.021	0.2973	0.2451	0.0594	-0.1045	1				
Infrastructure	0.0328	0.2103	0.1269	-0.0155	0.1885	0.1956	-0.6185	0.3339	1			
Access to Finance*Urban	0.0372	0.0391	0.1558	0.4408	0.0199	-0.2409	0.4865	0.0273	-0.5323	1		
Social Capital*Urban	0.016	0.0873	0.0152	0.3466	0.2126	-0.3559	0.0294	0.433	0.0542	0.3701	1	
Infrastructure* Urban	0.0429	0.0983	0.0503	0.0998	-0.4055	-0.4494	-0.4288	0.3718	0.4	0.4387	0.0092	1

4.0 CHAPTER FOUR

ENTREPRENEURSHIP AND THE GENDER GAP IN THE ALLOCATION OF LABOUR

4.1 Introduction

For decades now, the concept of self-employment has received a great deal of attention from both academics and policy makers. One reason for this interest is the steep rise in self-employment in major parts of the world since the mid-1970s, after a long period of decline which dates back to the late 1940s. In the United States (US), the number of non-farm workers who became self-employed between 1975 and 1990, increased by about 74% while the number of wage employees increased by only 33% (Devine, 1994). Self-employment increased by about 13.4% in the United Kingdom (Philpott, 2012). Developing countries are not an exception. Self-employment in sub-Saharan Africa, especially in countries like Ghana, Angola, Nigeria and Uganda is as high as 70% (World Bank, 2014). Even more impressively, the proportion of self-employed women in Africa has increased sharply compared to that in more developed parts of the world. While in the European Union (EU) women constitute about one-tenth of business owners (Kelly, et al., 2010) female self-employment in sub-Saharan African countries ranges from about 40% in Ethiopia, Kenya and Malawi to as high as 80%, or even more in countries like Gambia, Ghana, Sierra Leone, Guinea and Burundi (Punnett & Clarke, 2016). Given the size of the phenomenon and controversies in the literature on gender gaps in the labour market and the necessity versus opportunity nature of entrepreneurship addressed in earlier chapters of this thesis, exploring the nature of female self-employment in Nigeria in the framework of broader labour allocation patterns is essential.

The neoclassical economics model of Becker (1991) is a natural starting point for discussing the issue of allocation of labour between working and not working, on the one hand, and across various labour market sectors, on the other. According to this model, women allocate their working hours between household duties and labour market participation based on relative returns. Women with lower potential earnings (usually determined by their levels of education and experience) are more likely to leave the labour market since the cost of salaried employment outweigh the benefits (for instance, if the cost of quality child care is greater than earnings). Similarly, they choose entrepreneurship over salaried employment if the

net benefits from the former outweigh those of the latter. The outcome of this process is not inconsistent with that predicted by feminists whereby gender limits the ability of women to take up profitable salaried employment. Specifically, women face discrimination in the salaried labour market even if they possess the same levels of education and experience as their male counterparts (Shakeshaft & Nawell, 1984; Ahl, 2007). Evidence suggests that among major industrial groupings, the gender pay gap between men and women is 38.6% for full-time salaried employment (Perfect, 2011). Moreover, women are generally located in the lowest pay and skill grades and occupy the majority of part-time roles (Bradley, 2000; Grant, et al., 2006). As a result, they may be better off opting for self-employment.

The general neoclassical conceptual framework of labour market allocation is also consistent with the models of Evans and Leighton (1989) and Storey (1991) that focus explicitly on the allocation of individuals into self-employment. These authors argue – and provide evidence thereof – that individuals who receive relatively lower earnings as employees and are financially constrained to meet familial needs are most likely to become self-employed. At the same time, these arguments clash with the literature on entrepreneurship that focuses on asset constraints to the entrepreneurial market. Specifically, there has been a proliferation of papers showing that the lack of sufficient start-up capital constrains individuals' ability to choose self-employment. For instance, Evans and Jovanovic (1989) and Evans and Leighton (1989) provide evidence that the probability of self-employment increases with an individual's net worth. Similarly, Holtz-Eakin et al. (1994) and Blanchflower and Oswald (1998) found that the presence of inheritances and family gifts increases an individual's probability of choosing self-employment. At the backdrop of this evidence, the rise of female self-employment in Africa is surprising, given women's relative poor access to finance and other production inputs (Fox & Sohnesen, 2012; Fox, et al., 2013), lack of land ownership (Croppenstedt, et al., 2013), low skills gained from salaried employment (Renzulli, et al., 2000; Hiromi, 2002), and limited formal education.

It is perhaps more plausible to assume that rather than being opportunity entrepreneurs who choose self-employment because benefits from it exceed those from not working, self-employed women in Africa are (on average) more likely to be pushed into self-employment by necessity (Margolis, 2014; Taniguch, 2002). For instance, Fields (2014) provides evidence from seven (7) developing countries – including India, Bangladesh, Ghana, Madagascar, Mali, Kenya and South-Africa -indicating that most of the world's poorest people are self-employed and of these a significant percentage are women. Yet the literature on whether women are

necessity or opportunity entrepreneurs and whether their small businesses are either more or less likely to succeed than those of their male counterparts is inconclusive.

The focus of one of the most popular topics of empirical research in this area is the role of education in the allocation of labour across salaried employment and self-employment. The proportion of highly skilled individuals that choose to allocate into self-employment is implicitly used as a proxy for opportunity as opposed to necessity entrepreneurship. The evidence from this literature is mixed. A large group of authors (i.e. Rees and Shah, 1986; Gill, 1988; Dolton and Makepeace, 1990; Taylor, 1996; Clark and Drinkwater, 1998; Carrasco, 1999; Blanch-flower, 2000) find a positive effect of education on the probability of being an entrepreneur. When focusing explicitly on women, Carr (1996) finds that education aids women to be business owners. By contrast, Evans and Jovanovic (1989), Evans and Leighton (1989) and Taylor (2001) find that the role of education is insignificant. Moreover, Bruce (2000) and Johansson (2000) identify instances where women with low level of skills choose self-employment as a way of escaping the low returns to education in paid employment. Moreover, Taniguchi (2002) notes that formal education may matter less for entry into self-employment compared to the transition into salaried employment since returns to education are higher in salaried employment than self-employment.

The evidence on relative business success rates across male and female entrepreneurs is also inconclusive. Rees and Shah (1986), Taylor (1996), Falter (2002) and Millan et al (2012) establish that the businesses of female entrepreneurs are less profitable and have higher failure rates than those of their male counterparts. According to Sena, et al. (2012) the higher female failure rate is explained by the additional burden of family responsibilities, which often limit the time they spend on their business-related activities. Indeed, Kalleberg and Leicht (1991) note that if women have fewer family responsibilities and are operating at the same rate as their male counterparts; they would have equal chances of being successfully self-employed in the long run. This is consistent with studies by Cooper, et al. (1991; 1994) and Brüderl, et al. (1998) and Andersson (2009) who found evidence that gender has an insignificant effect on business survival rates after controlling for factors such as familial characteristics. On the other hand, there still exist a wide range of studies that have contradicted this assumption, indicating higher tendencies for male business survival compared to female, after controlling for all obvious characteristics (see Holmes and Schmitz, 1996; Taylor, 1996; Nziramasanga and Lee, 2001; Falter, 2002; Georgellis, et al.; 2007; Block and Sandner, 2009).

To address some of these controversies in the literature on female allocation into entrepreneurship we explore the transitional dynamics of women's labour allocation across 3 labour market states: self-employment, salaried employment, and not working, using representative Living Standards Measurement Survey data from Nigeria. Using Markov chain analysis, we first calculate the probability for an individual to allocate to either self-employment or salaried employment or not working in 2012-2013 when his or her starting point was either self-employment or salaried employment or not working in 2010-2011. We compare these probabilities across the two genders. Using a multinomial logit model, we then explore the determinants of these labour market transitions, drawing on a range of individual/human capital, household and institutional characteristics. The main purpose of this exercise is to find out whether entry into self-employment by women is necessity or opportunity driven and what human capital, household and institutional characteristics determine its character. Identifying the modality of female self-employment and its determinants would in turns allow us to outline policy recommendations. For instance, if we find that educated women stay in salaried employment only because barriers such as access to finance prevent them from grabbing more profitable opportunities in the self-employment sector, the policy focus should be on releasing financial constraints. Alternatively, if the greatest barrier to opting for a more remunerative opportunity in either salaried or self-employment is education, emphasis should be given to ensuring an appropriate skill development and match.

Our result suggests that self-employment does appear to be a less desirable sector than salaried employment in that education has a positive impact on allocating into salaried employment out of any of the three initial states and the opposite is true for self-employment. Being married is an important trigger for exiting the state of not working and becoming self-employed and this is particularly true for relatively poorer households. All of these characteristics are consistent with the perception of self-employment as a necessity rather than opportunity phenomenon. At the same time, access to credit has a strong positive effect on moving from not working to self-employment. Self-employment is also enhanced by the ability of women to own land and the availability of jobs in the local area. This underlines the potential for government intervention in changing the nature of self-employment for women.

Therefore, this paper proceeds as follows. Section 2 discusses the empirical methodology. Section 3 describes the data and highlights some descriptive statistics. The results from the

transition matrix analysis are presented in Section 4. Section 5 presents the empirical results, and Section 6 concludes.

4.2 Methodology

4.2.1 Markov Chain transition analysis

As indicated earlier, the first step of our analysis involves exploring the occupational transition of men and women in Nigeria between 2010 and 2013, after which we look at the factors that determine their transition patterns across self-employment, salaried employment and not working. Note that when individuals are observed continuously over time, transitions between occupational choices can be analysed using parametric, nonparametric, and semiparametric methods (Andersen et al., 1993). By contrast, when the subjects are observed at discrete time points, the exact transition point is not known, and all that is known is the state occupied at each assessment period of the related survey - usually panel data - the transitions are typically analysed using First Order Markov Chains models (Aeschimann et al. 1999). The FOMC model aims to describe the dynamics of the probability distribution over time and fulfils the condition that:

$$[1] Pr(x_t = i | x_{t-1}, \dots, x_1) = P(x_t = i | x_{t-1}), \quad i = 1, \dots, k$$

where x_t is a random variable which describes the ‘state’ of a given individual in the labour market at time t . In this paper, x_t is discrete and takes only $k=3$ distinct values (‘self-employment’, ‘salaried employment’ and ‘not working’). The probabilities of moving from state i to state j between time $t - 1$ and t is expressed as:

$$[2] P_{ij(t)} = Pr(x_t = j | x_{t-1} = i)$$

$P_{ij(t)}$ is the vector of transition probabilities between different states. The overall set of transition probabilities between the labour market states can be organized in a $k \times k$ matrix. Hence, the probabilities in each row must sum to 1.

Our primary focus is on gender differences in occupational transitions for men and women in Nigeria’s labour force between years 2010 and 2013.

4.2.2 Explaining Labour Market Transitions

Next, we employ multinomial logit regression analysis to identify any observable gender differences in the labour reallocations across self-employment, salaried employment and not working.

For the purpose, we estimate the following equation using multinomial logistic regression model (see table A3-1 for definition of variables):

$$\begin{aligned} [3] \text{ Occupation} = & \beta_0 + \beta_1 \text{ Age} + \beta_2 \text{ Education} + \beta_3 \text{ Married} + \beta_4 \text{ Urban} + \beta_5 \text{ Childrenbelow6} \\ & + \beta_6 \text{ Childrenbetween6} - 14 + \beta_7 \text{ WomenCreditAccess} + \beta_8 \text{ EmployWomen} \\ & + \beta_9 \text{ Wownlandownership} + \beta_{10} \text{ HouseholdExpenditure} + u \end{aligned}$$

As indicated at the outset, equation 3 is estimated for three groups of individuals, namely those who were either self-employed or salaried workers or not employed in 2010-2011. Occupation consists of three categories, namely being self-employed, salaried or not working in 2012-2013. All explanatory variables are taken from the 2010-2011 cross sections to avoid potential endogeneity of some of the regressors. In keeping with the literature highlighted at the outset, some of the key regressors include the age and years of education of each respondent and household per capital expenditure (Rees and Shah, 1986; Blanchflower, 2000). The effect of these variables on labour allocations across the three states of interest to us gives an indication as to whether self-employment is more akin to dynamic entrepreneurship or hidden unemployment. In keeping with the literature focusing largely on gender-based patterns in labour allocation, we are particularly interested in exploring the role of family obligations for allocation of individuals across the salaried sector, self-employment and not working, in exploring the role of family obligations for allocation of individuals across the salaried sector, self-employment and not working. For the purpose, we include a dummy variable of whether the respondent is married and two additional variables on the presence of young children in the family. The presence of children who are less than 6 years old and children between 6 and 14 accounts for child-related gender-based differences that occur as a result of household tasks, home production and leisure arising from childbirth (Lundberg, 1988; Kunze, 2000; Hundley 2001; Miluka, 2013). In keeping with Hundley (2001), the null hypothesis is that children increase the female probability of opting out of employment.

We also take into consideration the environment in which women operate. For the purpose, we include a dummy variable indicating if an individual lives in a community that has credit facilities for women (Evans and Jovanovic, 1989; Fields, 2014). The null hypothesis is that

with access to finance, individuals - both male and female - will be able to not only enter entrepreneurship but also remain entrepreneurial in the long-run. In addition, we include a variable indicating whether the respondent resides in a community that is known for providing job opportunities for women. Finally, we include a dummy variable indicating whether the community in which the respondent operates gives women land ownership. Finally, we include a variable indicating whether the respondent lives in an urban or a rural area. The variables used in our analysis are described in Table A3-1 in the appendix.

4.3 Data

The data used for this analysis is once again the Living Standard Measurement Survey (LSMS) for Nigeria, conducted by the World Bank Group. It is a household survey which was collected in collaboration with the National Bureau of Statistics for Nigeria. The available years are 2010/2011 and 2012/2013. These waves are collected in two rounds each year (post-planting period and post-harvest period), making a total of four available waves altogether, and can be used either as a panel or as an individual cross-section. The LSMS dataset for Nigeria is fairly rich as it provides detailed information regarding demographics, labour market/occupational information and community characteristics for about 5000 households.

To ensure consistency with the labour economics literature, we restrict our sample size to working-age individuals between the ages of 15 and 65. After accounting for missing variables and attrition in both years, we are left with a subset of about 15,520 individuals from 4,853 households in 2010 and 2013 that are matched with confidence. Note that the attrition rate is very low at about 0.6% which is normally regarded as negligible (Fitzgerald, 1998; Alderman, et al., 2000). Moreover, we are fairly confident that most of the attrition is random – such that the inability to locate households after reallocation would not influence the validity of our results (The World Bank, 2017). This is in line with Falaris (2003) who found that attrition bias in regression analyses using LSMS data sets is insignificant.

We divide our sample into three labour market categories: “Self-employment” “Salaried employment” and “Not working”. Individuals are classified as self-employed if they own and manage an income generation activity. Salaried individuals are those that take up any form of paid employment, including employment by the federal government, state government, local government, parastatals, the private sector, NGO’s, cooperatives, international organisations and religious organisations. Not working are individuals who are of working age but are neither salaried employees nor self-employed at the time of the survey; in other words, they are either

unemployed or out of the labour force. All definitions are based on the primary labour market activity of the respondent. Furthermore, all categories - “Self-employment” “Salaried employment” and “Not working”, are further disaggregated by gender. Due to data limitations in recording years of experience in paid employment, we only control for the age of the respondent, but not for either imputed or actual years of experience.

Table 4.1: Descriptive statistics

	Self-Employment 2010		Self-Employment 2013		Salaried 2010		Salaried 2013		Not Working 2010		Not Working 2013	
	Female	Male	Female	Male	Female	male	Female	male	Female	male	Female	male
Age	37.6186 (12.5759)	38.9555 (13.7619)	39.0905 (12.4714)	39.7272 (13.6196)	34.8707 (11.6258)	37.1106 (13.3130)	36.1878 (12.0109)	39.6478 (13.5922)	27.5655 (11.5181)	23.714 (9.8885)	29.6025 (12.314)	26.0010 (11.3852)
Years of Education	4.5540 (4.8898)	6.7474 (5.1866)	4.7708 (4.9349)	6.4266 (5.1615)	9.4266 (6.0647)	11.1027 (4.9078)	10.2048 (6.2198)	12.9670 (5.3290)	7.6516 (5.6085)	8.6524 (3.6851)	8.3766 (5.3739)	9.4723 (4.6507)
Urban	0.2603 (0.4389)	0.2337 (0.4232)	0.2579 (0.4375)	0.2372 (0.4231)	0.3743 (0.4842)	0.4662 (0.4990)	0.2848 (0.4515)	0.3626 (0.4809)	0.3579 (0.4794)	0.4030 (0.4906)	0.2905 (0.4540)	0.3180 (0.4657)
Married	0.7966 (0.4083)	0.7437 (0.4179)	0.7911 (0.0109)	0.7159 (0.4510)	0.5747 (0.4687)	0.5773 (0.4862)	0.6587 (0.4625)	0.5824 (0.0225)	0.4645 (0.4988)	0.3773 (0.2671)	0.5076 (0.4999)	0.4173 (0.3383)
Small children (less than 6)	0.6356 (0.4747)	0.6338 (0.0151)	0.7311 (0.4963)	0.7293 (0.4890)	0.7333 (0.4933)	0.7206 (0.4878)	0.7211 (0.4997)	0.7323 (0.4991)	0.7463 (0.4781)	0.7365 (0.4960)	0.7210 (0.4996)	0.7130 (0.4905)
School aged children (6-14)	0.7964 (0.4027)	0.7834 (0.4119)	0.7980 (0.3858)	0.8034 (0.3829)	0.7814 (0.4135)	0.7870 (0.4506)	0.78153 (0.3976)	0.7781 (0.4058)	0.7543 (0.4305)	0.7523 (0.4177)	0.7639 (0.4045)	0.7559 (0.4295)
Household expenditure (N)	84,709 (62,258)	86,258 (68,329)	97,340 (79,969)	97,953 (83,620)	120,209.2 (104,205)	126,046 (105,284)	125,117 (132,869)	130,852 (116,819)	102,718 (87,551)	106,718 (98,375)	102,035 (88,626)	105,164 (98,161)
Communities where women have access to credit	0.4462 (0.4782)	0.5118 (0.4823)	0.3521 (0.4977)	0.5029 (0.4905)	0.5334 (0.4470)	0.5300 (0.4441)	0.5587 (0.4968)	0.5242 (0.5002)	0.5534 (0.4690)	0.5252 (0.4542)	0.5552 (0.0290)	0.5261 (0.4971)
Communities that hire women	0.5209 (0.4009)	0.5252 (0.4928)	0.5311 (0.4991)	0.5837 (0.4998)	0.5210 (0.4941)	0.5260 (0.4947)	0.5484 (0.4987)	0.5430 (0.4984)	0.5427 (0.5001)	0.5527 (0.5001)	0.5353 (0.4958)	0.5579 (0.4882)
Communities where women have right to own properties	0.5549 (0.4009)	0.5894 (0.4920)	0.5539 (0.4869)	0.5867 (0.4837)	0.5880 (0.4925)	0.5866 (0.4382)	0.5890 (0.4987)	0.5815 (0.4852)	0.5796 (0.4964)	0.5734 (0.4893)	0.5791 (0.4901)	0.5643 (0.4995)
Observations	4,230	3,591	3,091	2,827	982	1,046	532	932	3,087	2,584	4,676	3,462

Note: The figures in brackets are standard deviation

Table 4.1 highlights the descriptive statistics of variables of interest to us, categorised in the three major sectors. We report the means and standard deviation of relevant characteristics separately for men and women across both panel years. Our descriptive statistics show that the average age for women and men who are not employed is lowest among those who do not work. In 2010, men and women who do not work recorded an average age of approximately 27 and 23 respectively, while in 2013, their average age was approximately 29 and 25 respectively. This observation is consistent with the evidence of high level of unemployment amongst the younger population in Nigeria, with male unemployment occurring at a much younger age. Consistently with the literature on allocation across salaried employment and self-employment, self-employed individuals are on average older than salaried individuals, especially among the female sample.

Self-employed men and women are also more likely to be married than either the salaried employed or those not working, which is consistent with the fact that those who are self-employed are on average older than the salaried employed and those who do not work. But interestingly, we do not see major gender differences in the presence of young children among those who work in the salaried and self-employment sector and hence family obligations do not appear to be among the largest determinants of self-employment.

The average years of education of both women and men are the lowest in self-employment, with self-employed women accounting for a much lower level of education than that of their male counterparts. While this observation goes against Schumpeter's (1934) and Kirzner's (1973) ideal profile of an entrepreneur who is highly skilled, these results are consistent with statistics from other parts of Africa, and Nigeria in particular.

The means of per capita household expenditures are highest among those in salaried employment and lowest among those who are self-employed. This is consistent with the education differences across the three sectors and hence paints a portrait of self-employment as a necessity driven sector. On average, men earn slightly more than women in the salaried sector, but the average pay gap in self-employment is not significant.

Finally, there are some interesting differences in the means of the community variables across the three sectors and across genders. Perhaps the most striking observation is that the means of community credit access for women is lowest among the samples of those involved in self-employment, compared to those in salaried employment and not working. In fact, the means are lower among self-employed women than men. In other words, the descriptive

statistics do not indicate that female entrepreneurship is helped significantly by community level access to finance. By contrast, there are no significant differences in the means of the community variables that capture job opportunity and land rights of women across the different sectors and gender.

Overall, a first glance at the data reveals the self-employment sector as a necessity as opposed to opportunity driven sector- an observation consistent with the results in Paper 1. At the same time, there is no conclusive enough evidence that women are clearly disadvantaged, except that – as expected- they do on average earn less than men in salaried employment. In what follows, we shall explore these patterns more rigorously.

4.4 Summary of transition results

Following the discussion in Section 4.1, we first explore the transition probability of men and women in the Nigerian labour market.

Table 4.2: Labour Force Cross-Sectional Distribution

	Self- Employment	Salaried	Not- Working
Full Sample			
Initial distribution	50.39 %	13.07 %	36.54 %
Final distribution	38.13 %	9.43 %	52.44 %
Female			
Initial distribution	50.97 %	11.83 %	37.20 %
Final distribution	37.25 %	6.41 %	56.34 %
Male			
Initial distribution	49.73 %	14.49 %	35.78 %
Final distribution	39.15 %	12.91 %	47.94 %

Source: LSMS, authors Calculation

Table 4.3: Markov Chain Probability Transition Matrix (2010-2013)

	Self- Employment	Salaried	Not- Working
Full Sample			
Self-Employment	47.72 %	5.68 %	46.61 %
Salaried	26.48 %	23.72 %	49.80 %
Not Working	29.08 %	9.50 %	61.42 %
Female			
Self-Employment	45.30 %	3.42 %	51.28 %
Salaried	29.32 %	17.28 %	53.41 %
Not Working	30.18 %	6.76 %	63.06 %
Male			
Self-Employment	49.78 %	8.10 %	42.12 %
Salaried	25.74 %	29.59 %	44.67 %
Not Working	29.25 %	13.20 %	57.54 %

Source: LSMS, authors Calculation

Table 4.2 reports the cross-sectional labour market distributions for men and women respectively, while Table 4.3 highlights the Markov Chain Probability Transition Matrix, the pattern that these two distributions reveal is of a rather depressed labour market. We see that for both men and women the probability of being either a salaried worker or self-employed goes down between 2010-2011 and 2012-2013, while the probability of being part of the non-working pool increases. The decrease in self-employment and salaried employment is much steeper for women, while the proportion of women who are in the salaried sector is lower during both points in time. In other words, we do not observe any clear positive implication of Nigeria 20: 2020 on labour market allocations.

The transition probabilities highlighted in Table 4.3 are consistent with these patterns. For the sample as a whole, the probability (of 61.42%) of remaining in the pool of non-working labour market participants between 2010 and 2013 exceeds all other transition probabilities. It is as high as 64.06% for women and 57.54% for men. Similarly, as many as 53.41% of the women and 44.67% of the man moved from salaried employment to the non-working pool between 2010 and 2013. The corresponding transition probabilities for the movement from self-employment to not working are 51.28% for women and 42.12% for men. It is interesting to note that the probability of moving from salaried employment to self-employment is higher

for women (29.32%) than for men (25.74%). At the same time, the probability of remaining in salaried employment is higher for men (25.78%) than for women (17.28%). If - as suggested by the descriptive statistics – self-employment is more akin to hidden unemployment than dynamic entrepreneurship, this result highlights inferior position of women in the labour market and hence failure of Nigeria 20: 2020 program to realise its objective. In what follows it is, therefore, worthwhile exploring the determinants of these patterns in greater rigour and depth.

4.5 Regression result

The marginal effects from our multinomial logit regression model highlighted in equation [3] are reported in Tables 4.4, 4.5 and 4.6. As indicated in Section 4, our dependent variable captures the three choices facing a labour market participant, namely self-employment, salaried employment, and not working. It is regressed on a set of 2010 characteristics of that respondent, highlighted in Section 4.2. The multinomial logit is performed over three different samples. We start with those who were in self-employment in 2010 and explore the determinants of where they ended in 2013 (Table 4.4). Tables 4.5 and 4.6 highlights the analogical results for the samples of those who in 2010 were in salaried employment and not working, respectively.

Table 4.4: Determinants of Labour Allocation for People in Self-Employment in 2010 (Marginal Effects from Multinomial Logit Model)

	Female			Male		
	Self-Employment (2013)	Salaried Employment (2013)	Not-Working (2013)	Self-Employment (2013)	Salaried Employment (2013)	Not-Working (2013)
Age	0.0121*** (0.0013)	0.0005** (0.0003)	-0.0107*** (0.0013)	0.0122*** (0.0020)	0.0005*** (0.0008)	-0.0129*** (0.0020)
Years of Education	-0.0055*** (0.0036)	0.0088*** (0.0007)	0.0044*** (0.0036)	-0.0056*** (0.0039)	0.0089*** (0.0016)	0.0044*** (0.0039)
Married	0.2871*** (0.0322)	0.0071 (0.0063)	-0.2943** (0.0327)	0.4416** (0.0465)	-0.0175 (0.0222)	-0.4244** (0.0476)
Urban	-0.0652 (0.0448)	0.0021 (0.0076)	0.0630 (0.0454)	-0.0976 (0.04914)	0.0439 (0.0247)	0.0536 (0.0500)
Small children (less than 6)	0.0533 (0.0347)	-0.0048 (0.0069)	-0.0581 (0.0350)	0.0144 (0.0422)	0.0416 (0.0178)	-0.0561 (0.0415)
School aged children (6-14)	-0.0235 (0.0438)	-0.0212 (0.0121)	0.0447 (0.0441)	0.0486 (0.0496)	-0.0100 (0.0219)	-0.0385 (0.0492)
Household Expenditure	-0.0000 (0.0000)	0.0000 (0.0000)	0.0000** (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)
Female access to credit	0.1018 (0.0320)	0.0094 (0.0074)	-0.1112 (0.0323)	-0.0352 (0.0388)	0.0133 (0.0172)	0.0218 (0.0385)
Communities that hire women	-0.0548*** (0.0310)	0.0025** (0.0063)	-0.0523 (0.0312)	-0.0426 (0.0371)	0.0075 (0.0160)	0.0350 (0.0369)
Female right to land ownership	0.0595 (0.0323)	0.0146 (0.0067)	-0.0741 (0.0325)	0.0345 (0.0390)	-0.0070 (0.0174)	-0.0274 (0.0389)
Observation	1916	145	2169	1787	291	1513

Notes: ***, ** and * indicates significance at 1%, 5% and 10%. Parentheses are standard errors. The Hausman test and Small-Hsiao tests (Table 4.7) indicate that the model specifications met the Independent and Irrelevant Alternatives condition

The marginal effects associated with the sample of those who started in self-employment are consistent with the patterns highlighted in the descriptive statistics. We observe that more educated men and women are more likely to move from self-employment to salaried employment and less educated men and women are more likely to remain in self-employment. Even more strikingly, the marginal effect of the education variable is positive and significant in the non-working category, perhaps indicating that these individuals are queuing for salaried employment jobs. Marriage has a significant effect on staying self-employed and negative effect on moving to the state of not working, once again consistent with the perception of self-employment as a necessity-driven entrepreneurship, at the same time neither the presence of young children nor poverty (captured by the per capita expenditures variable) has a significant impact on the exit from self-employment. Among the institutional variables, the only significant result is that of positive impact of availability of jobs for women in the community on the movement from self-employment to salaried employment and the negative impact of this same variable on remaining self-employed. This is consistent with our expectations.

Looking next at the results for those who started as salaried employees in 2010, we observe that for both men and women education has a strong impact on remaining in salaried employment. In keeping with the literature on family constraints, small children (of less than 6 years of age) have positive impact on movement of women out of salaried employment into either not working or self-employment and negative impact on remaining in salaried employment. Greater household per capita expenditures has a positive impact on the movement of women from salaried employment into not working and negative impact on moving into self-employment, which is once again consistent with the necessity character of self-employment. Similarly, being better off enhances the chances of men to remain salaried employed. Among the institutional variables, community level access to finance for women enhances the chances of women to move from salaried employment to self-employment. The same is true for female right to land ownership, while female land ownership rights reduce the probability of women to remain in salaried employment. The latter two patterns are consistent with the possibility of an opportunity entrepreneurship niche within the self-employment sector and together with the evidence that the availability of female jobs in the community reduce the probability of men to stay in salaried employment highlight intervention possibilities of changing the nature of female self-employment from necessity to opportunity driven and generally reducing labour market discrimination for women.

Finally, we focus on the determinants of allocating out of not working into any of the three

labour market states of interest to us (Table 4.6.). These results are consistent with the rest of the evidence so far. We see that education has negative impact on moving from not working into self-employment and positive impact on either staying in the pool of non-working individuals or moving into salaried employment, once again highlighting the negative selectivity pattern into self-employment. Marriage is a push factor into self-employment and out of not working, while greater household per capita expenditures reduce the chance of moving from not working into self-employment. As in the case of movement out of salaried employment, access to credit for women increase their chances of moving from not working into self-employment and the same is true for rights of land ownership. Finally, job opportunities for women in the community enhance the chances of women to move out of not working into salaried employment and reduce their chances to move into self-employment.

Taken as a whole our empirical results paint a picture of a necessity driven self-employment whereby generally less educated and poorer individuals, as well as family constraints, push all labour market participants, but especially women, out of the states of not working and salaried employment into self-employment. At the same time, the results also indicate a potential for policy intervention to change this pattern in the direction of both reducing female discrimination and enhancing the chances for women to open a business. This is especially evident from the positive influence community level job availability for women has on enhancing the chance for women to move from either not working or self-employment into salaried employment as well as the importance local access to finance and land ownership has on enhancing the chances for women to open their own businesses. On the other hand, increasing women's access to employment reduces men's likelihood of remaining in salaried employment

Table 4.5: Determinants of Labour Allocation for People in Salaried Employment in 2010 (Marginal Effects from Multinomial Logit model)

	Female			Male		
	Self-Employment (2013)	Salaried Employment (2013)	Not-Working (2013)	Self-Employment (2013)	Salaried Employment (2013)	Not-Working (2013)
Age	0.0079 (0.0033)	0.0052 (0.0020)	-0.0170 (0.0036)	0.0070 (0.0039)	0.0036 (0.0039)	-0.0107 (0.0046)
Years of Education	-0.0120 (0.0079)	0.0267*** (0.0054)	-0.0146 (0.0086)	-0.0370 (0.0075)	0.0252*** (0.0080)	0.0118 (0.0092)
Married	0.2565 (0.0736)	0.0343 (0.0408)	-0.2909 (0.0768)	0.3331 (0.0972)	0.3002 (0.0963)	-0.6334 (0.0777)
Urban	-0.0912 (0.0809)	0.0190 (0.0414)	0.0721 (0.0884)	-0.2489 (0.0644)	0.1356 (0.0838)	0.1132 (0.0956)
Small children (less than 6)	0.0455* (0.0797)	-0.0469** (0.0394)	0.0013* (0.0857)	-0.0055 (0.0795)	0.0111 (0.0809)	-0.0056 (0.0916)
School aged children (6-14)	0.1823 (0.0886)	0.0196 (0.0456)	-0.2020 (0.0971)	-0.0317 (0.0925)	-0.1128 (0.0907)	0.1446 (0.0838)
Household Expenditure	-0.0000** (0.0000)	0.0000 (0.0000)	0.0000** (0.0000)	0.0000 (0.0000)	0.0000** (0.0000)	0.0000 (0.0000)
Female access to credit	0.1273** (0.0733)	0.0319 (0.0369)	-0.1592 (0.0784)	0.1062 (0.0700)	0.02173 (0.0762)	-0.1279 (0.0887)
Communities that hire women	0.0001 (0.0771)	0.0465 (0.0345)	-0.0467 (0.0816)	-0.0289 (0.0713)	-0.0185* (0.0723)	0.0475 (0.0823)
Female right to land ownership	0.0399** (0.0803)	-0.0350* (0.0373)	-0.0750 (0.0864)	0.0788 (0.0717)	-0.0573 (0.0781)	-0.0214 (0.0877)
Observation	288	170	524	269	309	468

Notes: ***, ** and * indicates significance at 1%, 5% and 10%. Parentheses are standard errors. The Hausman test and Small-Hsiao tests (Table 4.8) indicate that the model specifications met the Independent and Irrelevant Alternatives condition

Table 4.6: Determinants of Labour Allocation for People in Not Working in 2010 (Marginal Effects from Multinomial Logit model)

	Female			Male		
	Self-Employment (2013)	Salaried Employment (2013)	Not-Working (2013)	Self-Employment (2013)	Salaried Employment (2013)	Not-Working (2013)
Age	0.0117*** (0.0012)	0.0016*** (0.0004)	-0.0133*** (0.0013)	0.0072*** (0.0025)	0.0039*** (0.0013)	-0.0112*** (0.0028)
Years of Education	-0.0012** (0.0034)	0.0061*** (0.0011)	0.0094** (0.0035)	-0.0120*** (0.0050)	0.0202*** (0.0027)	0.0081** (0.0056)
Married	0.1771*** (0.0335)	0.0079 (0.0105)	-0.1851*** (0.0348)	0.4448*** (0.0663)	0.0510 (0.0397)	-0.4958*** (0.0627)
Urban	0.0328 (0.0380)	0.0030 (0.0106)	0.02993 (0.0396)	0.0646 (0.0544)	0.0445 (0.0290)	-0.1092 (0.0570)
Small children (less than 6)	0.0628 (0.0334)	0.0148 (0.0112)	-0.0777 (0.0349)	0.0461 (0.0491)	0.0911 (0.0293)	-0.1372 (0.0525)
School aged children (6-14)	0.0523 (0.0372)	-0.0044 (0.0112)	-0.0479 (0.0389)	-0.0198 (0.0565)	-0.0105 (0.0286)	0.0303 (0.0593)
Household Expenditure	-0.0001** (0.0001)	0.0000 (0.0000)	-0.0002 (0.0001)	-0.0000** (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
Female access to credit	0.0763** (0.0326)	0.0182 (0.0109)	-0.0945*** (0.0341)	-0.1107 (0.0477)	-0.0109 (0.0247)	0.1216 (0.0510)
Communities that hire women	-0.0423* (0.0316)	0.0170** (0.0111)	-0.0253 (0.0332)	0.0518 (0.0451)	0.0126 (0.0233)	-0.0645 (0.0497)
Female right to land ownership	0.0086** (0.0331)	-0.0049 (0.0108)	-0.0037 (0.0345)	-0.0343 (0.0475)	0.0219 (0.0233)	0.0128 (0.0509)
Observation	932	208	1947	756	341	1487

Notes: ***, ** and * indicates significance at 1%, 5% and 10%. Parentheses are standard errors. The Hausman test and Small-Hsiao tests (Table 4.9) indicate that the model specifications met the Independent and Irrelevant Alternatives condition

4.6 Conclusion

With the use of panel data constructed from the 2010-2011 and 2012-2013 Living Standard Measurement Surveys conducted in Nigeria, this paper explores the allocation of male and female labour in Nigeria across three different sectors of the labour market, namely self-employment, salaried employment and not working. Firstly, we used Markov chain model to assess the relative position of men and women in Nigeria's labour market in 2010-2011 and 2012-2013. Secondly, we employ a multinomial logit model to assess the determinants of mobility across each of the three different sectors. We reconcile conflicting views in the broad literature on determinants of self-employment in a developing economy context with a special focus on gender. The timing of the surveys allows us to compare the labour reallocation of men and women between the start and end point of the first stage of Nigeria's Vision 20:2020, which amongst its goals, seeks to improve women's participation in the labour market.

Our results indicated that the role of Nigeria Vision 20:2020 on strengthening women's relative position in the economy may not have been as strong as expected. Although the transition pattern for men and women in Nigeria are similar - in that the chance for both men and women to remain in the state of not working is higher than any other transition, while self-employment is more akin to hidden unemployment than not working, female are characterised by inferior position in the labour market. In particular, women are not only more likely to drop out of employment, but they find it significantly more difficult than men to sustain a job in the presumably superior salaried employment sector. At the same time, we do observe a positive impact of community level job opportunities for women on the transition of women into salaried employment jobs, while community level access to finance for women and improved land ownership rights for women enhances women's probability of opening their own business. Taken together, these local institutions-based results highlight a positive potential for intervention in reducing labour market discrimination and changing the nature of self-employment for women.

Table 4.7: Test of Independent and Irrelevant Alternative (IIA) Assumption for Table 4.4

Female					Male								
Hausman tests of IIA assumption					Hausman tests of IIA assumption								
Omitted	Chi2	df	P>chi2	Evidence	Omitted	Chi2	df	P>chi2	Evidence				
Salaried	-8.049	16	0.947	for Ho	Salaried	-7.053	16	0.988	for Ho				
Not Working	-4.132	16	0.999	for Ho	Not Working	-4.132	16	0.999	for Ho				
Small-Hsiao tests of IIA assumption					Small-Hsiao tests of IIA assumption								
Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	Evidence	Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	Evidence
Salaried	-639.26	-634.453	9.614	18	0.944	for Ho	Salaried	-66.114	-62.557	7.113	11	0.790	for Ho
Not Working	-191.683	-186.358	10.65	18	0.909	for Ho	Not Working	-64.345	-58.23	12.23	11	0.347	for Ho

Table 4.8: Test of Independent and Irrelevant Alternative (IIA) Assumption for Table 4.5

Female					Male								
Hausman tests of IIA assumption					Hausman tests of IIA assumption								
Omitted	Chi2	df	P>chi2	Evidence	Omitted	Chi2	df	P>chi2	Evidence				
Salaried	-5.613	16	0.241	for Ho	Salaried	-1.153	16	0.988	for Ho				
Not Working	-2.119	16	0.111	for Ho	Not Working	-4.132	16	0.999	for Ho				
Small-Hsiao tests of IIA assumption					Small-Hsiao tests of IIA assumption								
Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	Evidence	Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	Evidence
Salaried	-77.991	-64.227	27.527	18	0.157	for Ho	Salaried	-37.183	-28.328	17.708	11	0.189	for Ho
Not Working	-72.785	-65.144	15.282	18	0.643	for Ho	Not Working	-65.878	-48.772	34.213	11	0.244	for Ho

Table 4.9: Test of Independent and Irrelevant Alternative (IIA) Assumption for Table 4.6

Female					Male								
Hausman tests of IIA assumption					Hausman tests of IIA assumption								
Omitted	Chi2	df	P>chi2	Evidence	Omitted	Chi2	df	P>chi2	Evidence				
Self-employment	-7.334	16	0.811	for Ho	Self-employment	69.975	10	0	for Ho				
Not Working	-8.907	16	0.917	for Ho	Not Working	12.591	10	0	for Ho				
Small-Hsiao tests of IIA assumption					Small-Hsiao tests of IIA assumption								
Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	Evidence	Omitted	lnL(full)	lnL(omit)	chi2	df	P>chi2	Evidence
Self-employment	-166.681	-160.174	13.015	18	0.791	for Ho	Self-employment	-79.783	-72.28	15.006	11	0.182	for Ho
Not Working	-143.063	-134.594	16.938	18	0.527	for Ho	Not Working	-88.466	-81.726	13.48	11	0.263	for Ho

APPENDIX

Table A3-1: Definition of Variables

Variable Details	Definition and units
Outcome Variables	
Self-Employment	Individuals who own an income generating activity
Salaried Employment	Individuals in paid employment, including employment by the federal government, state government, local government, parastatals, the private sector, NGO's, cooperatives, international organisations and religious organisations
Not Working	Individuals who fall under the working age group and are unemployed as at the time of the survey
Explanatory Variables	
Age	The average age of an Individual
Years of Education	Year of education of an Individual
Female	Dummy = 1 if gender individual is female, otherwise = 0
Urban	Dummy = 1 if individual is in the urban area, otherwise = 0
Married	Dummy = 1 if individual is married, otherwise = 0
Small children (less than 6)	Dummy = 1 if individual has small children, otherwise = 0
School-aged children (6-14)	Dummy = 1 if individual has school age children, otherwise = 0
Household expenditure (N)	Natural logarithm of households' per capita expenditures
Communities where women have access to credit	Dummy = 1 if women have access to credit in the community, otherwise = 0
Communities that hire women	Dummy = 1 if people in the community hire women, otherwise = 0
Communities where women have right to own properties	Dummy = 1 if women have right to own lands, otherwise = 0

4.0 CHAPTER FIVE

SUMMARY AND CONCLUSION

This chapter takes a step back to discuss the rationale for this study, and in the later part, it discusses the key findings, policy implications and areas for further research. The dissertation investigates the place of the self-employed individual in the process of structural transformation in Nigeria. The analysis starts by first asking the question of how the structural transformation process of advanced economies (where economic activity moved from the primary sector to the secondary sector and – thereafter- the service sector) is different from the transition process of countries about to undergo or currently undergoing their structural transformation process. One key difference between early industrialisers and emerging economies today is that the options for industrial sector led growth are currently limited. As a result, many late industrialisers experience premature deindustrialisation and urbanisation without industrialisation. Their economies are often characterised by a significant decline in salaried employment, high poverty levels, and a weak business environment. Most importantly, due to the rising rate of unemployment, the majority of small businesses mask hidden unemployment (necessity entrepreneurship) as opposed to dynamic entrepreneurship. This highlights a potential scope for rethinking the contemporary applicability of traditional models of relatively smooth structural transformation and on the place of the entrepreneur in that transition process.

Nigeria's case appears to be peculiar, as past policies employed to achieve an efficient structural transformation has not achieved its desired outcome, even though recent statistics revealed that the economy is much more diversified than envisaged earlier. Even though sectors such as telecommunications are on the rise, oil and gas continue to be the country's major driver of growth. Coupled with the recent decline in global oil price, Nigeria's economy faces a major challenge. Worthy of note is that while the latest Global Competitiveness Report sees Nigeria as one of the 17 countries in transition from factor based to efficiency based economy (World Economic Forum, 2017), the same report ranks Nigeria at 125 out of 183 countries on the ease of doing business. In addition, Nigeria was ranked at 122 out of 135 countries in regards to education and skills. This raises questions about Nigeria's ability to achieve an efficient structural transformation.

The dissertation uses the Living standard measurement survey for Nigeria (LSMS 2010/2011 and 2012/2013) to examine how entrepreneurs in developing countries can help achieve an efficient structural transformation process. The first empirical chapter reconciles conflicting views in the literature of structural transformation and explores the nature of entrepreneurship in Nigeria across different sectors. Its focus is on the allocation of labour belonging to different skill groups across different entrepreneurial sectors – primary, secondary and tertiary – salaried employment and not working and the related returns to skills across the different entrepreneurial sectors. The aim is to know whether entrepreneurs are a negatively selected sample compared to the overall working age population and if there are niches within the secondary and/or tertiary entrepreneurial sectors, which attract high skill workers, thus creating incentives for skills acquisition as a prerequisite for efficient structural transformation.

Given that one of the key conclusions of the first empirical chapter is that both the lowest skills entrepreneurs allocate to the manufacturing sector and receive the lowest returns to skills there, the second part builds on fundamental classical models of industrialization (Rosenstein-Rodan, 1943; Murphy-Shleifer and Vishny, 1989; Kaldor, 1967) and explores efficiency constraints in the small-and-medium enterprise manufacturing sector. The focus is on business environment (such as access to finance, social capital and public infrastructure) through which micro and small manufacturing firms can improve their. The aim is to reconcile the conflicting views in the broad conceptual literature on the factors that improve firm performance in a developing economy context.

The third part revisits the necessity versus opportunity literature of entrepreneurship and identifies the gender gap in the allocation of labour. Its focus is on female labour reallocation across three states – self-employment, salaried employment and not working, between the year 2010 and 2013. This period coincides with the first implementation period (2010 -2013) of NV20:2020 which seeks to improve women’s relative position in the labour market. Hence, we draw on a range of individual/human capital (age and years of education), household (location, children and household expenditure) and environmental characteristics (access to finance, land ownership and wage employment availability) to explore the determinants of these labour market transitions with an aim of discussing what works best in ensuring productive female employment and self-employment.

4.1 Empirical Findings

Chapter Two: *Revisiting the issue of structural transformation in the process of economic development and the role of the entrepreneur and skill acquisition in this process.*

(i) Self-employment as a whole is more akin to necessity than opportunity entrepreneurship

Our results suggest that the level of skills across all entrepreneurial sectors is lower compared to individuals' in salaried employment and individuals who do not work. Furthermore, the majority of business owners either do not hire outside labour or hire no more than five workers, demonstrating limited growth potential of the entrepreneurial sector and hence limited potential of exploiting economies of scale. The tendency of entrepreneurs to export is also very low and the majority of self-employed individuals sell directly to final customers than exploring options of forward and backward linkages with other sectors. Finally, a dominant proportion of self-employed individuals either work from home or at a roadside. All these are characteristics are consistent with the concept of hidden unemployment than dynamic entrepreneurship.

(ii) Among entrepreneurial sectors, the service sector performs best and the manufacturing sector performs the worst.

When we focus only on the sample of self-employed individuals, we find that the service sector does best in attracting educated individuals and the manufacturing sector performs worst. Furthermore, while there are positive returns to skills in the agricultural and service sector, returns to skills among self-employed individuals in the manufacturing sector are particularly low and this is also the case when we disaggregate our entrepreneurial sample to self-employed individuals who hire worker and those who do not hire workers for the different sectors. This highlights a need for rethinking possible factors that will enhance the performance of entrepreneurs in the manufacturing sector.

Chapter Three: *Revisiting the ongoing debate on the factors that improve the performance of micro and small manufacturing firms*

(i) Nigeria has a weak business environment

Our analysis suggests that the ease of doing business in Nigeria is very low. Less than half of the communities in our sample have access to transportation facilities, ICT and markets. Access to a commercial bank is also low at about 26% of the community sample. Our results highlight the high role of social capital in business performance, suggesting that perhaps due

to market imperfection and a weak enabling business environment, micro and small firms rely on informal networks to improve their access to basic amenities.

- (ii) **As expected, social capital and better public infrastructure improve small and medium enterprise efficiency, on the other hand, the positive effect of access to finance on efficiency is more for urban firms than rural firms.**

The effect of social capital and public infrastructure on small and medium enterprise efficiency is positive and significant. On the other hand, while the effect of access to finance was insignificant overall, it becomes significant when interacted with the variable capturing urban location. In other words, access to finance increases efficiency more for urban firms than rural firms. This is consistent with other evidence on Nigeria, indicating that while access to finance is important for firms' entry into the market, some incumbent small enterprises do not use external finance to expand their activities as they rely more on informal funding from family and friends (Adebowale & Dimova, 2017) - perhaps, this may be the case for small-scale rural manufacturing firms in Nigeria. Our results, however, do not entirely rule out the importance of access to finance for firm performance but identify the need for innovative practices in this respect

Chapter Four: *Reconciling the controversies in the broad literature on gender gaps in the labour market, and on the necessity versus opportunity nature of entrepreneurship*

- (i) **The role of Nigeria Vision 20:2020 on strengthening women's relative position in the economy may not have been as strong as expected**

Our results do not show convincing evidence that NV20:2020 has improved the relative position of women during its first implementation period. On the one hand, we see that the means of community access to credit for women are lower compared to those for men. Moreover, self-employed women's access to credit declined from about 0.4 in 2010 to 0.3 in 2013. Furthermore, there are no significant differences in the means of the community variables that capture job opportunity and land rights of women across the different sectors.

- (ii) **On average, women experience inferior labour market outcomes**

While both salaried employment and self-employment went down for both men and women between 2010-2011 and 2012-2013 and the probability of allocating to the non-working pool increased, the decline in self-employment and salaried employment was much higher for women than men. Moreover, the proportion of women who were in the salaried sector across both periods was also much lower compared to men. More interestingly, our findings suggest

that women are not only more likely than men to drop out of employment but also find it significantly more difficult than men to sustain a job in the presumably superior salaried employment sector.

(iii) Self-employment is more akin to hidden unemployment than dynamic entrepreneurship

For both men and women, education had a positive impact on allocating into salaried employment, and a negative impact on allocating to self-employment from any of the three initial states. Marriage is also an important trigger for leaving the state of not working and becoming self-employed. Women from relatively poorer households are more likely to move from the state of not working to self-employed. All of these characteristics are consistent with the perception of self-employment as a necessity rather than opportunity phenomenon, especially for women.

(iv) Access to finance and improved land ownership rights enhance women's ability to open new businesses. In addition, increasing community-level job opportunities for women increase their participation in salaried employment

We observe a positive impact of community-level job opportunities for women on the transition of women into salaried employment jobs, while community-level access to finance for women and improved land ownership rights for women enhance women's probability of opening their own business. Overall, improved local institutions will improve women's relative advantage in the community.

4.2 Contribution to Knowledge and Policy Recommendation

The thesis analyses from an empirical perspective the entrepreneurial effects of structural transformation in developing countries. It revisits fundamental classical literature on structural transformation and the role of the entrepreneur in that transition. It tries to provide answers on whether economies currently undergoing or about to undergo their structural transformation process need to capitalise on traditional models of industrialisation options or whether alternative modes of development are more appropriate. Our results suggest that while self-employment in developing countries is more akin to necessity than opportunity entrepreneurship, as the level of skills observed across the entrepreneurial sector is lower compared to salaried workers and/or individuals who do not work, there are niches in the self-employed service sector which attract high skill individuals and provide high returns to

observed skills, thus creating incentives for acquisition of such skills among potential labour market entrants. The result thus indicates the need for an institutional change that gives credence to skills acquisition and innovation, rather than a one-size-fit-all policy answer that categorises the links between entrepreneurship and development in concrete stages. Our results on higher allocation of educated individuals to the service sector and on greater returns to skills in that sector further indicate that capitalizing on a service sector growth may be the way forward for developing countries to achieve an efficient structural transformation process if improvement of the education system is the direction of providing skills that match available demand in the labour market. One way to do this is by reducing the barriers to accessing quality education with the aim of increasing school enrolment rate. In addition, there is a need to integrate entrepreneurship training in the educational curriculum. This would create an avenue for individuals who are unable to secure salaried employment jobs to be more. Increasing access to salaried employment opportunities is also relevant, as this would act as an incentive for individuals to acquire education.

Secondly, the thesis confirms that the business environment in which small and medium firms operate is weak. This result is similar to those in the wider literature on Nigeria and other parts of Africa (see Ondiege, et al. 2013) where lack of access to basic amenities continues to threaten the economic activities of firms, especially in the rural sector. An enabling business environment increases the competitive advantage of firms both locally and internationally. Hence, there is a need for the government to place emphasis on infrastructural development. At the same time, while improving access to finance is also important as this would stimulate investment in the capital-intensive sectors and activities, our empirical analysis suggests that lifting financial constraints alone (especially for firms in the rural sector) may not be a panacea when the institutional setting is weak and innovative practices are scarce. There are empirical evidence (i.e. Marshall, 1920) suggesting productivity benefits for firms located in clusters often referred to as “agglomeration economies”. As such, the government could propose spatial industrial policies that influence the location choice of firms which will not only serve as an effective tool in accelerating the pace of industrialization but also in ensuring an equitable distribution of the gains.

Finally, the study highlights the need to revisit the current economic blueprint – Nigeria’s Vision 20:2020 to identify channels on how to achieve the Vision’s objectives, which amongst others seeks to make Nigeria one of the top 20 most industrialized economies by 2020 and

strengthen women's relative position in the economy. High level of corruption at all tiers of the Nigerian government has been identified to be a major hindrance to effective policy implementation. Hence, there is a need for the government to adopt a process that instils transparency and accountability in ensuring the implementation of new strategies to strengthen women's relative position in the economy, there is also a need to increase their access to general amenities and favourable institutions.

Encouraging informal institutions in the form of community support network is also an important ingredient for enabling entrepreneurship, especially for women who live in remote areas and have less access to urbanization. Indeed, the literature on the impact of social capital in emerging markets has been underexplored, but this dimension seems to matter more for developing countries especially in a country like Nigeria where firms exist in a weak business environment and institutional setting, and majority of individuals rely on family and friends for networks and resources. Indeed, research (Estrin et al., 2013; Mickiewicz, Sauka and Stephan, 2016; Estrin et al, 2018) shows that entrepreneurs in emerging economy may benefit from social capital through connections to the political class and elite, or in the form of humanitarian act and/or through social entrepreneurial efforts. Such research in turn unlocks new standpoints on bottom-up processes underlying culture or the building of informal institutions.

4.3 Area for Further Research

This thesis has focused on the entrepreneurial effect of structural transformation of an economy. In doing this, we reconciled the conflicting views in the broad conceptual literature on entrepreneurship and conflicting evidence on economic diversification and entrepreneurship in the process of structural transformation in Nigeria. Ultimately, the study advances our knowledge on ways in which developing countries can achieve an efficient structural transformation process through the activities of entrepreneurs. This includes increasing incentives to acquire education through providing more salaried employment opportunities' encouraging more innovative practises and creating an enabling business environment to enhance entrepreneurial activities. There is, however, scope for the study to be extended to include other factors not accounted for in this study and other developing countries.

Due to data limitation, the results provided in this study on the three different aspects of the Nigerian labour market takes into consideration only the micro, small and medium firms. Hence, there is a need for a study that accounts for the larger firms as well. This would provide

insights on whether the same factors have the same level of impact on the different sizes of businesses in Nigeria, or whether there are some factors that could have a counter effect on these businesses. For instance, an interesting insight we found is that while access to finance may have little or no effect on micro and small manufacturing firms, access to formal finance might be beneficial for increased efficiency of the larger and more diverse manufacturing firms which employ advanced technologies and engage in more innovative activities. Similarly, while returns to skills are low in the small and medium scale manufacturing sector, returns to skills may be high in large manufacturing firms.

There is also need to expand this study to include other business environment characteristics (such as access to electricity and institutional factors, such as corruption), to give us a more holistic view on factors that increase the performance of entrepreneurs in Nigeria and estimates the size of that impact. Extending the study to include the period before 2010 and after 2013 would also help to provide a deeper insight on how the structural transformation process of Nigeria has changed over time and if there are specific factors that accounted for increased entrepreneurial performance in each individual sector at a particular point in time. Moreover, it would also allow us to see if women in Nigeria have always being the disadvantaged population compared to men, and if this has changed in more recent statistics.

A cross-country analysis is also needed to analyse and compare the results from other West African countries.

BIBLIOGRAPHY

- Abdulaziz, M. A. and Worthington, A. C., 2013. Small and Medium-Sized Enterprises Financing: International Journal of Business and Management, 14(8), pp. 36-54.
- Abiodun, E. A., 2014. The Role of SMEs Firm Performance in Nigeria. Arabian Journal of Business and Management Review, 3(12), pp. 33-47.
- Acs, Z.J. and Armington, C., 2004. The impact of geographic differences in human capital on service firm formation rates. *Journal of Urban Economics*, 56(2), pp.244-278.
- Ács, Z. J. and Naudé, W., 2011. *Entrepreneurship, stages of development, and industrialization.*, Helsinki: UNU-WIDER World Institute for development economic research.
- Ács, Z. and Naudé, W. (2013). Entrepreneurship, Stages of Development, and Industrialization. In: A. Szirmai, W. Naudé and L. Alcorta, Eds. Pathways to Industrialization in the 21st Century. Oxford: Oxford University Press.
- Acs, Z.J. and Virgill, N., 2010. Entrepreneurship in developing countries. In Handbook of entrepreneurship research (pp. 485-515). Springer, New York, NY.
- Adebowale, O. and Dimova, R., 2017. Does access to formal finance matter for welfare and inequality? Micro level evidence from Nigeria, Manchester: GDI Working Paper 2017-007.
- Adegbite, S. et al., 2007. Evaluation of the impact of entrepreneurial characteristics on the performance of small scale manufacturing industries in Nigeria. *Asia Entrepreneurship and Sustainability*, 3(1), pp. 1-22.
- Adeoti, J., 2016. Explaining the Characteristics and Efficiency of Manufacturing Firms in Lagos, Lagos: Nigeria Institute of Social and Economic Research.
- Ahl, H., 2007. A Foucauldian framework for discourse analysis. In: H. Neergaard and P. Ulhøi, Eds. Handbook of qualitative research methods in entrepreneurship. Northampton: Edward Elgar, pp. 216-250.
- Akinola, S., 2007. Coping with infrastructural deprivation through collective action among rural people in Nigeria. *Nordic Journal of African Studies*, 16(1), pp. 30-46.
- Akoten, J. E., Sawada, Y. and Otsuka, K., 2006. The Determinants of Credit Access and its Impacts on Micro and Small Enterprises: The Case of Garment Producers in Kenya. *Economic Development and Cultural Change*, 54(4), pp. 927-944.
- Ajogwu, F., 2016. "Nigeria Vision 2020 and a Challenging Economic Situation: Is Good Governance a Panacea?. Lagos, Nigerian Institute of International Affairs, pp. 1-22.
- Alderman, H. et al., 2000. Attrition in Longitudinal Household Survey Data: Some test for three developing country samples. International Food Policy Research Institute, 1 October, pp. 79-124.
- Aminu, A., Tella, C. and Mbaya, P., 2012. Public Policy Formulation and Implementation in Nigeria. Lagos, The International Institute for Science, Technology and Education (IISTE).
- Amornkitvikai, Y., Harvie, C. and Charoenrat, T., 2013. Factors affecting the technical inefficiency of Thai Manufacturing and Exporting Small and Medium sized Enterprises: A Stochastic Frontier Analysis, Cambridge: Cambridge Business and Economics Conference.

- Andersson, P., 2009. Exits from Self-Employment: is there a native immigrant difference in Sweden?. *International Migration Review*, 44(3), pp. 539-559.
- Andor, M. and Hesse, F., 2011. A Monte Carlo Simulation comparing DEA, SFA and two simple approaches to combine efficiency estimates, Munster: CAWM discussion paper.
- Aromolaran, A. B., 2004. Wage returns to schooling in Nigeria. *African Development review*, 16(3), pp. 433-455.
- Atieno, R. 2., 2009. Linkages, Access to Finance and the Performance of Small-Scale Enterprises in Kenya, Helsinki: UNU-WIDER.
- Autio, E., 2013. *Global Entrepreneurship and Development Index 2013*. s.l.: Edward Elgar Publishing.
- Ayyagari, M., Demirguc-Kunt, A. and Maksimovic, V., 2010. Formal versus informal finance: Evidence from China. *Review of Financial Studies*, 23(8), pp. 3048-3097.
- Azmat, F. and Samaratunge, R., 2009. Responsible entrepreneurship in developing countries: Understanding the realities and complexities. *Journal of Business Ethics*, 90(3), pp.437-452.
- Babatunde, O. A., Afees, S. A. and Olasunkanmi, O. I., 2012. Infrastructure and Economic Growth in Nigeria: A Multivariate Approach. *Research Journal of Business Management and Accounting*, 1(3), pp. 30-39.
- Bamiro, O.A., 1994,. National technology policy for development: The role of research and development institutions. In *National Workshop on Technology Management, Policy and Planning in Nigeria* pp. 18-21 October.
- Banerjee, A. and Munshi, K., 2004. How Efficiently is Capital Allocated? Evidence from the Knitted Garment Industry in Tirupur. *Review of Economic Studies*, 71(1), pp. 19-42.
- Banerjee, A., Duflo, E. and Qian, N., 2012. On the road: Access to transportation infrastructure and economic growth in China. Cambridge, National Bureau of Economic Research.
- Barungi, B., Ogunleye, E. and Zamba, C. (2015). *Nigeria 2015; African Economic Outlook*.
- Battese, G. E. and Coelli, T. J., 1995. A model for technical inefficiency effects in a stochastic frontier production function for panel data. *Empirical Economics*, Volume 20, pp. 325-332..
- Beck, T. and Demirgüç-Kunt, A., 2008. Access to finance: An unfinished agenda. *The World Bank Economic Review*, 22(3), pp. 383-396.
- Becker, G. S., 1991. *A Treatise on the family*. Cambridge: Harvard University Press.
- Bhaumik, S. and Dimova, R., 2014. Good and bad institutions: is the debate over? Cross-country firm-level evidence from the textile industry. *Cambridge journal of economics*, 38(1), pp. 109-126.
- Biagi, F., 2013. *ICT and Productivity: A Review of the Literature*. Seville, JRS Institute for Prospective Technological Studies.
- Blanchflower, D. G. and Andrew, J. O., 1998. What makes an entrepreneur. *Journal of Labor Economics*, 16(1), pp. 26-60.

- Blanchflower, D. G., 2000. Self-employment in OECD countries. *Labour Economics*, 7(5), pp. 471-505.
- Blanchflower, D. (2004). Self-employment: More may not be better. NBER Working Paper 10286: <http://www.nber.org/papers/w10286.pdf>
- Block, J. and Sandner, P., 2009. Necessity and opportunity entrepreneurs and their duration in self-employment: Evidence from German micro data. *Journal of Industry, Competition and Trade*, 9(2), pp. 117-137.
- Böhme, M. and Thiele, R. (2014). Informal-formal linkages and informal enterprise performance in urban West Africa. *The European Journal of Development Research*, 26(4), 473-489.
- Bourguignon, F., Fournier, M.; Gurgand, M. (2007). Selection bias correction based on the multinomial logit model: Monte-Carlo comparisons. *Journal of Economic Surveys*, 21(1), 174-205.
- Bouri, A. et al., 2011. Report on support to SMEs in developing countries through financial intermediaries, Geneva: Dalberg.
- Brookings (undated). Industrial clusters: who benefits? https://www.brookings.edu/wp-content/uploads/2015/11/L2CBrief2_agglomeration_FINAL.pdf
- Brüderl, J., Preisendörfer, P. and Ziegler, R., 1998. Survival chances of newly founded business organizations. *American Sociological Review*, Volume 1, pp. 227-242.
- Burki, A. A. and Khan, M. A., 2011. Agglomeration Economies and their Effects on Technical Inefficiency of Manufacturing Firms: Evidence from Pakistan, Lahore: International Growth Centre.
- Campos, N. and Nugent, J. B., 1999. Development performance and institutions of governance: Evidence from East Asia and Latin America. *World Development*, 27(3), pp. 439-452.
- Canning, D. and Pedroni, P., 2004. The Effect of Infrastructure on Long Run Economic Growth, s.l.: Harvard Institute for International Development.
- Cantillon, R., 2001. *Essays on the nature of commerce in general*. : Transaction Publishers.
- Carrasco, R., 1999. Transitions to and from self-employment in Spain: an empirical analysis. *Oxford Bulletin of Economics and Statistics*, 61(3), pp. 315-341.
- Carter, S. and Shaw, E., 2006. Women's business ownership: Recent research and policy developments, London: Small Business Service Research Report.
- Carvalho, D. and Lee, J., 2013. Cross-Industry Interlinkages in Employment Growth: Evidence from Brazil. Nber, 13 April, pp. 1-43.
- Chen, M. (2014). Informal employment and development: patterns of inclusion and exclusion. *The European Journal of Development Research*, 26(4), 397-418.
- Chenery, H. B. and Syrquin, M., 1975. *Patterns of Development: 1950–1970*, New York: Oxford University Press for the World Bank.
- Chete, L. N., Adeoti, J. O. and Adeyinka, F. M., 2016. Industrial Policy in Nigeria: Opportunities and Challenges in a Resource-rich Country. In: C. Newman, et al. eds. *Manufacturing Transformation:*

- Comparative Studies of Industrial Development in Africa and Emerging Asia. Oxford: Oxford university Press, pp. 115-135.
- Cheung, O., 2014. Are we seeing ‘necessity’ or ‘opportunity’ entrepreneurs at large?. *Research in Business and Economics Journal*, 1(1), pp. 1-26.
- Chigunta, F., Schnurr, J. and Torres, V., 2005. *Being “real” about youth entrepreneurship in Eastern and Southern Africa: Implications for adults, institutions and sector structures*. Geneva, International Labour Office.
- Cho, Y., 2015. Entrepreneurship for the poor in developing countries. *IZA World of Labor*.
- Claessens, S., 2006. Access to financial services: A review of the issues and public policy objectives. *World Bank Research Observer*, 21(2), pp. 207-240.
- Clark, K. and Drinkwater, S., 1998. Ethnicity and Self-employment in Britain. *Oxford Bulletin of Economics and Statistics*, 60(3), pp. 383-407.
- Coad, A. and Halvarsson, D., 2014. Firm Age and Growth Persistence. Nanterre, Innovation Forum.
- Cooper, A., Gimeno-Gascon, F. and Woo, C., 1991. A resource-based prediction of new venture survival and growth. *s.l., Academy of Management Proceedings*, pp. 68-72.
- Cooper, A., Gimeno-Gascon, J. and Woo, C., 1994. Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing*, Volume 9, pp. 371-395.
- Cordeiro, J. et al., 2012. An evaluation of technical efficiency and managerial correlates of solid waste management by Welsh SMEs using parametric and non-parametric techniques. *Journal of the Operational Research Society*, 63(5), pp. 653-664.
- Croppenstedt, A., Goldstein, M. and Rosas, N., 2013. Gender and agriculture: Inefficiencies, Segregation, and Low productivity traps. *The World Bank Research Observer Advance*, 20 January, p. 2013.
- Chu, H.M., Kara, O. and Benzing, C., 2008. An empirical study of Nigerian entrepreneurs: success, motivations, problems, and stress. *International Journal of Business Research*, 8(2), pp.102-116.
- Dasgupta, S. and Singh, A., 2006. *Manufacturing, services and premature deindustrialization in developing countries: A Kaldorian analysis* (No. 2006/49). Research Paper, UNU-WIDER, United Nations University (UNU).
- Dedigama, A. C. and Fellow, H. D. s., 2009. *International Property Right Index (IPRI)*, s.l.: Comdok.
- Dethier, J. and Moore, A., 2012. *Infrastructure in Developing Countries: An overview of some economic issues*, Bonn: Zentrum für Entwicklungsforschung (ZEF) Center for Development Research.
- Devine, T., 1994. *Characteristics of self-employed women in the United States*, s.l.: Monthly Labour Review.
- Dimitratos, P., and Jones, M.V. (2005). Future directions for international entrepreneurship research. *International Business Review*, 14(2)

- Dimova, R. Elder, S. and Stephan, K. (2016). Labour market transitions of young women and men in the Middle East and North Africa. Work4Youth Publication Series #44, International Labour Office, Geneva, Switzerland.
- Dimova, R. and Karim, S. (2016). Inequality of opportunity and (unequal) opportunities in the youth labour market: How is the Arab world different? Technical Brief N 6, Work4Youth, International Labour Office, Geneva, Switzerland.
- Dimova, R., Nordman, C. and Roubaud, F. (2010). Allocation of labor in urban West Africa. Insights from the pattern of labor supply and skill premiums. *Review of Development Economics*. 14(1), 74-92.
- Dissou, Y. and Didic, S., 2011. Public infrastructure and economic growth: A Dynamic general Equilibrium Analysis with Heterogeneous agents, Manila: Conference on Infrastructure for Inclusive Growth and Poverty Reduction at the Asian Development Bank.
- Dissou, Y. and Selma, D., 2013. Infrastructure and growth. In: J. Cockburn, Y. Dissou, J. Duclos and L. Tiberti, eds. *Infrastructure and Economic Growth in Asia*. Quebec: Springer International Publishing, pp. 5-45.
- Dixit, A. K. and Stiglitz, J., 1977. Monopolistic Competition and Optimum Product Diversity. *American Economic Review*, 67(1), p. 297–308.
- Dolton, P. and Makepeace, G., 1990. Self-employment among graduates. *Bulletin of Economic Research*, 42(1), pp. 35-53.
- Dunn, T. and Holtz-Eakin, D., 2000. Financial capital, human capital, and the transition to self-employment: Evidence from intergenerational links. *Journal of labor economics*, 18(2), pp. 282-305.
- Djankov, S., McLeish, C. and Ramalho, R., 2006. *Regulation and Growth*, Pennsylvania: The World Bank.
- Elizabeth, L., 1998. A comparison of data envelopment analysis and stochastic frontiers as methods for assessing the efficiencies of organisational units, University of Warwick: PhD thesis.
- Emmenegger, P. ed., 2012. *The age of dualization: the changing face of inequality in deindustrializing societies*. OUP USA.
- Eniola, A. A. and Ektebang, H., 2014. SME firms performance in Nigeria: Competitive advantage and its impact. *International Journal of Research Studies in Management*, 3(2), pp. 75-86.
- Essien, E. and Bello, Y., 2007. Technical efficiency of small and medium scale industries (SMI) in Nigeria: evidence from nation-wide sample survey. *Studia Universitatis Babeş Bolyai-Negotia*, 1(2), pp. 39-69.
- Estache, A. and Garsous, G., 2012. The impact of infrastructure on growth in developing countries. *International Finance Corporation Economics*, 1 April, pp. 1-11.
- Estrin, S., Korosteleva, J. and Mickiewicz, T., 2009. *Better Means More: Economic Rights and High-Growth Aspiration Entrepreneurship*, Bonn: IZA Discussion Paper No. 4396.
- Estrin, S., Mickiewicz, T., Stephan, U. & Wright, M. (2018). Entrepreneurship in emerging economies. In: Grosse, R. & Meyer, K. (eds.). *Oxford Handbook on Management in Emerging Markets*. Oxford: Oxford University Press, Chapter 23, forthcoming.

- Evans, D. and Leighton, L., 1989. Some empirical aspects of entrepreneurship. *American Economic Review*, 79(3), pp. 519-535.
- Evans, D. S. and Jovanovic., B., 1989. An Estimated Model of Entrepreneurial Choice Under Liquidity Constraints. *Journal of Political Economy*, 97(1), p. 808–827.
- Eze, O. and Ogiji, F., 2014. Impact of fiscal policy on the manufacturing sector output in Nigeria: An error correction analysis. *British Journal of Business and Management Research*, 1(2), pp. 31-54.
- Fafchamps, M., 1997. Trade Credit in Zimbabwean Manufacturing. *World Development*, 25(5), p. 795–815.
- Fafchamps, M., 2001 Networks, Communities and Markets in Sub-Saharan Africa: Implications for Firm Growth and Investment. *Journal of African Economies*, 10(2): p. 109-142.
- Fafchamps, M., 2003. Ethnicity and Networks in African Trade. *Contributions in Economic Analysis and Policy*, 2(1).
- Falter, J.-M., 2002. Self-employment entry and duration in Switzerland. *Jyväskylä*, 13th EALE Annual Conference.
- Farrell, M., 1957. The measurement of productive efficiency. *Journal of the Royal Statistical Society*, Volume 120, pp. 253-290.
- Fields, G. (1990). Labor market modelling and the urban informal sector: Theory and evidence. In Turnham, D. , Salomé, B. and Schwarz, A. (eds). *The Informal Sector Revisited*. Paris: OECD.
- Fields, G., 2011. Poverty and Low Earnings in the Developing. [Online] Available at: <http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1151andcontext=workingpapers> [Accessed 22 May 2017].
- Fields, G., 2014. Self-employment and poverty in developing countries: Helping the self-employed earn more for the work they do, s.l.: IZA World of Labour.
- Fisman, R. J., 2003. Ethnic Ties and the Provision of Credit: Relationship-Level Evidence from African Firms. *Advances in Economic Analysis and Policy* , 3(1).
- Filion, L. J. (1997). *Entrepreneurship: entrepreneurs and small business owner-managers*. Cahier de recherche- Ecole des hautes études commerciales. Chaire d'entrepreneurship. Maclean Hunter.
- Fitzgerald, J. P. G. a. R. M., 1998. An analysis of sample attrition in panel data. *Journal of Human Resources*, 33(2), p. 251–299.
- Fox, L., Haines, C., Muñoz, J. H. and Thomas, A. H., 2013. *Africa's Got Work to Do: Employment Prospects in the New Century*,.: IMF.
- Fox, L. and Sohnesen, T. P., 2012. *Household Enterprises in Sub-Saharan Africa: Why they matter for Growth, Jobs, and Livelihood*, s.l.: World Bank.
- Gallardo, J., Outra, K., Randhawa, B. and Steel, F., 2003. Comparative review of microfinance regulatory framework issues in Benin, Ghana and Tanzania, Washington, D.C.: World Bank.

- Georgellis, Y., Sessions, J. and Nikolaos, T., 2007. Pecuniary and non-pecuniary aspects of self-employment survival. *Quarterly Review of Economics and Finance*, 47(1), pp. 94-112.
- Gerschenkron, A., 1962. *Economic backwardness in historical perspective: a book of essays*, Cambridge: Belknap Press of Harvard University Press.
- Giannetti, M. and Simonov, A., 2004. On the determinants of entrepreneurial activity: Social norms, economic environment and individual characteristics. *Swedish Economic Policy Review*, 11(2), pp. 269-313.
- Gill, A., 1988. Choice of employment status and the wages of employees and the self-employed: some further evidence. *Journal of Applied Econometrics*, 3(3), pp. 229-234.
- Gindling, T.H. and Newhouse, D., 2014. Self-employment in the developing world. *World Development*, 56, pp.313-331.
- Glick, P. and Sahn, D., 1997. Gender and education impacts on employment and earnings in West Africa. *Economic Development and Cultural Change*, 45(4), pp. 793-823.
- Gollin, D., 2008. Nobody's business but my own: Self-employment and small enterprise in economic development. *Journal of Monetary Economics*, 55(2), pp.219-233.
- Gollin, D. Jedwab, R. and Vollrath, D. (2015). Urbanization with and without industrialization. *Journal of Economic Growth*: DOI 10.1007/s10887-015-9121-4
- Grant, L., Yeandle, S. and Buckner, L., 2006. *Working below potential: women and part-time work*, Manchester: EOC Working Paper Series.
- Grimm, M., Van der Hoeven, R. and Lay, J., 2011. *Unlocking potential: Tackling economic, institutional and social constraints of informal constraints of informal Africa: Main findings and policy conclusions*, Washington D.C: The World Bank.
- Grimm, M. (2016). *What interventions create jobs?* Brookings Bloom Roundtable.
- Harvie, C., 2002. The Asian financial and Economic Crisis and its impact on Rational SMEs. In: C. Harvie and Lee B. C. Lee, Eds. *Globalisation and SMEs in East Africa*. Cheltenham: Edward Elgar Publishing Limited, pp. 10-42.
- Haywood, L. and Teal, F., 2008. *Employment, Unemployment, Joblessness and Incomes in Nigeria: 1999–2006*, Oxford: Centre for the Study of African Economies.
- Heckman, J. (1979). Sample selection bias as specification error. *Econometrica*, 47, 153-61.
- Hempell, T., Leeuwen, G. and Wiel, H., 2004. *ICT, innovation and business performance in services: evidence for Germany and The Netherlands*, Mannheim: Centre for European Economic Research.
- Henderson, J. V., 1974. The Sizes and Types of Cities. *The American Economic Review*, 64(4), pp. 640-656.
- Hiromi, T., 2002. Determinants of Women's Entry into Self-Employment. *Social Science Quarterly*, 83(3), pp. 875-893.
- Holmes, T. and Schmitz, J., 1996. Managerial tenure, business age, and small business turnover. *Journal of Labor Economics*, 14(1), pp. 79-99.

Hossain, M., Kamil, A., Baten, M. and Mustafa, A., 2012. Stochastic Frontier Approach and Data Envelopment Analysis to Total Factor Productivity and Efficiency Measurement of Bangladeshi Rice. *Plos One*, 7(10), pp. 1-9.

Hsieh, C.-T. and Klenow, J. P., 2009. Misallocation and Manufacturing TFP in China and India. *Quarterly Journal of Economics*, 124(4), pp. 1403-1448.

ILO, 2002. *Men in the Informal Economy: A Statistical Picture*. International Labor Organization Geneva.

ILO, 2017. International Labour Organization. [Online]
Available at: http://embargo.ilo.org/global/about-the-ilo/newsroom/news/WCMS_541128/lang-en/index.htm
[Accessed 25 September 2017].

Itonga, L., Waweru, G. and Huka, G., 2016. Implications of Credit Access and Financial performance of women owned Micro and Small Enterprises in Imenti North Sub Country Kenya. *International Journal of Economics, Commerce and Management*, 4(11), pp. 586-597.

Johnson, S. and Nino-Zarazua, M., 2011. Financial access and exclusion in Kenya and Uganda. *The Journal of Development Studies*, 47(3), pp. 475-496.

Kadiri, I.B. (2012). Small and medium scale enterprises and employment generation in Nigeria: The role of finance. *Kuwait Chapter of the Arabian Journal of Business and Management Review*. 1(9), 79-93.

Kaldor, N. (1967). Strategic Factors in Economic Development. New York: Ithaca.

Kaldor, N., 1967. Causes of the Slow Rate of Economic Growth of the United Kingdom: an Inaugural Lecture. Cambridge, Cambridge University Press.

Kallenberg, A. and Leicht, K., 1991. Gender and organizational performance: determinants of small business survival and success. *Academy of Management Journal*, Volume 4, pp. 136-161.

Karlan, D. and Morduch, J. (2010). Access to Finance. In: Rodrik, D. and Rosenzweig, M. (Eds). Handbook of Development Economics, Volume 5. North-Holland.

Kelly, D., Brush, C., Greene, P. and Litovsky, Y., 2010. *The Global Entrepreneurship Monitor: 2010 Women's Report*, Wellesley, MA: BABSON college.

Khandker, S., Samad, H. A. and Ali, R., 2013. *Does Access to Finance Matter in Microenterprise Growth? Evidence from Bangladesh*, Maryland: Institute of Microfinance.

Kumbhakar, S. and Lovell, C. K., 2000. *Stochastic Frontier Analysis*, New York: Cambridge University Press.

Kizner, I. M.(1976). Philosophical and ethical implications of Austrian economics. In: E. G. Dolan, ed. *The foundations of modern Austrian economics*. Kansas: Sheed and ward. 75-88.

Kirzner, I. M., 2009. The Alert and Creative Entrepreneur: A Clarification. *Small Business Economics*, Volume 32, pp. 145-152.

Kollmeyer, C., 2009. Explaining Deindustrialization: How Affluence, Productivity Growth, and Globalization Diminish Manufacturing Employment. *American Journal of Sociology*, 114(6), pp. 1644-1674.

- Kormawa, P. and Jerome, A., 2014. Renewing industrialization strategies in Africa. Beyond a Middle Income Africa: Transforming Africa Economies for Sustained Growth with Rising Employment and Income. ReSAKSS Annual Trend and Output Report.
- Kouakou, C. (2011) Poverty and young urban unemployment in Côte d'Ivoire. AERC Research Paper 240, African Economic Research Consortium, Nairobi.
- Le, V. and Harvie, C., 2010. How do Vietnamese SMEs perform? Technical Efficiency of SMEs in the Manufacturing Sector and Its Sub-Sectors Proceedings of Korea and the World, Incheon: The Association of Korean Economic Studies.
- Lee, Y., Chu, P. and Tseng, H., 2011. Corporate performance of ICT-enabled business process re-engineering. *Industrial Management and Data Systems*, 111(5), pp. 735-754.
- Leitch, C. and Harrison, R., 2014. Women's Entrepreneurship in the 21st Century: An International Multi-Level Research Analysis. Lewis, K.V; Henry, C; Gatewood, E.J; Watson, J.; ed. Northampton: Edward Elgar Publishing.
- Li, W., Mengistae, T. and Xu, L., 2011. Diagnosing development bottlenecks: China and India. *Oxford bulletin of economics and statistics*, 73(6), pp. 722-752.
- Lin, J. and Doemeland, D., 2012. Beyond Keynesianism: Global infrastructure investments in times of crisis. *Journal of International Commerce, Economics and Policy*, 30(3).
- Llisterri, J.J., Kantis, H., Angelelli, P. and Tejerina, L., 2006. Is Youth Entrepreneurship a Necessity or an Opportunity?: A first exploration of household and new enterprise surveys in Latin America. Inter-American Development Bank.
- Lotti, F., and Santarelli M, V., 2009. Defending Gibrat's Law as a long-run regularity. *Small Business Economics*, 32(1), pp. 31-44.
- Maddala, G., 1983. Limited-dependent and qualitative variables in econometrics. Cambridge, Cambridge University Press.
- Mahadea, D. and K, P. M., 2008. Environmental conditions for SMME development in a South African Province. *South African Journal of Management*, 11(4), pp. 431-448.
- Mahmoud, M. A., 2011. Market Orientation and Business Performance among SMEs in Ghana. *International Business Research*, 4(1), pp. 241-251.
- Makama, G. A., 2013. Patriarchy and Gender Inequality in Nigeria: The Way Forward. *European Scientific Journal*, 9(17), pp. 126-127.
- Malik, A., Teal, F. and Baptist, S., 2006. The performance of Nigerian Manufacturing Firms: Report on the Nigerian Manufacturing Enterprise Survey, Oxford: Centre for the Study of African Economies.
- Mamatzakis, E., 2007. An analysis of the impact of public infrastructure on productivity performance of Mexican industry, Thessaloniki: SSRN.
- Marcellus, I., 2009. Development planning in Nigeria: reflections on the national economic empowerment and development strategy (NEEDS) 2003-2007. *Journal of social sciences*, 20(3), pp. 197-210.

- Maloney, W. (1999). Does informality imply segmentation in urban labour markets? Evidence from sectoral transitions in Mexico. *World Bank Economic Review*, 13(2): 275-302.
- Maloney, W. (2004). Informality Revisited. *World Development*, 32(7): 1159-1178.
- Margolis, D., 2014. By choice and by necessity: entrepreneurship and self-employment in the developing world. *The European Journal of Development Research*, 26(4), pp. 419-436.
- Marlow, S., 2002. Women and self-employment: A Part of or Apart from Theoretical Construct?. *The International Journal of Entrepreneurship and Innovation*, 1 May, 3(2), pp. 83-91.
- Marshall, A., 1920. *Principles of Economics*. 8th eds. London: Macmillan.
- Mazumdar, D. (1983). Segmented labor markets in LDCs. *American Economic Review*, 73(2): 254-259.
- Millán, J., Congregado, E. and Román, C., 2010. Determinants of Self-Employment Dynamics and their Implications on Entrepreneurial Policy Effectiveness. *Lecturas de Economía*, 72(46-76).
- Millán, J. M., Congregado, E. and Román, C., 2012. Determinants of self-employment survival in Europe. *Small Business Economics*, 28(2), pp. 231-258.
- Mitchell, D. J., 2005. *The Impact of Government Spending*. The Heritage Foundation, 31 March, pp. 1-18.
- Mohammed, U. and Obeleagu-Nzelibe, C., 2014. Entrepreneurial skills and profitability of Small and Medium Enterprises (SMEs): Resource acquisition strategies for new ventures in Nigeria. Cape Town, International Business Research Conference.
- Mortensen, D., 1986. Job search and labor market analysis. *Handbook of labor economics*, Volume 2, pp. 849-919.
- Munnell, A. and Cook, L., 1990. How does public infrastructure affect regional economic performance?. *New England economic review*, 1(1), pp. 11-33.
- Munshi, K., 2014. Community networks and the process of development. *The Journal of Economic Perspectives*, 28(4), pp. 49-76.
- National Bureau of Statistics, 2010. Nigerianstat. [Online] Available at: http://www.nigerianstat.gov.ng/pdfuploads/Abridged_Version_of_Nigeria%20Vision%202020.pdf [Accessed 24 April 2017].
- National Bureau of Statistics, 2014. LSMS-Integrated Survey on Agriculture General Household Survey Panel, Abuja: National Bureau of Statistics.
- National Bureau of Statistics, 2014. Nigerian Manufacturing Sector: Summary Report 2010-2012, Abuja: National Bureau of Statistics.
- National Bureau of Statistics, 2015. Nigerian Gross Domestic Product Report: Quater four 2015, Abuja: NBS.

- National Planning Commission, 2007. Nigeria: National Economic Empowerment Development Strategy, Abuja: National Planning Commission.
- National Planning Commission, 2009. Nigeria Vision 20:2020. Federal Ministry of Budget and National Planning, 1 December, pp. 1-134.
- Naude, W. 2008. Entrepreneurship in economic development. UNU-WIDER research paper no. 2008/20, United Nations University, Helsinki, Finland
- Naude, W. 2010. Entrepreneurship, developing countries, and development economics: new approaches and insights. *Small business economics*, 34(1), p.1
- Nieman, G. (2006). *Small Business Management: A South African Approach*. Pretoria: Van Schaik.
- NISER (2015) *Estimated Employment (Trend in Gainful Employment) from 1970–2014 by Sectors*. Ibadan: Nigerian Institute of Social and Economic Research.
- Nkonya, E. et al., 2010. *From the ground up Impacts of a Pro-poor Community-driven Development Project in Nigeria*. 1st ed. Washington: International Food Policy Research Institute.
- North, D., Wallis, J and Weingast, B. (2009). *Violence and Social Orders*. Cambridge University Press. Cambridge, United Kingdom.
- Nyström, K., 2008. The institutions of economic freedom and entrepreneurship: evidence from panel data. *Public Choice* , 136(3), pp. 269-282.
- Nziramasanga, M. and Lee, M. S., 2001. Duration of self-employment in developing countries: evidence from small enterprises in Zimbabwe. *Small Business Economics*, 17(4), pp. 239-253.
- OECD (1997). *OECD economic surveys: The United States 1996/1997*. Paris, OECD.
- O’Fallon, C. 2., 2003. *Linkage between Infrastructure and Economic Growth*, Wellington: Pinnacle Research.
- Okojie, C. E., 2002. *Development Planning in Nigeria since Independence*. In: M. A. Iyoha and C. O. Itsede, Eds. *Nigerian Economy: Structure, Growth and Development*. Benin: Mindex Publishing.
- Olaseni, M. and Alade, W., 2012. Vision 20:2020 and the Challenges of Infrastructural Development in Nigeria. *Journal of Sustainable Development*, 5(2), pp. 63-76.
- Omenka, I. J., 2013. The Effect of Corruption on Development in Nigeria. *IOSR Journal Of Humanities And Social Science*, 15(1), pp. 39-44.
- Ondiege, P., Moyo, J. M. and Verdier-Chouhane, A., 2013. *Developing Africa’s Infrastructure for Enhanced Competitiveness*, s.l.: World Economic Forum.
- Orewa, G. O., 1997. *We Are All Guilty: The Nigerian Crisis*, Ibadan: Spectrum Books Limited.
- Oyelaran-Oyeyinka, B., Laditan, G. and Esubiyi, A., 1996. Industrial innovation in Sub-Saharan Africa: the manufacturing sector in Nigeria. *Research Policy*, 25(7), pp. 1081-1096.
- Oyelaran-Oyeyinka, O., 1997. *Industrial technology policy-making and implementation in Nigeria: an assessment (No. 3)*. Nigerian Institute of Social and Economic Research (NISER).
- Parker, S.C., 2009. *The economics of entrepreneurship*. Cambridge University Press.

- Pereira, A. and Andraz, J., 2013. On the economic effects of public infrastructure investment: A survey of the international evidence. *Journal of Economic Development*, 38(4), pp. 1-37.
- Perfect, D., 2011. *Gender pay gaps*, Manchester: Equality and Human Rights Commission.
- Philpott, J., 2012. *The rise in self-employment*, s.l.: Chartered Institute for Personnel Development.
- Pitt, M. and Shahidur, K., 1998. The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter?. *Journal of Political Economy*, 106 (5), pp. 958-996.
- Population Commission National and ICF International, 2014. *Nigeria Demographic and Health Survey 2013*, Abuja: NPC and ICF International.
- Porter, M., Sachs, J. and McArthur, J. (2002). Executive Summary: Competitiveness and Stages of Economic Development. In: M. Porter, et al. Eds. *The Global Competitiveness Report 2001-2002*. New York: Oxford University Press. 16-26.
- Poschke, M. (2013). Entrepreneurs out of necessity. A snapshot. *Applied Economics Letters*, 20(7), 658-663.
- Puffer, S.M., McCarthy, D.J. and Boisot, M., 2010. Entrepreneurship in Russia and China: The impact of formal institutional voids. *Entrepreneurship theory and practice*, 34(3), pp.441-467.
- Punnett, B. and Clarke, L., 2016. Women and Leadership in Africa. In: T. Lituchy, B. Galperin and B. Punnett, Eds. *Lead: Leadership Effectiveness in Africa and the African Diaspora*. 1 ed. New York: Palgrave Macmillan, pp. 217-236.
- PWC, 2015. *What next for Nigeria's economy? Navigating the rocky road ahead PwC's economic scenarios for 2015 and 2016*, Abuja: PWC.
- Rees, H. and Shah, A., 1986. An empirical analysis of self-employment in the UK. *Journal of Applied Econometrics*, Volume 1, p. 95–108.
- Regan, M., 2017. Capital markets, infrastructure investment and growth in the Asia Pacific region. *International Journal of Financial Studies*, 5(1), p. 5.
- Renzulli, L., Aldrich, H. and Moody, J., 2000. Family Matters: Gender, Networks and Entrepreneurial Outcomes. *Social Forces*, 79(2), pp. 523-546.
- Rewilak, J., 2013. Finance is good for the poor but it depends on where you live. *Journal of Banking and Finance*, 37(5), p. 1451–1459.
- Robinson, P. and Sexton, E. A., 1994. The effect of education and experience on self-employment success. *Journal of Business Venturing*, 9(2), pp. 141-156.
- Robles, P., 2010. Gender Disparities in Time Allocation, Time Poverty, and Labor Allocation Across Employment Sectors in Ethiopia. In: J. Arbache, E. Filipiak and A. Kolev, Eds. *Gender Disparities in Africa's Labor Market*. Washington DC: The World Bank, pp. 299-332.
- Rodrik, D. (2008). *Normalizing industrial policy*. Working Paper No. 3. Commission on Growth and Development.
- Rodrik, D., 2016. Premature deindustrialization. *Journal of Economic Growth*, Volume 21, pp. 1-3.

- Rostow, W.W., 1960. *Stadien Wirtachftlichen Wachatums*. Vandenhoeck et Ruprecht.
- Rosenstein-Rodan, P.N. (1943). Problems of Industrialisation of Eastern and South-Eastern Europe. *The Economic Journal*. 53 (210/211). 202-211.
- Romp, W. and De Haan, J., 2007. Public Capital and Economic Growth: A Critical Survey. *Perspektiven der Wirtschaftspolitik*, 8(51), pp. 6-52.
- Rowthorn, R. and Wells, J., 1987. *De-industrialization and Foreign Trade*, Cambridge: Cambridge University Press.
- Rowthorn, R. and Ramaswamy, R., 1997. *Deindustrialization: Causes and Implications*, Cambridge: International Monetary Fund.
- Say, J., 1836. *A treatise on political economy or the population, distribution and consumption of wealth*. s.l., Grigg and Elliot.
- Schultz, T., 1959. Investment in man: an economist's view. *Social Service Review*, 33(2), pp. 109-117.
- Schumpeter, J. A., 1934. *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle*, s.l.: Transaction publishers.
- Schumpeter, J., 1947. The Creative Response in Economic History. *The Journal of Economic History*, Volume 7, pp. 149-159.
- Schwab, K., 2014. *The Global Gender Gap Report 2014*, Geneva: World Economic Forum.
- Schoar, A. 2010. "The divide between subsistence and transformational entrepreneurship." In: Lerner, J., and A. Schoar (Eds). *International Differences in Entrepreneurship*. Chicago: University of Chicago Press; pp. 57–81.
- Scott, L. M., 2017. *Thinking Critically About Women's Entrepreneurship in Developing Countries*, Oxford: School Centre for Social Entrepreneurship.
- Seibel, H. D., 2004. *What matters in rural and microfinance*, Cologne: Development Research Center.
- Sena, V., Scott, J. and Roper, S., 2012. Gender, borrowing patterns and self-employment; some evidence for England. *Small Business Economics*, 38(4), pp. 467-480.
- Shakeshaft, C. and Nawell, I., 1984. Research on Themes, Concepts and Models of Organisational Behaviour: The Influence of Gender. *Issues in Education*, 2(3), pp. 186-203.
- Shinozaki, O., 2012. *A new regime of SME finance in emerging Asia: empowering growth-oriented SMEs to build resilient national economies*, Manila: ADB Working Paper Series on Regional Economic Integration.
- Shirley, M. (2008). Institutions and development. In: Ménard, C. and Shirley, M. (Eds). *Handbook of New Institutional Economics*. Springer
- Singh, A., 1977. UK Industry and the World Economy: A Case of De-industrialisation. *Cambridge Journal of Economics*, 1(2), p. 113–136.
- Sjauw-Koen-Fa, A. and Vereijken, I., 2005. *Access to financial services in developing countries*, Nederland: Rabobank.

- Small and Medium Enterprises Development Agency of Nigeria 2013. National MSME Survey Report, 2013.
- Smart, A. and J. Smart, 2005 Petty Capitalists and Globalization: Flexibility, Entrepreneurship, and Economic Development. State University of New York Press.
- Storey, D., 1991. The birth of new firms—does unemployment matter? A review of the evidence. *Small business economics*, 3(3), pp. 167-178.
- Stuart, T. and Sorenson, O., 2007. Strategic networks and entrepreneurial ventures. *Strategic Entrepreneurship Journal*, Volume 1, pp. 211-227.
- Straub, S., Vellutin, i. C. and Warlters, M., 2008. Infrastructure and economic growth in East Asia, s.l.: World Bank.
- Syrquin, M., 1988. Patterns of Structural Change. *Handbook of Development Economics*, Volume 1, pp. 203-273.
- Szirmai, A., 2009. Industrialization as an engine of growth in developing countries. Maastricht, UNU-WIDER Working Paper Series, pp. 1-48.
- Taniguchi, H., 2002. Determinants of women's entry into self-employment. *Social Science Quarterly*, 83(3), pp. 875-893.
- Tarutè, A. and Gatautis, R., 2014. ICT impact on SMEs performance. *Procedia-Social and Behavioral Sciences*. *Procedia-Social and Behavioral Sciences*,, 25 May, 110(1), pp. 1218-1225.
- Taylor, M., 2001. Self-employment and windfall gains in Britain: Evidence from panel data. *Economica*, 68(272), pp. 539-565.
- Taylor, M. P., 1996. Earnings, independence, or unemployment: why become self-employed?. *Oxford Bulletin of Economics and Statistics*, 58, pp. 253–266., Volume 58, pp. 253-266.
- Tan, J., Yang, J. and Veliyath, R., 2009. Particularistic and system trust among small and medium enterprises: A comparative study in China's transition economy. *Journal of Business Venturing*, 24(6), pp.544-557.
- Venter, R., Urban, B. and Rwigema, H. (2010). *Entrepreneurship: Theory in practice*. Cape Town: Oxford University Press.
- The World Bank, 1994. *World development report*, Washington, DC: World Bank.
- The World Bank, 2005. *Global Monitoring Report 2005: Millennium Development Goals - From Consensus to Momentum*, Washington, D.C: The World Bank.
- The World Bank, 2006. *Equity and Development: World development report 2006*, Washington, DC: The World Bank.
- The World Bank (2008). *Finance for all? Policies and pitfalls in explaining access*. A World Bank Policy Research Report, Washington D.C., USA.
- The World Bank (2013). *The World Development Report. Jobs*. Washington D.C., USA
- The World Bank (2014). *Nigeria Economic Report 2014*. The World Bank, Washington, D.C., USA

- The World Bank, 2014. The World Bank. [Online]
Available at: <http://data.worldbank.org/indicator/SL.EMP.SELF.ZS>
[Accessed 11 April 2017].
- The World Economic Forum (2017). The Global Competitiveness Report 2016-2017.
http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf
- Thurik, A., Carree, M., Van Stel, A. and Audretsch, D., 2008. Does self-employment reduce unemployment?. *Journal of Business Venturing*, 23(6), pp. 673-686.
- Treichel, V., 2010. Putting Nigeria to Work: A Strategy for Employment and Growth. 1st ed. Washington DC: World Bank.
- Tomola, M. O., Adebisi, T. E. and Olawale, F. K., 2012. Bank Lending, Economic Growth and the performance of the Manufacturing Sector in Nigeria. *European Scientific Journal*, 8(3), pp. 19-34.
- Toth, I., 1998. Market links and growth capability of enterprises in a transforming economy: the case of Hungary. *The Hungarian SME Sector Development in Comparative Perspective*. Budapest, KOPINT-DATORG Foundation and CIPE/USAID.
- Tripathy, S., 2006. Are Foreign Firms Allocatively Inefficient?: A Study of Selected Manufacturing Industries in India, Nottingham: Research on Globalisation and Economic Policy.
- Uma, K., Eboh, F., Obidike, P. and Ogwuru, H., 2013. Resuscitating Industrial Productivity for Sustainable Economic Growth: Nigeria in Focus. *American Journal of Social Issues and Humanities*, 3(5), pp. 244-256.
- UNDP, 2013. United Nation Development Programme. [Online]
Available at: <http://hdr.undp.org/en/content/population-living-below-125-ppp-day>
[Accessed 7 June 2017].
- UNFPA, 2016. *United Nation Population Fund*. [Online]
Available at: <http://www.unfpa.org/urbanization>
[Accessed 25 September 2017].
- United Nation, 2006. Building inclusive financial sectors for development. Washington, D.C.: United Nations Publications.
- Uzzi, B., 1999. Embeddedness in the Making of Financial Capital: How Social Relations and Networks Benefit from Firms Seeking Financing. *American Sociological Review*, 64(1), p. 481-505.
- Welch, F., 1970. Education in Production. *Journal of Political Economy*, 78(1), pp. 35-59.
- Wennekers, S. and Thurik, R., 1999. Linking entrepreneurship and economic growth. *Small business economics*, 13(1), pp. 27-56.
- Wennekers, S., Van Stel, A., Carree, M. and Thurik, R., 2010. The relationship between entrepreneurship and economic development: Is it U-shaped?. *Foundations and Trends® in Entrepreneurship*, 6(3), pp.167-237.
- Wiklund, J. and Shepherd, D., 2005. Entrepreneurial Orientation and Small Business Performance: A Configurational Approach. *Journal of business venturing*, 20(1), pp. 71-91.

Yusuf, S. (2003). *Innovative East Asia: The Future of Growth*. The World Bank, Washington D.C. the USA

Zimmerer, T. W. and Scarborough, N. M. (2008). *Entrepreneurship and new venture formation*. New Jersey, Prentice Hall International.

