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Determinants of Informality in the Informal Sector in Kenya

Protus Shitero and Malot Kenneth

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Determinants of Informality in the Informal Sector in Kenya

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Kenya Institute for Public Policy
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Abstract

The informal sector in Kenya has been persistent, and is critical to employment creation, accounting for 83.4 per cent of new jobs created in 2017. Government policies have failed to address the challenges faced by the sector, which include low productivity, lack of social protection and labour contracts, tax evasion, lack of compliance with government regulations, low income, and poor working conditions. The objective of this study is to review the current policy environment, identify and analyze the determinants of the informal sector, and comparatively review and draw lessons from other countries' informal sector environment to inform policy that will address the deficiencies in the sector in Kenya. In achieving its purpose, the study employed probit regression model to analyze the determinants of the level of informality. The study establishes that there is no clear policy framework for the informal sector in Kenya. Secondly, the entrepreneur and establishment characteristics are key in determining individuals' operations in high levels of informality. Thirdly, easing registration costs has little to no impact in transitioning enterprises to formality. Rather, tax incentives and other incentives to formalization were impactful to entry and sustaining enterprises in formality. The study recommends development of an informal sector policy to bring attention and advocacy to the sector, among increasing incentives to formalization and reducing constraints such as high taxation.

Abbreviations and Acronyms

AU	African Union
GDP	Gross Domestic Product
ILO	International Labour Organization
KNBS	Kenya National Bureau of Statistics
MSEs	Micro and Small Enterprises
MSME	Micro Small and Medium Enterprises
ROSCAS	Rotating Savings and Credit Associations
SDGs	Sustainable Development Goals
SMEs	Small and Micro Enterprises

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1. Introduction

1.1 Background of the Study

Over 60 per cent of the world's employable population is in the informal sector, which contributes a third of Gross Domestic Product (GDP) in Emerging Markets and Development Economies (EMDEs) where 70 per cent of the informally employed were own-account workers, making about 43 per cent of the employed (ILO, 2018; World Bank, 2019). The prevalence of informality and informal sector is high in Africa. Despite its widespread occurrence in Sub-Saharan Africa, the informal sector varies in its intensity country wise, from contributing 20 to 25 per cent to formal sector output in Mauritius, South Africa and Namibia to 50 to 65 per cent in Benin, Tanzania and Nigeria (World Bank, 2019; Medina, Jonelis and Cangul, 2017).

Informality is a multidimensional and country heterogeneous phenomenon that is present in both the developed and developing world. The concept has had definitional ambiguity, although there has been points of convergence noted in many research works especially on the description of informal sector. Based on the 15th International Conference of Labour Statisticians (ICLS), the informal sector is defined as a group of unincorporated production units owned by households, including "informal own account enterprises and enterprises of informal employers (ILO, 2003) .

Contextually, the 2016 Kenya Micro Small and Medium Enterprises (MSME) survey basic report records informal sector enterprises as production units which form part within the system of national accounts of the household sector, which includes enterprises that are self-owned by households and are not registered under specific forms of national legislation. They are also defined as small or unregistered private unincorporated enterprises.

The informal sector employment dominates with a 78.8 per cent share in Central Africa, 76.6 per cent in Eastern Africa and 87.0 per cent in Western Africa. The southern part of Africa comes last as the only sub-region with less than half of the population employed at 40.2 per cent in the informal sector. This proportion is high compared to 68.2 per cent in Asia and Pacific, 68.6 per cent in the Arab states, 40 per cent in the Americas and 25.1 per cent in Central Asia and Europe. Narrowing down to Sub-Saharan African (SSA) countries, on average between 2010 and 2016, the informal sector economy contributed to 36-40 per cent of total GDP contribution. Over the last three decades, the level of informality in SSA countries has been declining, despite remaining the highest in the world. Countries such as Botswana, Ghana Malawi. Ethiopia, Tanzania and Rwanda have made significant progress in lowering the output and employment from the informal sector. This has largely been attributed to policies that reduce the regulatory burdens, strengthen the governance system, and improve resource access to the informal sector (World Bank, 2019).

The informal sector in Kenya occupies a large space in the country's economy. MSMEs in Kenya contributed 33.8 per cent to economic output in 2015 (MSME Survey Report: KNBS, 2016), of which a majority are informal. Consequently, the sector employs about 80 per cent of Kenya's working population, with its contribution in 2017 at 83.4 per cent of the new jobs created compared to the formal sector. The informal sector's role in the economy is unrivalled, although informality has been associated with adverse consequences both to the establishments and the entrepreneurs.

The informal sector in Kenya has immense challenges. Informality has been associated with adverse consequences to individuals, firms and societies. The informal sector is characterized by undesirable tax avoidance, illicit trade and illegal economic activities and lack of official statistics for planning (Hope, 2014). Moreover, Hope notes that those employed in the informal sector lack secure contracts, worker benefits and social protection. These factors are detrimental to the welfare of those employed in the sector. Gutierrez-Romero (2014) further notes that the informal economy is associated with large costs to the government, such as tax evasion, disrespect for the rule of law and unfair competition to formal establishments.

Lack of jobs in formal employment has led to the informal sector playing a leading role in accommodating job seekers. Different development agendas have incorporated the sector in their plans in a bid to improve the livelihoods of those that depend on it. On the global platform, the sector is reflected in different development agendas (SDG 8:8.3 and AU Agenda 2063:1) whose incentive is to develop and promote frameworks that provide decent jobs, improve standards of living, enhance technology adoption and productivity, inclusive economic growth, entrepreneurship and formalization of MSMEs (Africa Union Commission, 2016; United Nations, 2015). Kenya is not left behind in this endeavor as the Kenya Vision 2030 targets creation of jobs, improvement of productivity and promotion of conducive working conditions for Kenyans in the labour and employment sector. The anchoring of the informal sector in development plans signifies the importance of the sector.

1.2 Problem Statement

In Kenya, the informal sector is a dominant player in the labour market, with statistics showing that in 2017, the sector accounted for 83.4 per cent of the new jobs created (KNBS, 2018). This has been the trend in previous years where, cumulatively, the informal sector caters for over 70 per cent of total working population in Kenya (World Bank, 2016).

The informal sector is characterized by limited job security, low productivity and low incomes, unskilled apprentices, low absorption of technology, poor working conditions, unfair competition, prevalence of illicit trade and counterfeits, lack of formal statistics for planning purposes, lack of social protection and worker benefits (KNBS 2018; Williams, Shahid and Martínez, 2016; KNBS, 2016; Gutierrez-Romero, 2014). Due to these characteristics, the informal sector despite providing employment to the population, is also a cause of the working poor phenomenon, poverty and inequality, leading to weak economic growth.

In light of this, the Kenya government has acknowledged the challenge presented by the persistence of informal sector and has worked to develop policies, regulations and institutional frameworks to mitigate the consequences of growing informality. A notable government policy passed is Sessional Paper Number 2 of 2005 on development of micro and small enterprises for wealth and employment creation for poverty reduction. Regulations include Micro and Small Enterprise Act of 2012 that established the Micro and Small Enterprise Authority for coordination and harmonizing the micro and small enterprises, and Trade Licensing Act of 2006 that provided registration for business and trade regulation.

However, despite the interventions by the Government of Kenya, the informal sector continues to be a major player in employment creation and as a source of livelihood, albeit with poor standards of living and low productivity. Therefore, to address the problem of persistence of the informal sector and improve the sector's performance and contribution, proper diagnosis of its determinants should be conducted for working solutions. This study seeks to establish and analyze the determinants of informality in Kenya, given the persistent nature of the informal sector and its contribution to employment and subsequent consequences.

1.3 Objectives of the Study

The main objective of the study is to explore the factors that determine the informality in the informal sector in Kenya and draw lessons from select economies on interventions in the sector to inform policy recommendations. The specific objective of the study are as follows:

(i) To review the policy and regulatory framework governing the informal sector

(ii) To identify and analyze the determinants of informality in the informal sector in Kenya

(iii) To review the informal sector in select countries in the world

1.4 Organization of the Study

The rest of the paper was structured as follows. Section two presents the literature review, which includes a review of the policy framework, theoretical and empirical literature. Section three presents the methodology, which includes the conceptual framework, data and variables description and analytical approach. Section four is a discussion of the findings, both descriptive, analytical results and comparative review of select countries, while section five provides the conclusion and recommendations.

2. Literature Review

2.1 A Review of Informal Sector and the Policy Framework Development in Kenya

The Government of Kenya has over the years come up with numerous policies to try and address the challenges raised by the informal sector. The sector plays a dominant role in the economy, and its continued expansion provides a continued task for policy makers and legislators. The gaps identified in government's approach towards the informal sector are: first, the definitional ambiguity in the sector, whereby there is interchangeable references to the sector as SMEs, MSEs, MSMEs or small scale enterprises in different policy documents, leading to lack of consistency; secondly, weak or non-existent coordination mechanisms among the many players involved in the sector policy implementation frameworks, resulting in either no or minimal impacts from the policies (Komollo, 2010). Thirdly, there is perception that the sector is far from changing, as the regulatory environment itself treats the sector as a nuisance, hence difficulty in implementation of the relevant policies and laws (Komollo, 2010). Also, the by-laws and regulations are punitive to the operators in the sector.

Sessional Paper Number 10 of 1965 characterizes Kenya's economy as a dual economy comprising the public and private sector, giving life to the thriving of private enterprises. The notion surrounding the informal sector since independence is that of less positive input in promotion of the sector. This leads to three beliefs identified about the sector in the 1960s; that persons in the informal urban sector are largely temporary inhabitants or occasional migrants, many of whom could be induced to return to rural areas; that persons in the informal sector are unemployed or sporadically employed, contributing little to urban income, while constituting a significant health, fire, and political hazard; and that any attempt to improve the living conditions in the informal sector would only induce additional migration, and might thus be self-defeating (ILO, 1972).

The surge of the informal sector, initially referred to as "small-scale enterprises" in the 1980s (Livingstone, 1991) was fueled by adverse economic conditions in the 1980s and 1990s due to suspension of World Bank financial assistance and introduction of Structural Adjustment Programmes (SAPs), which led to lay-offs in the formal employment through privatization, and created an environment for the informal sector to thrive (UN-Habitat, 2006). This coincided with ongoing policy dialogue focusing on poverty, and the informal sector was perceived as the employer of the poor (Günther and Launov, 2012).

The burgeoning importance and indispensability of the informal sector in the 1980s drew the attention of policy makers in Kenya who came up with a report dubbed "Strategy for small scale and Jua Kali development in Kenya" in 1989, emanating from Sessional Paper Number 1 of 1986 on economic management for renewed growth. The policy sought to remove unnecessary obstacles that hindered informal economy activities through a review of all existing by-laws and regulations that governed the sector. The strategy report pursued further the dictates of Sessional Paper Number 1 of 1986 by enlisting mechanisms for removing the regulatory and legislative constraints for the sector.

Notably, during this time, there was no policy that defined the sector, with various words used interchangeably to refer to it, such as "small scale enterprises" and "*jua kali*" – derived from the characteristic of the entrepreneurs operating without sheds in scorching sun. The Strategy Paper of 1989 was translated into a policy framework and published as Sessional Paper Number 2 of 1992 on small enterprises and *jua kali* development in Kenya, which wanted to establish an enabling environment for the development of the informal sector. This Sessional Paper has the unique exclusivity of addressing small enterprises by defining them as those that employ between 1 and 50 people. Consequently, there was advocacy for formation of associations to enhance knowledge of MSEs in relation to licensing, taxation and legal environment; recommendations on founding the *Jua Kali* Council and *Jua Kali* Authority; and increase coordination and technological development to enhance competitiveness of MSEs (UN-Habitat, 2006; KNBS, 2016).

Other policies and government declarations have been pronounced towards enhancing the *Jua Kali* sub-sector, including: Small Enterprise Policy Implementation Programme (SEPIP) in 1994 to help the government adjust the policy framework for small enterprise development; 1996-1997 budget speech which required Local Authorities to harmonize licenses into single business permits especially for "*Jua Kali*" and Sessional Paper Number 2 of 1996 that sought to review the vagrant and public nuisance acts to allow genuine *Jua Kali* workers to operate without being harassed due to the act. The informal sector in Kenya is regarded as a continuum from the formal sector, hence fostering linkages between the formal-informal divide is an important objective (Hope, 2014).

The Sessional Paper Number 2 of 2005 on development of micro and small enterprises for wealth and employment creation for poverty reduction recognizes the need for linkages between different sizes of businesses, removal of regulatory barriers to spur growth, improving institutional reforms to enhance coordination and implementation of sector activities, and securing 25 per cent procurement opportunities to MSEs. Moreover, the Private Sector Development Strategy (PSDS) 2006-2010, goal 5, highlighted the challenges faced by indigenous businesses including lack of access to markets, limited access to capital, limited skills and firm-to-firm linkages and lack of effective representation in sector-specific and umbrella business association (KNBS, 2016).

The anatomy of the informal sector in Kenya mirrors the world view espoused by different researchers of the subject. The sector exists as a dual economy with independence between it and the formal sector (Hope, 2014) with those engaged in the sector either as a last resort measure due to exclusion; stringent regulatory frameworks (de Soto, 1989) or due to benefits they derive from the sector (Levy, 2008). Informal sector activities began as survival outfits for entrepreneurs who could not secure formal employment but, with time, the sector has become a mainstay and at the center of every policy discourse. UN-Habitat (2006) notes that the informal sector in Nairobi comprises of the production and manufacturing enterprises reflected by the *Jua Kali* sub-sector and the services sector, mainly through street trading.

Kenya's informal sector operates mainly on small scale activities locally based on self-employment. It is easy to enter and exit due to fewer regulations characterized by less capital investment and limited job security (Livingstone, 1991; Atieno, 2006; Komollo, 2010). They operate for a shorter period of time and have limited access to electricity and water, with a few individuals selling outside the establishment. This sector excludes illicit and illegal activities such as drug trafficking, among others (KNBS, 2018: World Bank, 2019). Over the years, the informal sector has expanded its activities to other sub-sectors, including manufacturing, information, communication and technology, wholesale and retail trade, hotels and restaurants, community, social and personal services building and construction and extractive activities (Livingstone, 1991; House, Ikiara and McCormick, 1993; Hope, 2014).

Despite the policy frameworks in place, the Government of Kenya has also adopted a new industrialization blueprint christened 'Kenya's Industrial Transformation Programme' (KITP) in July 2015, outlining five strategies aimed at transforming the industrial and export centers by doubling the amount of current formal manufacturing sector jobs to approximately 700,000 and add US$ 2 to 3 billion to GDP. Guided by the Kenya Vision 2030, the programme prioritizes three key strategies: the launch of sector-specific flagship projects in agro-processing, textiles, leather, construction services and materials, oil and gas and mining services and IT-related sectors; the development of Kenyan small and medium enterprises (SMEs) through support of the rising stars and building capabilities with model factories; and the creation of an enabling environment to fast-track industrial development through industrial parks/zones, technical skills, infrastructure support and an enabling environment for doing business. The "Big Four" agenda also aims at creating an additional 1,000 manufacturing SMEs, and providing them with access to affordable capital training and skills enhancement, access to markets and establishing at least one industry in each county which is also in line with KITP.

2.2 Theoretical Literature Review

Since the coining of the term “informal sector” by Keith Hart in 1971, different schools of thought have been developed to understand the sector. Great enthusiasm in framing the sector has led to heterogeneous understanding of the informal sector regarding its nature and composition (Chen, 2012). Comprehending the theories behind informality is relevant in organizing the required interventions to address the issues surrounding the sector. Dominant schools of thought are discussed below.

2.2.1 Voluntarist theory

Voluntarist theory is also referred to as rational exit or just exit model of informal economy (Chekenya, 2017; Rothenberg et al., 2016) . The theory dwells on the causal explanation of both enterprises and labour opting to operate in the informal sector. This school of thought is attributed to (Levy, 2008; and Maloney, 2004) who posit that the informal sector should be understood as a collection of voluntarily organized economic agents who are only unregulated and not disadvantaged. These agents choose to remain in the informal sector due to their cost benefit analysis of the formal sector, noting that the alternative does not confer enough benefits.

Voluntarists are not attentive to the linkages between the formal and informal sectors; informal sector firms relish cheaper wage rates, tax and other regulatory costs advantages, hence providing unfair competition to formal enterprises burdened compliance to these costs (Rothenberg et al., 2016; Chen, 2012). The theorists propose a more broadened approach not just in registration but also increase incentives to formalization to bring the informal sector under regulation to expand the tax base and reign on unfair competition.

2.2.2 Exclusion model

This theory incorporates those who view the informal sector as a creation of the capitalist system and the legalists. The exclusion model follows the seminal work of (De Soto, 1989) that the informal sector is as a result of the burdensome regulations and bureaucracy by governments that make it difficult for enterprises to formalize, leading to a situation of untapped reservoir of entrepreneurial energy. The legalist view points to the nexus between the formal regulatory framework and its relationship with the informal enterprises and informal wage workers. de Soto (2002; 1989) further acknowledges that formal enterprises collude with government to develop barriers to entry through regulations.

Other scholars in this theory postulate the capitalist view through the structuralist argument (Portes, 1996; Moser, 1978). This view of exclusion slightly mirrors de Soto's mercantilist creation of exclusion. Informal sector existence is purely to boost profitability of large formal firms through provision of relatively cheaper input and labour costs. The structuralists argue that the nature of capitalism/ capitalist growth drives informality; specifically, the attempts by formal firms to reduce labour costs and increase competitiveness and the reaction of formal firms to the power of organized labour, State regulation of the economy (notably, taxes and social legislation); to global competition; and to the process of industrialization (notably, off-shore industries, sub-contracting chains, and flexible specialization) (Chen, 2012). The exclusion model accepts the linkages between the formal and informal sectors, but the relationship is largely exploitative.

This school of thought holds the view that since the regulatory procedures prove cumbersome for informal enterprises to register, then reducing registration bureaucracy is seen as a solution. In Indonesia, one-stop-shops for business registration have been established to counter bureaucracy (Rothenberg et al., 2016) and in Kenya, there has been a similar construction of 'Huduma centers', loosely translated as service centers, to ease registration burden.

2.2.3 Dualist theory

The dualist model recognizes that the economy exists with two sectors; the formal and informal. However, the informal sector operates in the periphery and is a by-product of poverty and inequality (ILO, 1972; La Porta and Shleifer, 2014). ILO (1972) notes that there are striking parallels between the informal and formal sector in Kenya, and continues that despite the striking difference, there is considerable embrace of modernity in both sectors. This is contrary to the views espoused by (La Porta and Shleifer, 2014) who describes the duality concept explicitly; terming the informal sector as with no ambitions of formalizing or expansion; extremely unproductive; cash intensive; and hire informal workers.

Consequently, in this view, little focus is put on the intersection of informal sector and government regulations as ILO (1972) identifies that benefits such as reduction of capital costs, quotas and access to credit from the government accrue to the formal sector while the informal sector remains barely assisted or harassed.

To prop up the sector, economic growth, poverty reduction and rising income is seen as a way to bolster consumption of formal sector products, leading to exit of informal sector (Rothenberg et al., 2016). Uneducated entrepreneurs are perceived as the dark side of dualism and to address this, La Porta and Shleifer (2014) look to increasing the number of educated entrepreneurs as opposed to educated workers, since evidence suggests that growth led by educated entrepreneurs kills the informal sector.

2.3 Empirical Literature

Empirical literature on the informal sector is important to quantify and understand the aspects that make the sector. Conceptually, the study will categorize the empirical literature into the following three thematic areas: entrepreneur characteristics; informal enterprise characteristics; and business environment and regulatory framework factors.

The informal sector entrepreneur characteristics are critical in understanding what motivates the entrepreneur in the informal context. Despite empirical challenges, there are studies that have set out on analyzing the characteristics of the entrepreneur in the informal setting. The heterogeneity of the informal sector in different countries leads to mixed results of the relationship between the entrepreneur characteristics and informality. Some studies found that there is a positive relationship of age, education and household income to engaging in a formal venture (Williams et al., 2016), with older entrepreneurs (over 40) with a higher probability of being more formal than the younger ones (15-24) (Williams et al., 2016). Education is found to be negatively related to informality (Dabla-norris, Gradstein and Inchauste, 2008) whereby increased years of schooling reduce participation in the informal sector especially for women (Atieno, 2006). Also, gender segmentation shows that men are likely to operate in top echelons of informal economy while women are largely represented in low levels (industrial outworkers and homeworkers) (Chen, 2009). The entrepreneur characteristics speak to exclusion factors, whereby education and gender gaps have a role in participation in the informal sector.

Informal enterprise characteristics have significant effects on whether a firm operates informally (Dabla-norris et al., 2008). Business characteristics play an important role in explaining the informal sector development. A study by Thai and Turkina (2014) and Williams and Martinez (2014) found that the older the enterprise, the higher the likelihood of being formal, although in Kenya a high percentage of businesses that are established operate informally (World Bank, 2018). The level of informality also depends on sectorial distribution and variations, with more in construction sectors with a lower informality level in sectors such as manufacturing (ILO, 2012; Asian Development Bank, 2010). Instantly consumable food sector is more likely to be informal (Williams et al., 2016). Firm size, presence of premises for the enterprises, and whether the enterprise is operating a bank account are also enterprise level characteristics that affect the prevalence of the informal sector (Williams et al., 2016; Dabla-norris et al., 2008; Komollo, 2010). Smaller firms are more likely to operate informally compared to larger ones, while lack of a bank account correlates highly to operating informally.

The informal sector business environment and regulatory framework is important in understanding what drives the survival of the informal sector. Numerous studies have examined the business and regulatory environment as a contributor to growth in the informal sector. Most of these studies were cross sectional and used multivariate analysis. These include Williams et al. (2016), Cuff et al. (2011), Baksi and Bose (2016), Mitra (2017), Leal Ordóñez (2014), among others. While most studies were looking at the general business environment, Rocha, Ulyssea, and Rachter (2018) found that reducing registration costs has no effect on the informality of the firm, while reducing the tax burden increases formalization. This translates to the existing informal firms becoming formal and not from the creation of new formal businesses, nor greater survival of existing formal firms.

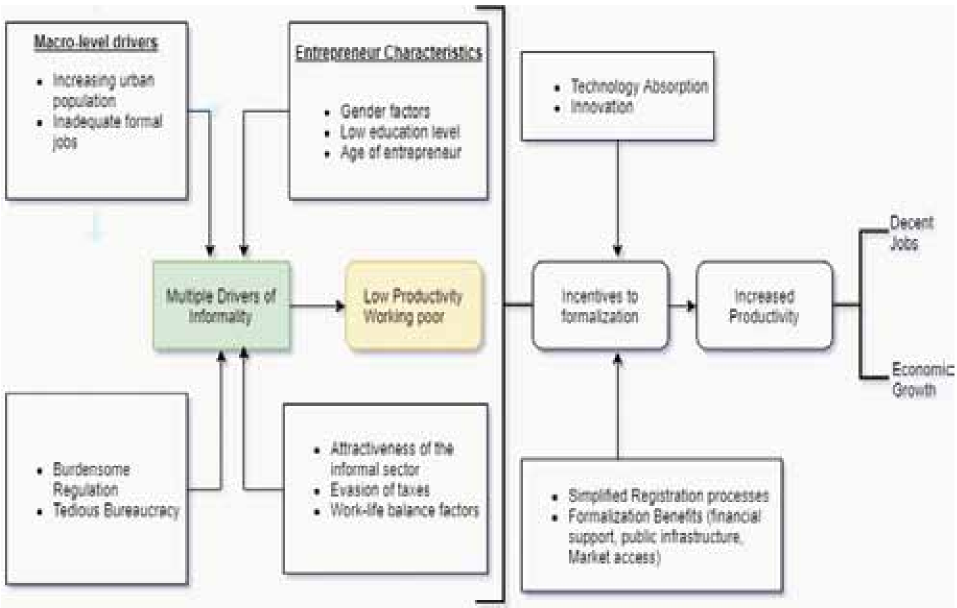
The most commonly identified driver of the informal sector is burdensome regulation and high taxes as poised in the rational exit model. deV.Cavalcanti and Antunes (2007), Prado (2011), Moscoso Boedo and D'Erasmo (2009) used the general equilibrium model to study the aggregate effects of informality within the context. These studies, however, did not focus on how the firms avoid the taxes to remain informal, but rather looked at the distortions that are associated with formality, such as the entry regulations and financial constraints. Entry costs and regulations that had earlier on been emphasized by de Soto (1989) and Herrendorf and Teixeira (2011) can be an important incentive for technological innovations and less important towards informality.

3. Methodology

3.1 Conceptual Framework

The conceptual framework presented in Figure 3.1 explains the dynamics of the informal sector and incentive structures that can contribute to improving productivity of the sector. There are multiple drivers underpinning the decision to enter the informal entrepreneurship voluntarily, with burdensome regulations being one of them. Other factors that drive for the survival of the informal sector include the individual characteristics of informal sector attractiveness in terms of tax evasion, lack of market, finances and technology (de Soto, 1989). The framework follows theoretical underpinning of causality, such as the rational exit theory and exclusion theory espoused above.

Figure 3.1: Conceptual framework



Source: Authors' Construct

The conceptual framework in Figure 3.1 is illustrated in two parts. The first part contains the multiple drivers to the growth of the informal sector, informed by the theoretical literature reviewed. The second part of the framework borrows from the reviewed lessons from various economies to bring out the incentive structures and processes that may be important in increasing productivity of the sector. The informal sector is driven by micro-level factors, which include entrepreneur characteristics (age, gender, level of education) macro-level factors informed by historical analysis; and exclusion model which states the inability of the economy to absorb a rapidly growing population through formal employment, resulting in them seeking survival from the informal sector.

Thirdly, is de Soto (1989) assertions of burdensome regulation and tedious bureaucracy which makes the entrepreneurs to opt to operate in the informal sector to avoid government processes. Finally, the rational exit factors posit that the informal sector is attractive to the entrepreneur, since the entrepreneur wants to evade costs of the formal sector such as taxes. Also, there is the aspect of work-life balance, especially for women who opt to operate informally. These factors lead to the sector's low productivity characteristics. Therefore, literature has proposed several measures from different economies that are used to improve the sector's productivity. These include simplified business registration processes and formalization benefits such as financial support, public infrastructure and market access. Technology adoption and innovation also present an opportunity for firms to increase their productivity.

The interaction of the drivers and the incentives provide a variable factor to achieving increased productivity in the sector, which then works towards improved economic growth, which theoretically equates to creation of decent jobs for the working population.

3.2 Analytical Approach

The study used ordered probit model for the analytical framework, which is estimated by maximum likelihood method. This model is preferred to a simple OLS regression technique since the assumption of non- interval variable would be violated, and also preferred to the multinomial probit model due to the ordering of the dependent variables. Using the multinomial probit would have lost the ordering of the dependent variable, with crucial information about the partially informal leading to inefficient maximum likelihood estimators. The probit model also assumes a normal error distribution and addresses a wide range of model specification problems (Wooldridge, 2013).

The ordered response model applied had a 3 response dependent variable which is ranked from a desirable position of total formality through partial informality to total informality as the lowest rank. Latent variables in ordered response models take the form:

$$y_i^* = \beta' x_i + \varepsilon_i \qquad 1.1$$

Where y_i^* represents a continuous latent variable, where (i =1,..., n) number of responses. $x_i=(x_{i1},....,x_{ik})$ is a vector of explanatory variables and β is the corresponding dimensional parameter vector and ε is the error term.

In this study, the y_i* latent variable has three response categories. In the model, higher values of the latent variable y_i* lead to higher values of the ordered dependent variables y_i.

For the three intervals of y_i it follows that:

$y_i=1$ *if* $\kappa_o<y_i^*\leq\kappa_1 \quad \leftrightarrow \quad \kappa_o- \beta' X_i \ <\varepsilon_i\leq\kappa_o- \beta'X_I$

$y_i=2$ *if* $\kappa_1<y_i^*\leq\kappa_2 \quad \leftrightarrow \quad \kappa_1- \beta' X_i \ <\varepsilon_i\leq\kappa_2- \beta'X_I$

$y_i=3$ *if* $\kappa_2<y_i^*\leq\kappa_3 \quad \leftrightarrow \quad \kappa_2- \beta' X_i \ <\varepsilon_i\leq\kappa_3- \beta'X_I$

.

$y_i=J$ *if* $\kappa_{(J-1)}<y_i^{\wedge *}\leq\kappa_4 \quad \leftrightarrow \quad \kappa_{(J-1)}- \beta' X_i \ <\varepsilon_i\leq\kappa_J- \beta' X_I$ 1.2

From equation 1.2, the model equation with the unobserved dependent categorical variables is expressed in equation 1.3. This shows the choice probabilities of ordered probit models *(i = 1, .. n; j = 1,.., J*)

$p_{ij}\ (X_i,\theta)=P\ (y_i=j\,|\,X_i,\theta)$ 1.3

The general specification of the model can be demonstrated as follows:

$P(y_i=J\,|\,X_i,\theta)=1- \Phi(i\,)\ (\kappa_{(J-1)}- \beta' X_i)$ 1.4

Whereby θ is the vector of the independent variables, $\Phi(i)$ is the vector of the explanatory variables, *J* is the number of unobserved covariates, in this case being three outcomes and *J-1* is the threshold parameters.

The analytical model followed a sequential additive formula of the different explanatory variable categories borrowed from (Williams et al., 2016). Five models with specific equations that analyzed the explanatory powers of the variable categories were constructed. This enabled the individual and net contributions of the determinants of the level of informality to be measured. The model assumptions were that the informality was ranked in different levels, with lowest levels of informality being desirable and each category of variables has different explanatory powers in explaining the determinants of informality. Thus, the model specification for the five equations was as follows, from equation 1.5 to 1.9, with the last equation containing all the explanatory variables.

$$inforent_i=\beta_0+\beta_1\ educ\_lev_i+\beta_2\ sex_i+\varepsilon_i \qquad 1.5$$

$$inforent_i=\beta_0+\beta_1\ educ\_lev_i+\beta_2\ sex_i+\beta_3\ Biz\_location_i+\beta_4 firm\_age_i+\beta_5 firm\_size_i+\beta_6\ credit\_appl_i+\beta_7\ own\_type_i+\beta_8\ source\_fin_i+\beta_9\ sector_i+\varepsilon_i \qquad 1.6$$

$$inforent_i=\beta_0+\beta_1\ educ\_lev_i+\beta_2\ sex_i+\beta_3\ Biz\_location_i+\beta 4\ firm\_age_i+\beta_5 firm\_size_i+\beta_6\ credit\_appl_i+\beta_7\ own\_type_i+\beta_8\ source\_fin_i+\beta_9\ sector_i+\beta_{10}\ riz\_activity_i\ \varepsilon_i \qquad 1.7$$

$$inforent_i=\beta_0+\beta_1\ educ\_lev_i+\beta_2\ sex_i+\beta_3\ Biz\_location_i+\beta_4 firm\_age_i+\beta_5 firm\_size_i+\beta_6\ credit\_appl_i+\beta_7\ own\_type_i+\beta_8\ source\_fin_i+\beta_9\ sector_i+\beta_{10}\ riz\_activity_i+\beta_{11}\ biz\_constraints_i+\varepsilon_i \qquad 1.8$$

$$inforent_i=\beta_0+\beta_1 educ\_lev_i+\beta_2 sexi+\beta_3 Biz\_location_i+\beta_4 firm\_age_i+\beta_5 firm\_size_i+\beta_6\ credit\_appl_i+\beta_7 own\_type_i+\beta_8 source\_fin_i+\beta_9 sector_i+\beta_{10} riz\_activity_i+\beta_{11}\ biz\_constraints_i+\beta_{12} ten\_risk_i+\varepsilon_i \qquad 1.9$$

Whereby *educ_levi* is education level of the owner of the enterprise, *sex* represents the sex of the enterprise owner, *Biz_location* is the location of the business, *firm_age* is the age of the enterprise, *credit_appl* represents whether the firm had applied for credit, *own_type* is the type of ownership of the enterprise, *source_fin* is the enterprise source of finance, *sector* is the type of business engaged by enterprises, *riz_activity* is the reason for starting and activity, *biz_constraints* are the constraints faced by the enterprise, *ten_risk* is the tenancy risk and ε is the error term.

3.3 Data and Data Sources

This study used data retrieved from the Micro Small and Medium Enterprises (MSME) Survey that was conducted in 2016 by the Kenya National Bureau of Statistics (KNBS). This was the first comprehensive survey on MSMEs in Kenya. A total of 14,400 households were targeted in the survey, of which 8,496 were in rural and 5,904 were in urban areas. In total, 50,043 MSMEs were sampled for the survey, targeting licensed and unlicensed establishments. The survey adopted a stratified random sampling method for the establishment-based sample. The systematic random sample of establishment was drawn using equal probability selection method. For this case, an establishment refers to an economic unit that produces and/or sells products and operates from a single physical location (KNBS, 2016).

The design of the survey focused on licensed and unlicensed establishments. The survey incorporated two separate sampling frames. The first sampling frame was based on establishments and was constructed using the county government registers of the licensed establishments. The data obtained was then classified into the international standard industrial classification (ISIC). The second sampling frame was on unlicensed establishments and was household-based. The survey used the National Sample Survey and Evaluation Programme sampling frame (NASSEP V) maintained by KNBS. The sampling frame was designed to obtain national representative data from all the 47 counties. Two stage stratified sampling was used to obtain the respondents at household level. The first stage a total of 600 clusters (354 in rural and 246 in urban) were selected. At the second stage, 24 households were selected in each cluster using the systematic random sampling method.

3.4 Variables Description and Measurement

3.4.1 Dependent variable

A level of informality index was generated for the dependent variable – the informal sector – based on the MSME Survey report (KNBS, 2016) definition of informal sector and further literature definition. In this aspect, the index will be informed by the legal status of the enterprise (registered or not registered by the registrar of companies) and whether they operate a bank account – borrowing from Williams et al. (2016). This enabled construction of a three-point scale of the level of informality or formality, ranging from totally formal through partially informal and to totally informal. These were ranked to have an ordered index.

The inclusion of a bank account was informed by literature and developments in other country's policies on identifying the informal sector as also those establishments with bank accounts as espoused in their policies. In Kenya, the formality discourse is not left to the labour aspect, but also in financial inclusion. Defined in this respect through the formal prudential mode of formal financial inclusion. Ideally, the study would have developed the index with the use of availability of a license as the alternative registration mode, but this is a limitation faced by the MSME survey data. Table 3.1 shows the index generated, with three categories across the three levels of informality; totally formal, partially informal and totally informal which were the dependent variable.

Table 3.1: Decision Matrix of the level of Informality

	Registered by registrar of companies	Bank accounts	Distribution by option (%)	Score	Distribution by score (%)
Totally formal	√	√	18.71	3	18.71
Partial informal				2	
Option 1	√	×	7.12		37.61
Option 2	×	√	30.49		
Totally informal	×	×	43.68	1	43.68

Source: KNBS (2016), Micro Small and Medium Enterprises Survey 2016; Own calculations

3.4.2 Independent variables

Basing on the literature above regarding the informal sector, characteristics of informal enterprises and entrepreneurs, and the causes of informality, the study will use the multivariate analysis framework to analyze the data. This was based on ordered probit regressions where, firstly, the characteristics of informal entrepreneurs such as age, gender, education level and reasons for starting the business was examined.

Secondly, the informal enterprise characteristics, such as business location, bank account, size of the business, finance sources, age of the firm, type of business, access to credit and type of ownership of the business was added to the first regression model. Thirdly, from the rational exit model, we tried to find out whether the enterprises adopt the exit rationale on tax expenditures and monthly expenditure on license issued, goodwill expenditure high and monthly expenditure fines. Finally, the study incorporated the exclusionary factors, which are proxied by business tenancy risks, and business constraints from the dataset.

The dependent variable, which is informality, was treated as a continuous variable and not a binary. The study employed ordered probit regression, which is preferred over the OLS technique since it avoids violation of the assumption of non-interval variable and loses multinomial regression, which is contained in the ordering of dependent variable.

Table 3.2: Variables and their measurements

Variable	Variable Name	Description	Measurement level	Variable coding
Dependent Variables				
Inforent	inforent	A categorical variable generated from; Enterprise legal status and Ownership of bank accounts by enterprises. The index ranking starts from 1, totally informal status to 3 which is the desirable state of totally formal. Rank 2 presents the partially informal state.	Nominal	1=Totally informal 2= Partially informal 3=Totally formal (1 representing high levels of informality and 3 representing low levels of informality)
Independent variables				
Individual characteristics				
Sex of the owner(s)	sex	Sex of the firm ownership. A categorical variable with value 1 indicating that the entrepreneur is a male only,2 female only, 3 male-male 4 female-female and 5 male-female	Nominal	1= Male only 2= Female only 3=Male-Male 4= Female-female 5= Male-Female
Education level	educ_level	Education level of the owner of the firm with five categories	Nominal	1=None 2= Primary 3= Secondary 4=Vocational and college 5=University
Enterprise characteristics				
Size of the business	firm_size	Number of persons engaged by the business generated by grouping all the individuals in various categories.	Nominal	1=Micro 2= Small 3= Medium
Age of the firm	firm_age	The firm's age measured as the year of the survey minus the year the firm started its operations and categorized into 5	Nominal	1=0-5 years 2= 6-10 years 3=11-15 years 4= 16-20 years 5= over 21years
Apply for credit	credit_appl	a dummy variable with value 1 for those entrepreneurs reported they have applied for a bank loan to finance the enterprise's activities and 0 otherwise	Nominal	0=No 1=Yes

Type of business	sector	The main sector in which the firm operates. Different types of business to be grouped into four categories namely manufacturing, agro-processing, services and wholesale and retail	Nominal	1= manufacturing 2= Services 3= Trade 4=Agro-business
Type of ownership of the business	own_type	Broad ownership characteristics of the firm	Nominal	1=Family 2=Sole proprietor 3=Partnership 4=Cooperative 5=Group 6= Private limited company 7= Public limited company
Sources of financing:	source_fin	a categorical variable for the self-reported main sources of funding for the business, namely banking and insurance institutions, family and friends, non-bank financial institutions, ROSCAS and others	Nominal	1= banking and insurance institutions, 2= family and friends, 3= non-bank financial institutions, 4= ROSCAS
Exit Rationales				
Reason for starting a business	riz_activity	Where the individual states the reasons for starting a business in various categories.,	Nominal	1= Skilled in this activity 2= Family has worked in this activity, 3= Advised by others 4 Availability of capital 5= High demand /ready market 6= Influenced by advertisements 7= No other alternative 8= Better income 9= Prefer self-employment
Exclusion Rationales				
Business constraints	biz_ constraints	Whether the firms face any constraints at the business site	Nominal	1=Government regulations 2= Market factors 3=Poor infrastructure 4=lack of collateral for credit

Business environment				
Business Tenancy risk	ten_risk	The biggest tenancy risks faced by the businesses.	Nominal	1=Eviction by county go 2= Eviction by National Government 3= If rented, eviction by owner/landlord 4= Expiry of tenancy

Source: Authors' compilations

4. Discussion of Findings

4.1 Descriptive Findings

The MSME Survey 2016 had a sample of 24,164 establishments. Table 4.1 illustrates the distribution of the sampled data using registration by the Registrar of Companies as per the Company's Act, and availability of bank account. Out of the sampled establishments, 10,554 were found to be operating totally informal, representing 43.68 per cent of the sample. In addition, 37.62 per cent of the establishments either were registered with the registrar of companies or operated a bank account hence they were partially informal. The data shows prevalence of either total or partial informality at 81.29 per cent compared to establishments operating totally formal at 18.71 per cent.

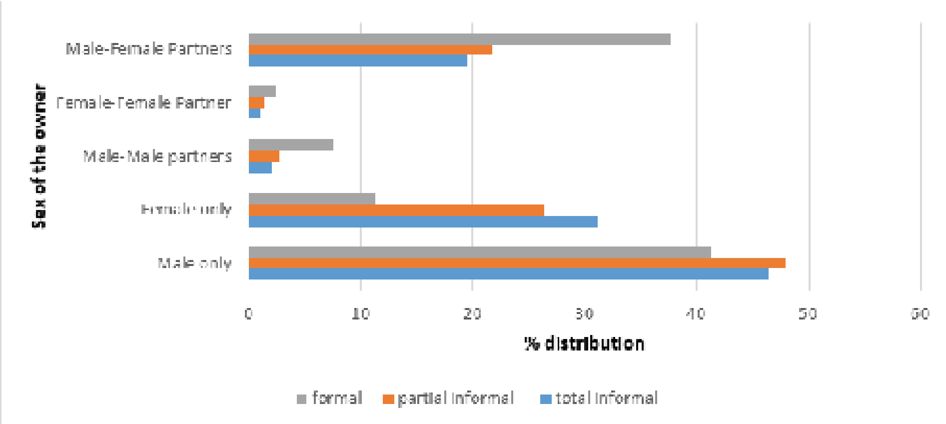
Table 4.1: Characteristics of establishment by level of informality (%)

Establishments	Frequency	Percent	Cumulative Frequency
Total informal	10,554	43.68	43.68
Partially informal	9,090	37.61	81.29
Totally formal	4,520	18.71	100.00
Total	24,164	100.00	

Data Source: MSME Survey 2016 (authors' computations)

In terms of the individual characteristics of the firm in gender form, male only owned establishments were dominant in all the levels of informality, with 46.36, 47.92 and 41.35 per cent operating in totally informal, partially informal, and totally formal, respectively. Female only led establishments were more likely to operate in informal space with 57.43 per cent in either totally or partially informal operation. Only 11.26 of the formal establishments were female only owned. A partnership between male and female owners ranked second to the male only owned establishment in terms of operating totally formal at 37.59 per cent.

Figure 4.1: Sex of the firm owner(s)



The level of education plays a significant role in how entrepreneurs will acquire and use available information, therefore impacting their operation model. The data explores various levels of education as shown in Figure 4.2. Entrepreneurs with university-level education are more likely to operate their establishments in totally formal manner at 37.32 per cent, while those that have secondary-level education are more likely to operate in totally informal and partially informal at 39.13 and 39.75 per cent, respectively. Entrepreneurs with no formal education and those with primary education were found to be operating more in the informal space, with 12.88 and 56.81 per cent operating in both total and partial informality, respectively.

Figure 4.2: Education level

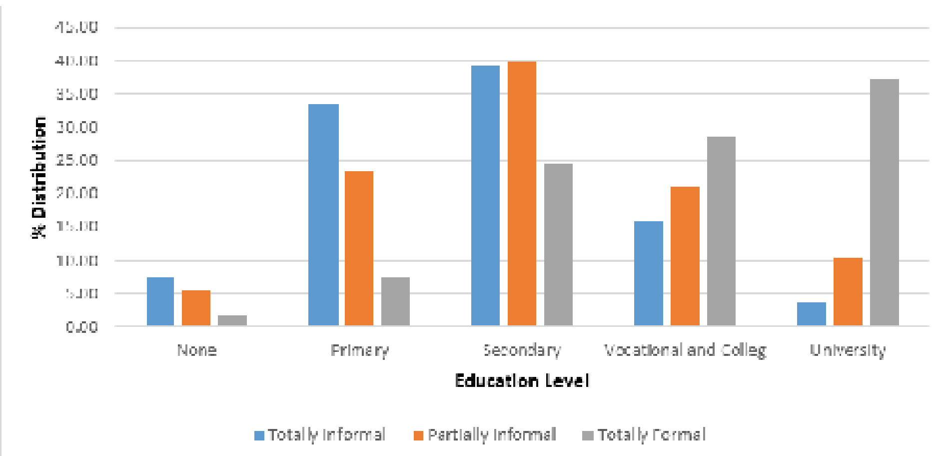
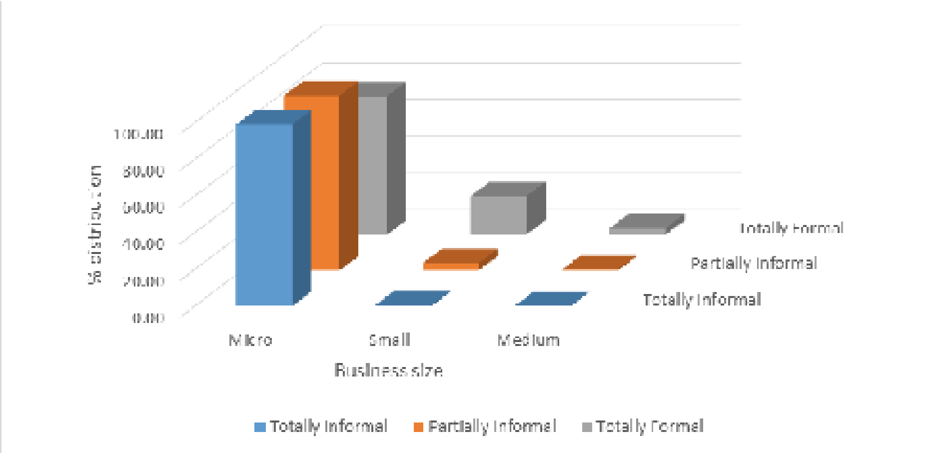
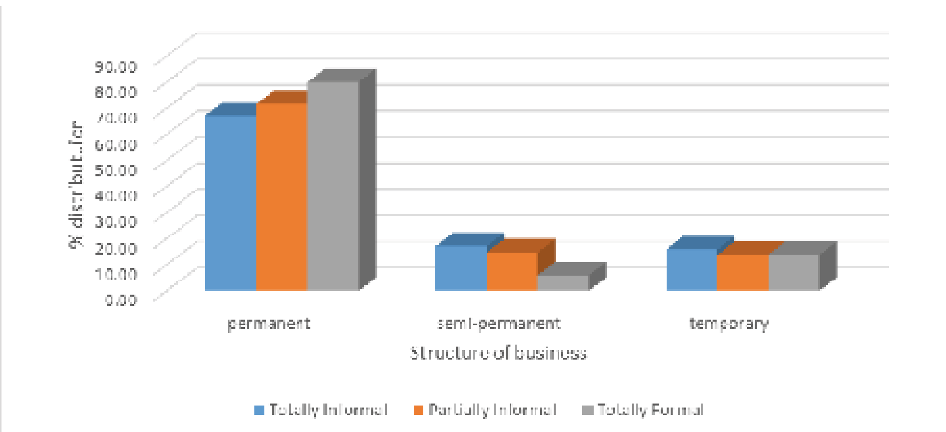


Figure 4.3: Size of establishment



With regard to the nature of establishments, 99.06 per cent of the establishments were micro-enterprises, with 1-9 employees which operated in total informality (Figure 4.3). Small and medium establishments were more likely to operate in total formality at 21.02 and 3.56 per cent, respectively. This is because a large number of the establishments sampled were micro enterprises. This phenomenon is consistent with literature, that the bigger a firm gets, the more likely it will formalize. The quality of the spaces or premises these establishments operate in is also significant in understanding the level of informality. According to the MSME Survey 2016, 80.09 per cent of totally formal establishments were in permanent premises (Figure 4.4), whith 67.13 per cent operating in totally informal occupied permanent spaces.

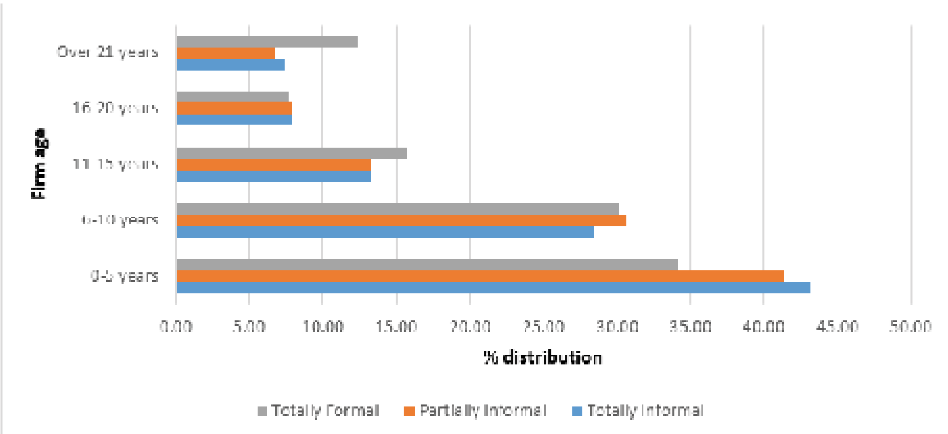
Figure 4.4: Business location



Semi-permanent spaces were more occupied by totally informal establishments, as partially informal firms also operated in permanent spaces at 71.52 per cent.

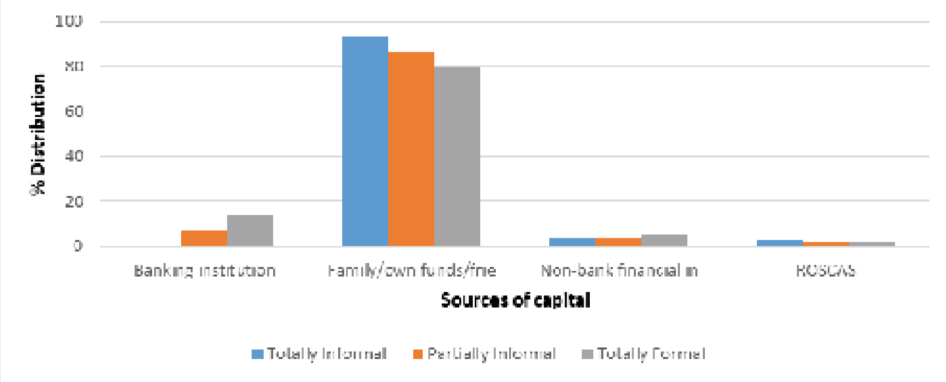
In terms of the age of the firm, 43.19 per cent of the establishments less than 5 years were operating in total informality compared to only 7.32 per cent of those over 21 years. This is in line with literature, that the more an establishment remains operational over a period of time, the more likely it is to operate in formal spaces. Out of those operating in total formality, 12.32 per cent are aged over 21 years while 34.18 per cent aged below 5 years operate in total formality as shown in Figure 4.5. The aged establishments' operation in formality is linked to experience and learning over the period of existence of the firm, hence it develops survival mechanisms in the business. Firms' continued operation in informality at higher years of existence can be attributed to owner's decision to operate in such a space.

Figure 4.5: Age of establishment



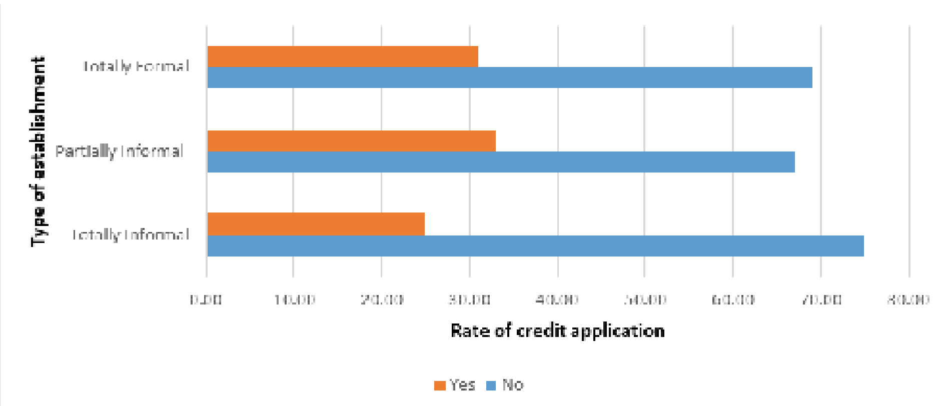
To begin operations, initial capital is important and firms operating in total informality received initial financing from family, friends or own funds at 93.41 per cent. The case was similar for partially informal and totally formal establishments at 86.39 and 79.21 per cent, respectively. Therefore, entrepreneurs used their own funds or borrowed from close friends and family to start their businesses. Banking institutions were common, with totally formal enterprises at 14.11 per cent while non-bank financial institutions such as savings, credit and cooperative societies, and non-governmental organizations that offer financing and community-based organizations that offer funding contribute to 5.16 per cent of the totally formal establishments' source of initial capital as shown in Figure 4.6. Informal sources such as ROSCAS are significant contributors to totally informal and partially informal establishments at 2.79 and 2.38 per cent compared to 1.5 per cent in totally formal establishments.

Figure 4.6: Sources of initial capital



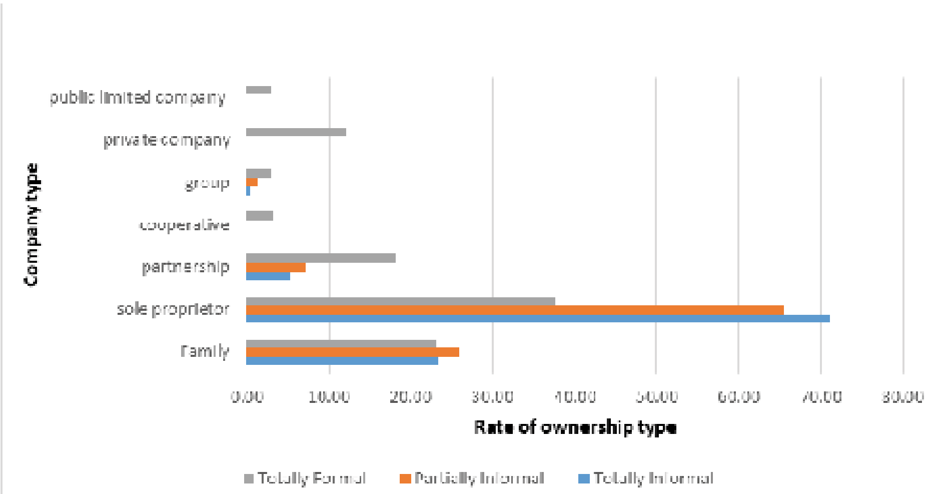
In financial credit application, 75.03 per cent of totally informal establishments did not apply for credit, while 30.97 per cent of the totally formal establishments did. Credit is an important part of business in providing financing, and lack of it is a major challenge to MSMEs. The level of formality is seen as a significant factor in whether the firm will or will not apply for credit as indicated in Figure 4.7. Cumulatively, credit application is a challenge to all the establishments, despite their level of formality. However, the application rate differs for those that apply in terms of the level of formality.

Figure 4.7: Credit application



On ownership, totally formal establishments were 37.47 per cent sole proprietorship while 22.99 per cent family owned while private and public companies were 12.16 and 3.04 per cent, respectively. Sole proprietor owned establishments also dominated the totally informal space with 71.24 per cent attributable to the ease of entry into operation informally as shown by Figure 4.8. The percentage of sole proprietors operating in total formality is high compared to totally informal and partially informal establishments. The group dynamics which involve a collection of individuals with a sole objective, such as the *"chamas"* operate more in a formal space. This can be attributed to the need to make processes official and formal by members to avoid conflicts and breach of trust.

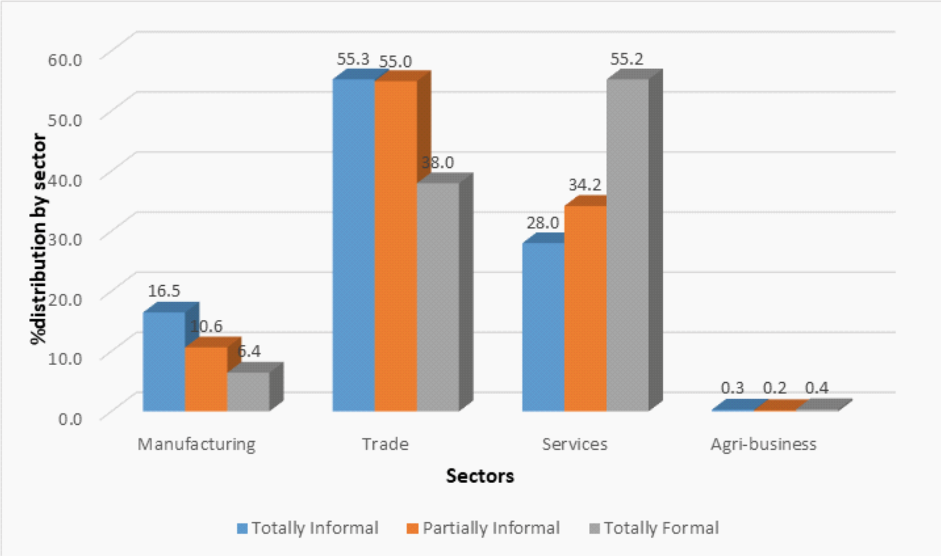
Figure 4.8: Type of ownership



The establishments operate in different sectors that were categorized as manufacturing, trade, services and agri-business. Trade recorded a higher percentage of establishments, operating totally informal and partially informal at 55.3, 55 per cent while agri-business only recorded 0.3 per cent and 0.2 per cent, respectively. Services sector had the largest percentage in firms operating in totally formal at 55.2 per cent as shown in Figure 4.9.

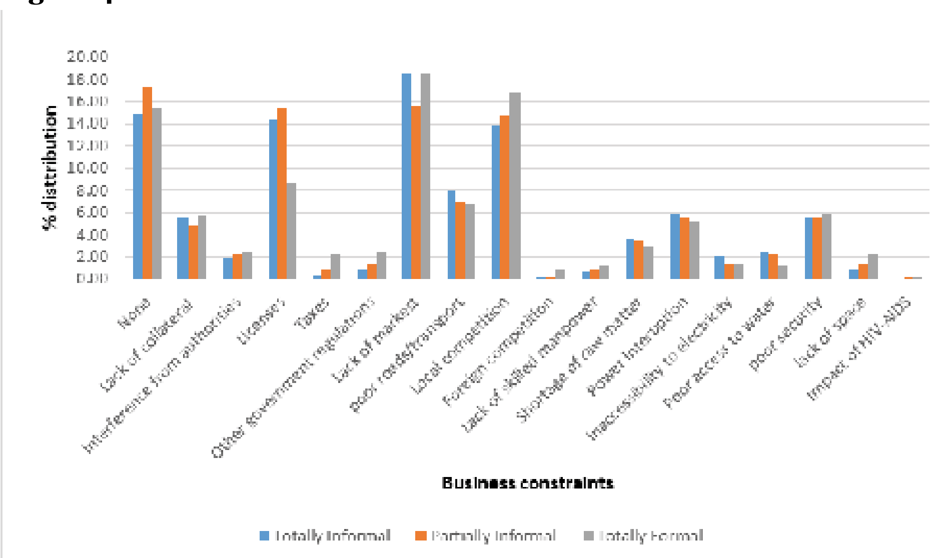
The establishments also had varied reasons as to why they operated in different levels of informality. The reasons are categorized into two broad categories informed by theoretical literature: exclusion rationales and exit rationales. These factors have an impact on how entrepreneurs operate in different levels of informality. First, the exclusion rationale illustrated by Figure 4.10 shows the reasons that are exclusionary in nature that affect the operation of businesses in different levels of informality.

Figure 4.9: Sectors



Lack of market, licenses and local competition were major constraints that faced those operating totally informal establishments. This is consistent with the exclusion rationale that cites burdensome regulations among factors that drive enterprises to operate informally. Totally formal establishments rated lack of market, local and foreign competition, poor security, taxes, lack of space to operate in as some of the challenges they face in operating in the formal space. The

Figure 4.10: Exclusion rationale



exclusion rationales are instrumental in creating incentives for establishments to move from operating formally to informally. A bigger percentage of the establishments reported not to face any exclusionary challenges.

The other aspect is the exit rationale, which espouses the voluntary decision of firms to operate in informality. These reasons indicate why an individual would leave formality to engage in business. Figure 4.11 shows the various reasons that lead to entrepreneurs starting their own businesses.

From Figure 4.10, about 19.52 and 27.18 per cent of those that operate in total informality do so because they prefer self-employment and better income, respectively, while 21.31 per cent who start businesses in total formality do so due to high demand and available market. Generally, better income is seen as a higher incentive to those that start their business in the different levels of informality. This mirrors the exit rationale theory that individuals seek better prospects when they opt to start their own businesses.

The business environment also plays a critical factor in operation of the establishments in different levels of formality. Figure 4.12 represents the business tenancy risk as a factor that hinders the operating environment of the establishments.

From Figure 4.12, most establishments were not faced with any tenancy risk. However, establishments operating in total formality responded at 57.86 per cent to having any business tenancy risk issues, while 30.57 per cent said to be facing risk eviction from rented owners. Generally, eviction by owner of the premise ranks as a significant risk in the three levels of informality. Another business environment risk faced by totally informal establishments is eviction by the county government from their spaces of operations at 7.25 per cent.

Figure 4.11: Exit rationale (reasons for starting a business)

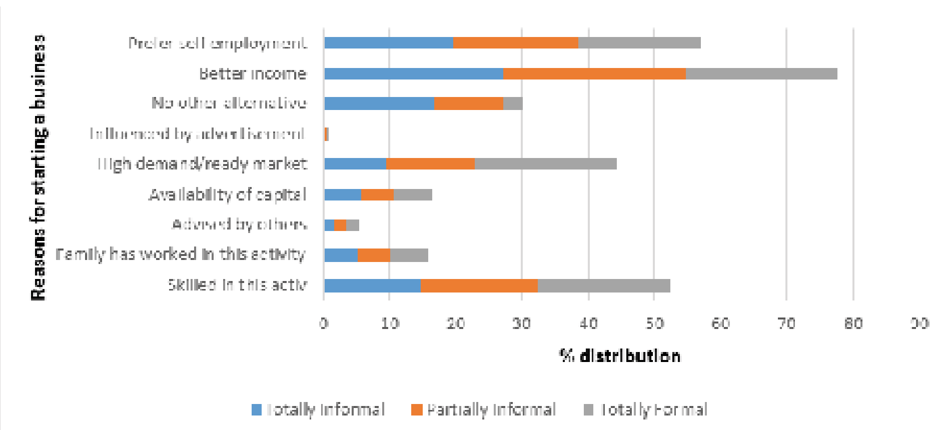
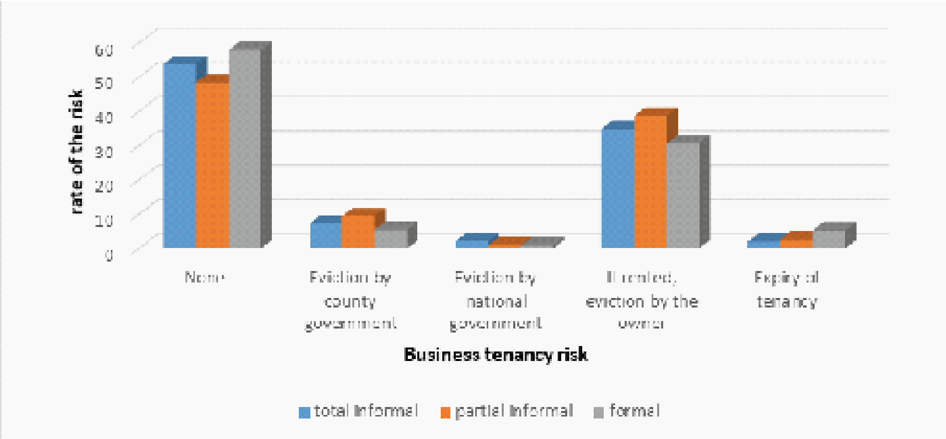


Figure 4.12: Business environment



4.2 Regression Results

Table 4.2: Ordered probit regression results

	(1)	(2)	(3)	(4)	(5)
Variables	**Model**	**Model**	**Model**	**Model**	**Model**
Entrepreneur characteristics					
Education Level (None)					
Primary	-0.0873	-0.0258	-0.0253	0.0414	0.0365
	(0.0588)	(0.0630)	(0.0640)	(0.0826)	(0.106)
Secondary	0.266***	0.250***	0.233***	0.268***	0.270***
	(0.0572)	(0.0612)	(0.0624)	(0.0808)	(0.102)
Vocational and collage	0.698***	0.621***	0.590***	0.617***	0.602***
	(0.0597)	(0.0643)	(0.0656)	(0.0842)	(0.108)
University	1.466***	1.240***	1.193***	1.210***	1.257***
	(0.0649)	(0.0727)	(0.0743)	(0.0935)	(0.125)
Sex ownership (male only)					
Female only	-0.231***	-0.170***	-0.160***	-0.151***	-0.226***
	(0.0265)	(0.0287)	(0.0294)	(0.0335)	(0.0486)
Male-male partners	0.493***	-0.0768	-0.0395	-0.0612	-0.145
	(0.0673)	(0.0860)	(0.0892)	(0.101)	(0.125)
Female-female partners	0.337***	-0.167	-0.175	-0.394***	-0.674***
	(0.0988)	(0.118)	(0.120)	(0.118)	(0.195)
Male female partners	0.165***	-0.116***	-0.120***	-0.180***	-0.234***
	(0.0291)	(0.0429)	(0.0436)	(0.0507)	(0.0705)
Establishment characteristics					

Firm age(0-5 years)					
6-10 years		0.112***	0.122***	0.140***	0.163***
		(0.0290)	(0.0296)	(0.0340)	(0.0486)
11-15 years		0.0584	0.0597	0.0752*	0.0687
		(0.0380)	(0.0388)	(0.0434)	(0.0632)
16-20 years		0.168***	0.165***	0.171***	0.190**
		(0.0471)	(0.0482)	(0.0538)	(0.0789)
Over 21 years		0.108**	0.115**	0.176***	0.249***
Size of the firm(Micro)					
Small		(0.0492)	(0.0501)	(0.0557)	(0.0951)
		0.883***	0.889***	0.981***	0.768***
Medium		(0.0681)	(0.0719)	(0.0804)	(0.119)
		1.152***	1.134***	1.120***	1.580***
Credit application (No)		(0.149)	(0.153)	(0.187)	(0.271)
Apply for credit (Yes)		0.176***	0.188***	0.195***	0.219***
		(0.0257)	(0.0262)	(0.0298)	(0.0428)
Ownership type(family)					
Sole proprietor		-0.137***	-0.144***	-0.163***	-0.252***
		(0.0391)	(0.0397)	(0.0462)	(0.0661)
Partnership		0.473***	0.429***	0.393***	0.286***
		(0.0545)	(0.0557)	(0.0638)	(0.0846)
Cooperative		1.890***	1.903***	1.946***	1.962***
		(0.284)	(0.332)	(0.359)	(0.580)
Group		0.780***	0.627***	0.681***	-0.610*
		(0.152)	(0.154)	(0.173)	(0.342)
Private company		1.995***	1.997***	1.954***	1.806***
		(0.122)	(0.131)	(0.158)	(0.230)
Public limited company		0.709	0.473	1.171***	1.779***
		(0.473)	(0.554)	(0.313)	(0.384)
Source of financing(banking institutions)					
Family/own funds/friends		-0.267***	-0.260***	-0.272***	-0.205**
		(0.0483)	(0.0486)	(0.0560)	(0.0802)
Non-bank financial institutions		0.0186	0.0241	-0.0720	-0.0875
		(0.0766)	(0.0779)	(0.0887)	(0.123)
ROSCAS		-0.437***	-0.427***	-0.487***	-0.343***
		(0.0827)	(0.0840)	(0.0971)	(0.133)
Sectors (manufacturing)					
Trade		0.236***	0.302***	0.310***	0.342***
		(0.0400)	(0.0418)	(0.0461)	(0.0698)

Services		0.294***	0.331***	0.315***	0.252***
		(0.0435)	(0.0448)	(0.0497)	(0.0745)
Agri-business		-0.496**	-0.487**	-0.458	-6.055***
		(0.238)	(0.245)	(0.318)	(0.237)
Exit rationales					
Reasons for starting activity(skilled in the activity)					
Family has worked in this activity			-0.125**	-0.0346	-0.178*
			(0.0627)	(0.0737)	(0.103)
Advised by others			-0.127	-0.0951	-0.0889
			(0.0943)	(0.108)	(0.159)
Availability of capital required			-0.301***	-0.278***	-0.167
			(0.0650)	(0.0715)	(0.104)
High demand/ready market			-0.0196	0.0629	0.122*
			(0.0474)	(0.0543)	(0.0733)
Influenced by advertisements			-0.0629	-0.00830	-0.0456
			(0.146)	(0.214)	(0.282)
No other alternative			-0.565***	-0.568***	-0.613***
			(0.0479)	(0.0546)	(0.0787)
Better income			-0.170***	-0.147***	-0.0412
			(0.0390)	(0.0448)	(0.0620)
Prefer self-employment			-0.148***	-0.114**	-0.0613
			(0.0404)	(0.0468)	(0.0674)
Exclusion rationales (government regulation)					
Market factors				0.0735**	0.151***
				(0.0370)	(0.0526)
Poor Infrastructure				-0.0565	-0.0340
				(0.0397)	(0.0570)
Lack collateral for credit				0.00752	0.0720
				(0.0593)	(0.0794)
Business Environment(eviction by county government)					
Eviction by National Government					0.167
					(0.179)
If rented, eviction by owner/ landlord					-0.145**
					(0.0634)
Expiry of tenancy					0.265**
Constant cut1	0.217***	0.235**	0.0932	0.180	0.0877
	(0.0557)	(0.0944)	(0.0995)	(0.125)	(0.176)
Constant cut2	1.415***	1.529***	1.411***	1.508***	1.509***
	(0.0567)	(0.0953)	(0.100)	(0.126)	(0.178)

Wald chi^2	2078.01	2488.00	2500.30	1897.29	1727.84
Prob > chi^2	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0987	0.1349	0.1390	0.1344	0.1355
Observations	21,900	19,572	18,986	14,833	7,007

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Micro Small and Medium Enterprises Survey 2016: Own calculations

Table 4.3: Marginal effects at various levels of informality: by significant coefficients in Table 4.2 (%)

Variables	Totally informal	Partially informal	Totally formal
Entrepreneur characteristics			
Level of education (no education)			
Primary			
Secondary	-9.76	2.45	3.63
Vocational and College	-21.66	2.46	9.89
University	-41.22	2.49	28.46
Owner sex			
(Male only)			
Female only	7.74	0.86	-3.92
Male-Male partners			
Female-Female Partners	22.60	4.21	-9.39
Male-Female Partners	8.01	1.24	-4.04
Enterprise characteristics			
Firm age(0-5 years)			
6-10 years	-5.59	0.82	2.79
11-15 years			
16-20 years	-6.53	1.24	3.31
More than 21 years	-8.53	1.37	4.45
Size of the firm (micro)			
Small	-24.30	0.61	18.25
Medium	-39.86	6.02	45.36

Credit application (No)			
Yes	-7.53	0.71	3.87
Type of ownership (family)			
Sole proprietor	8.83	1.06	-4.52
Partnership	-9.53	0.79	6.53
Cooperative	-38.95	13.21	60.46
Group	21.19	7.83	-9.12
Private company	-38.04	5.74	55.89
Public limited company	-37.85	9.16	55.06
Sources of finance(banking institution)			
Family/ own funds/friends	7.01	1.10	-3.83
Non-bank financial institutions			
ROSCAS	11.75	2.37	-6.01
Sectors (Manufacturing)			
Trade	-11.72	1.44	5.27
Services	-8.62	1.52	3.70
Agri-Business	44.14	1.43	-9.68
Exit Rationale			
Reasons for starting activity			
Family has worked in this activity	6.26	1.90	-3.12
Advised by others			
Availability of capital required			-2.95
High demand/ready market	-4.21	1.04	2.46
Influenced by advertisements			
No other alternative	21.17	1.65	-8.61
Better income			
Prefer self-employment			
Exclusion rationales			
Business constraints			
Market factors	-5.20	0.91	2.62
Poor Infrastructure			
Lack collateral for credit			
Business Environment			
Business tenancy risk			
Eviction by National Government			
if rented, eviction by owner/landlord	5.00	1.00	-2.56
Expiry of tenancy	-8.82	1.20	5.60
Wald chi^2	1727.84		

Prob > chi²	0.0000		
Pseudo R^2	0.1355		
Observations	7,007		

Source: Micro Small and Medium Enterprises Survey 2016: Own calculations

Table 4.2 shows the results of the ordered probit regression. The dependent variable was represented by a categorical variable ranking three levels of informality. The base category of the level of informality in the regression was totally informal. Therefore, the results discussion is premised on totally formal establishments as the base dependent variable. The results were analyzed to answer the second objective on the determinants of informality in the informal sector. The discussion approach followed the five categories of the explanatory variables, including entrepreneur characteristics, establishment characteristics, exit rationale, exclusion rationale and business environment.

Entrepreneur characteristics

Entrepreneur characteristics consisted of two variables: sex of the owner and education level. Primary education level coefficient is not significant in all the five models. The relationship between secondary, vocational and college and university educated entrepreneurs and the level of informality is significant and positive in all the five models, showing a high likelihood of those with the three education levels operating their establishments in low informality levels compared to those with no formal education. Entrepreneurs with university education were less likely to be in totally informal operation by 41.22 percentage points, while more likely to operate in total formality by 28.46 percentage points as evidenced by Table 4.3. The level of education results show consistency with Williams et al. (2015).

Sex of the owner(s) category had five variables: male only, which was the base variable, female only, male-male partners, female-female partners and male-female partners. In model one, all the variables were significant and had a positive association with operating in total formality, except for the female only owned establishment which had a higher likelihood to operate in the informal spaces compared to male only owned establishments. Consequently, female only and male-female partnerships were significant across the five models, but the male-female partnership showed high likelihood of operating in high levels of informality in model two, three, four and five. Table 4.3 shows that the female only, female-female partners and male-female partners were more likely to operate in high informality and less likely to be in totally formality. Female-female partners had a higher magnitude of operation in totally informal by 22.60 percentage points, and were less likely to operate in total formality by 9.39 percentage points compared to male only owned enterprises.

Establishment characteristics

Establishment characteristics were added on in model two, including firm age, size of the firm, ownership type, credit application, sources of financing and sectors. Firm age, which had 0-5 years as the base; 6-10 years, 16-20 years and over 21 years were all significant and positive across model two, three, four and five compared to firms below five years. Cumulatively, firms that were in existence for over six years were less likely to operate in total informality, the highest magnitude being for those that were over 21 years, with 4.45 percentage points likelihood to operate in total formality.

Small and medium establishments were all positive and highly significant compared to micro establishments. Table 4.3 illustrates that the small and medium establishments were less likely to operate in total informality by 24.3 and 39.86 percentage points. The medium establishments had a higher likelihood of 45.36 percentage points to operate in total formality. Credit application was highly significant and showed a likelihood of those who applied for credit to operate in totally formal spaces in relation to those that did not apply for credit. This was evidenced by a 3.87 percentage points likelihood of being in total formality.

In ownership type, sole proprietorship, partnership, cooperative, group and private company were all significant in model two, three, four and five. Public limited company was not significant in model two and three, but was significant in model four and five compared to family owned establishments. Sole proprietorship had a less likelihood of operation in total formality, while partnership, cooperative and private company were more likely to operate in total formality. Group ownership were less likely to operate in total formality in model five following addition of business environment characteristics in the model. Cooperative ownership type had a higher magnitude of operating in totally formal spaces by 60.46 percentage points, while group ownership had higher chances of operating on low levels of formality by 9.12 percentage points.

Establishments need financing for their survival. In the model, family, own funds and friends and Rotating Savings and Credit Associations (ROSCAs) were all significant and had a negative relationship, with total formality in relation to banking institutions as sources of financing. Non-bank financial institutions were not significant in determining operation in different levels of informality. Establishments that sought financing from both family, own funds, friends and ROSCAs were more likely to operate in total informality by 7.01 and 11.75

percentage points.

The establishments operating in trade and service sectors had a positive relationship with total formality and were highly significant in model two, three, four and five. Those in agri-business were significant in model two, three and five, and had a less likelihood chance of operating in totally formal spaces compared to establishments in the manufacturing sector. Agri-business had a high likelihood of 44.14 percentage points to operate in total informality, while trade and service sector establishments were more likely to operate in total formality as shown by Table 4.3.

Exit rationale

Entrepreneurs seek to be in informal environment due to different reasons captured in this study as exit rationale. This variable was added in model three. Entrepreneurs with no other alternative as their reason for starting an activity was highly significant and had a negative relationship with operation in total formality in model three, four and five compared to those that started their business because of having skills in the activity. Those that preferred self-employment were less likely to operate in total formality and were significant in model three and four, but not in model five. The magnitude of those that have family having worked in the activity was 6.26 percentage points more likely to start their operation in total informality, and less likely to operate in total formality by 3.12 percentage points.

Exclusion rationale

This variable is informed by the theoretical aspersions of de Soto (1989). The exclusion rational entails business constraints. The exclusion rationale was added in model four. Market factors such as local and foreign competition, lack of markets and shortage of raw materials was significant and positive in both model four and five compared to government regulation. Establishments that experienced the market factors as constraints were more likely to operate in total formality by a magnitude of 2.62 percentage points, and less likely to be in total informality by 5.2 percentage points as shown in Table 4.3.

Business environment

This variable was added on to the final model and it plays a central role to the operations of the establishments. In the analysis, the business environment was proxied by the tenancy risk as securing workspace is a significant part of the establishment's survival. Eviction by owner/landlord for establishments that have rented their premises and expiry of tenancy were both significant in model five compared to eviction by county government. Establishments that faced the risk of eviction by owner/landlord were more likely to operate in total informality by 5 percentage points while those that faced expiry of tenancy were less likely to operate in total informality by 8.82 percentage points.

4.3 A Review of Select Countries' Informal Sector Environment

This section reviews four countries selected due to availability of research and their economic levels as either comparator or aspirator countries. The comparative review will look into the contribution of the informal sector in the respective country's development agenda, and how the country intervened in providing a better situation, realizing the persistent nature of the informal sector. Lessons were drawn from the analysis being cognizant of the heterogeneity and ambiguity that the informal sector presents. The comparator lower middle income countries reviewed include Indonesia and Rwanda, while South Africa and Brazil were reviewed as aspirator countries.

Indonesia, a lower middle income country in Southern Asia, is characterized by two-thirds of the labour force in informal sector. Majority of the firms in Indonesia are MSMEs, contributing 97 per cent of the national employment. Informal firms in Indonesia are very small, pay low wages, have low productivity, their managers have low education attainment and serve local markets with no expansion (Rothenberg et al., 2016). Indonesia has had policies such as the one-stop-shop programme (OSS), which was designed to address registration challenges to help in the transition to formality by streamlining licensing procedures (Aspinall and Fealy, 2003; Rothenberg et al., 2016). This was meant to harmonize the bureaucracy that was occasioned by the country adopting a decentralized governance system, which created more red-tape, thus the OSS streamlined licensing procedures.

However, Rothenberg et al. (2016) found that the OSS did not have significant impact in the district level, since there was no recorded improvement in registration and aspects that would have improved with registration such as access to credit were still a challenges. Labour unions were strengthened and were able to gain the bargaining power on minimum wages. This policy, however, increased rigidity in the labour market regulations, slowing down the growth of the formal sector (Alatas and Newhouse, 2010).

Rwanda's informal sector contributes to 73.4 per cent of total employment outside agriculture and 64 per cent of industrial output (Rukundo, 2015; UNECA, 2017).

To expand taxation in the informal sector, the Rwandan government introduced strategies such as implementation of the Block Management System (BMS), which targets the small taxpayers through demarcation of worksites where they conduct the business into sizeable and manageable areas called “blocks”. These are mandated to conduct all the tax functions, training, registration, assessing, collection and revenue accountability. The BMS was a decentralization approach to managing the small and medium enterprises, unlike the Indonesian case of the districts focus to registration services, and had an objective of taxation of the SMEs.

Other strategies include formation of Rwanda Cooperative Agency (RCA) to spearhead transition of informal enterprises to formal, and simplification of the complex systems and the tax system. This introduced a flat tax rate of 4 per cent of turnover, later reduced to 3 per cent in 2013 for all SMEs (Rukundo, 2015). The Rwandan government’s initiatives to improve the business climate to attract capital intensive investments to transition informal firms to formality discouraged local entrepreneurs from investments, with adverse effects on their livelihoods.

In Sub-Sahara Africa, South Africa is the second largest economy with upper-middle income status. The southern Africa region has the lowest population in informal sector employment at 40.2 per cent compared to other regions in Sub-Sahara Africa (World Bank, 2019). One in every six South Africans works in the informal sector. One of the notable strategies in South Africa was inclusion of “survivalists” and micro-enterprises in the terminologies of small, medium and micro enterprises (SMMEs) in the National Small Development Act of 1996, thus incorporating them as targets for government small business strategy (Rogerson, 2016). Initial attempts were focused on formal firms, hence the South African government had neglected the informal economy. This led to review of the policy and institutional framework through a new policy on integrated small enterprise development strategy in 2006, and national small enterprise development agency with the objective of expanding access to credit/finance and market opportunities and ensure coordination and integration of policy initiatives, respectively (Rogerson, 2016).

The strategy had clear mandate of transitioning enterprises in the informal economy to formality through national government support of small business enterprises. The South African experience shows that interventions developed from high governance levels targeted not only the formal SMMEs but also those that are informal (Rogersons, 2016). Implementation of the policies have been very challenging because the government was unable to see through its own support programmes, especially in the black-owned SMMEs, due to lack of capacity.

Brazil as a developing upper middle income economy provides a good comparison in terms of its informal sector space. The country experienced a 6.4 per cent decrease in informal sector employment from 2001 to 2009 to stay at 48.7 per cent. Since 1996, the Government of Brazil has had initiatives such as the SIMPLES programme that sought to reduce overall tax burden through differentiated tax systems. In 2009, a new campaign dubbed Individual Micro entrepreneur Programme (IMP) was launched. IMP reduced formalization cost, both monetary registration costs and non-monetary, and the tax bureaucracy associated with registration (Rocha et al., 2018). With this initiative, the Brazilian government addressed two challenges: high registration costs and costs of remaining formal.

The programme in its first phase faced logistical constraints in availing the platform to all regions simultaneously. IMP phase two was implemented from 2011, where the social security costs were reduced from 11 per cent to 5 per cent (Rocha et al., 2018). Despite the reduction in registration costs, there was no effect on formality, but the reduction on tax burden increased formalization (Rocha et al., 2018). Consequently, the government in the short run experienced net losses in tax revenues due to tax incentives targeted at newly formalized businesses.

The reviewed countries show the importance of the informal sector and the heterogeneity nature of its existence. Different countries prioritize specific policies that they deem necessary to address the consequences of the informal sector contribution. The interventions range from clustering of the sector into different smaller units to manage them better, and developing easier tax administration units to improve on tax collection from the sector in Rwanda; launching campaigns aimed at transitioning the sector actors to formality in Brazil, streamlining and harmonizing registration processes and costs both in Indonesia and Brazil, and redefining and inclusion of the informal economy to national development policy frameworks in South Africa. Key information from this review is that transitioning of the informal enterprises to formality is not dependent on reduction of registration costs, rather tax burden reduction as an incentive to formalization, thus increasing the probability of transitioning and remaining formal, although with government shortfall in revenue.

5. Conclusion and Recommendations

5.1 Conclusion

The study set out to achieve three main objectives on the informal sector determinants in Kenya. In departure from previous studies, this study employed an approach that did not dichotomize the economy into usual formal and informal sector, but ranked the informal sector into totally informal, partially informal and totally formal in terms of policy desirability. Using the 2016 MSME Survey, it was established that 43.68 per cent of the establishments surveyed were totally informal, 37.61 per cent were partially informal – with 7.12 per cent having only a registration with the Registrar of Companies while 30.49 per cent were not registered but owned a bank account, and 18.71 per cent were totally formal. With the inclusion of the partially informal category, an insight of firms that are neither fully formal nor informal in their operations is developed that would be lost in a binary approach.

Policy environment issues: The policy framework reviewed identified challenges such as inconsistencies in reference to the informal sector activities, where policy documents use SMEs, MSEs or MSMEs interchangeably in reference to establishments in the sector. Moreover, there is lack of clear policy guideline for dealing with the informal sector challenges, a phenomenon that mirrors (ILO, 1972) assertion of peripheral treatment of the sector regardless of its importance in the economy.

Individual characteristics: The study further identified and analyzed the determinants of persistence of the informal sector and found that level of education and sex of the owner are critical variables in growing stay of the informal sector. Higher education attainment of owners was a significant factor in establishments' operating in low levels of formality, attributed to knowledge of and understanding of benefits of formalization. Gender dynamics was very influential in female-owned enterprises, which were more likely to operate in high levels of informality compared to male counterparts. This can be attributed to traditional gender roles as women tend to start and operate establishments termed survival outfits.

Establishment characteristics: Establishment characteristics such as age of the firm, size of the firm, sources of financing, sectors, credit application were key in determining operation of the establishments in either high or low levels of formality. The intuition of the characteristics of the establishment was that it operated in the respective level of informality due to the unique characteristic it has.

Exit rationale, exclusion rationale and business environment were theoretical factors captured in the models. Preference of self employment by the entrepreneurs led them to operate informal firms. Market forces such as competition was a factor to those that had formal establishments as they also faced tenancy risks from the county government. These factors were critical in understanding the level of informality, as a result of existing theoretical grounds in Kenya.

The comparative analysis of informal sector interventions in Indonesia, Rwanda, South Africa and Brazil shed light on the country-specific policies tailored to mitigate the sector. Generally, Indonesia and Brazil had policies to address registration challenges in formalization but their implementation differed with Indonesia adopting a one-stop-shop to ease registration red-tape while Brazil had a campaign dubbed individual microenterprise programme, which addressed both registration and taxation hindrances to formalization. In both cases, reduction or abolishing registration costs yielded little results on transitioning informal enterprises to formality but, in Brazil, provision of tax incentives to formalization had a significant effect in transitioning and remaining enterprises in formality.

The study faced limitations in availability of data, such as the age of the establishment owner, which would have provided insights into the age aspect associated with different types of informality. The subject can be further researched to identify county level determinants with the new decentralized government system.

5.2 Policy Recommendations

The policy environment in Kenya needs to be responsive to the challenges facing the informal sector. The objectives of the study established some enhancement of existing policies, developing new ones, and generally putting the informal sector at the center of development nuance.

Addressing the existing regulatory lacunae: Since the ILO (1972) mission report on employment in Kenya, the government has responded with policies, regulations and institutional frameworks to address the plight of small businesses. Absent in these initiatives is explicit identification of informal establishments in these official documents. Reference to the sector has been ambiguous, ranging from SME, MSEs, MSMEs and *"jua kali"*, which do not necessarily mean informal enterprises. Therefore, a clear definition of the informal sector and its recognition and inclusion to policy and regulatory documents will develop targeted focus to the sector. A policy is needed to define the sector and focus on bringing it from the periphery of the development agenda.

Empirical results from the study point to the weight of the level of education, sex of the owner(s) and establishment characteristics such as age of the firm, size of the firm and ownership type on determining factors of informality. The Kenyan government has implemented a 100 per cent transition rate policy in education from primary to secondary school, which is commendable. However, there is need to finalize the draft Technical and Vocational Training Policy and implement decentralization and equipping of training centers across all counties, which is a challenge.

Female owned establishments were likely to operate in high levels of informality. This has various aspects to it, such as gender norms about traditional female roles, which present challenges to women coming out of the shadows of gender stereotypes. Female domestic labour and time use is not recognized as a contribution in official statistics, and is a limitation in addressing their plight. The National Gender Equality Commission (NGEC), an independent commission mandated with gender mainstreaming, should champion a policy position on inclusion of female time use in national statistics. Moreover, NGEC should sensitize, create awareness and seek to introduce gender equality in school curriculum to debunk gender stereotyping.

Lastly, there has been a focus on easing registration through reduction of procedures and harmonizing the processes. Unfortunately, the bureaucracy has been decentralized to counties where the business environment is limiting. Lessons from reviewed countries indicate that policies meant to reduce entry costs to formality have little to no impact. Therefore, the government should focus policies on incentives after formalization, such as tax heavens for periods of time, embedding social protection in registration, and providing affordable capital that does not require informal establishments to have collateral.

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