Determinants of micro and small enterprises growth in Kenya

Adan Guyo Shibia
Kenya Institute for Public Policy Research and Analysis (KIPPRA),
Nairobi, Kenya, and
Dulacha Galgallo Barako
Kenya School of Monetary Studies, Nairobi, Kenya

Abstract

Purpose – The purpose of this paper is to investigate the effects of investment climate and firm-specific variables on the growth of micro and small enterprises (MSEs) in Kenya.

Design/methodology/approach – The paper utilized a cross-section survey data of 2,536 MSEs in Kenya. Using the sales growth as the dependent variable, the paper tests the hypotheses that investment climate variables – entrepreneur perception of fairness and affordability of the courts in dealing with commercial disputes, access to formal credit, connections to utilities, crime incidences; and firm-specific resources affect MSE growth.

Findings – Positive entrepreneur perception of the fairness and affordability of the courts, access to formal credit, connections to utilities, lower incidences of crime, entrepreneur education and experience positively affect MSE growth.

Research limitations/implications – Although the context of the study is Kenya, the study has relevance to other developing countries especially Sub-Saharan Africa due to institutional similarities. The paper, however, uses cross-sectional data, which unlike panel data, do not allow for establishing dynamic relationships. This could be a potential area for further research.

Originality/value – The paper is among the first to establish effects of entrepreneur perception on MSE growth with regards the court system in dealing with business disputes in terms of fairness, timeliness, affordability and enforcement. The paper also extends limited extant research on MSE growth constraints with regards to incidences of insecurity, access to bank credit, connections to utilities and internal resources.

Keywords Kenya, Growth, Developing countries, Investment climate, MSEs, Sub-Saharan

Paper type Research paper

Introduction

Micro and small enterprises (MSEs), defined as firms employing less than 50 employees (McPherson, 1996; Kushnir *et al.*, 2010), can potentially contribute to private sector led growth and employment creation in developing countries (Ayyagari *et al.*, 2014; Hallberg, 2001; Rocha, 2012). In Kenya a national baseline survey of MSEs in 1999 shows that there were 1.3 million MSEs employing 2.4 million people, with the sector accounting for 18.4 percent of national gross domestic product (Central Bureau of Statistics, 1999). The statistics from the baseline survey thus shows that MSEs on average employ 1.8 (approximately two) persons, therefore calling for policies to promote growth of MSEs to create more jobs given their sheer number. Recent statistics shows that MSEs in Kenya within formal sector account for 75 and 42 percent of establishments and employment, respectively (Kenya National Bureau of Statistics, 2013). However, it is imperative to note that a large number of MSEs operate informally (Central Bureau of Statistics, 1999) and formal sector statistics therefore reflect only a partial picture.

Limited growth of MSEs in developing countries stifle their envisaged contributions to the economy. This perspective is anchored on empirical evidence on size distributions of enterprises in developing countries, commonly termed as "missing middle" to reflect limited growth of MSEs into competitive medium size firms (Mazumdar and Mazaheri, 2003; Tybout, 2000). Thus, interventions to promote growth of MSEs are of immense policy interests in developing countries (McPherson, 1996). For example, the Kenyan Government

developed Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth to make strong policy commitments for promotion and growth of MSEs (Ronge and Ndirangu, 2002). Two decades later the government adopted Sessional Paper No. 2 of 2005 on development of MSEs as a strategy for wealth and employment creation (Government of Kenya, 2005). The Kenya Vision 2030, a long-term development blueprint launched in 2008 further rejuvenated policy efforts targeted at growth of MSEs through skills development and access to financial services. More recently the government enacted an MSE legislation that among other interventions aims to promote growth of MSEs through enabling business environment, access to business development services, and establishment of an authority to formulate, review and monitor relevant policies (Government of Kenya, 2012). At the global scene the need for policies to promote growth of MSEs as a strategy for inclusive growth and productive employment have received a new impetus through the 2030 Agenda for Sustainable Development (United Nations, 2015).

Despite successive policy interventions, MSEs in Kenya demonstrate limited growth and competitiveness (Micro and Small Enterprises Authority, 2013). The purpose of this study therefore is to investigate factors limiting growth of MSEs in Kenya. Unlike previous literature that focus on internal resources, we focus on both investment climate variables and firm internal resources to have a holistic view of growth constraints. The findings will guide policy interventions in terms of specific issues to target.

Investment climate which embodies regulatory, institutional and physical infrastructure (Page, 2012; World Bank, 2004) plays an important role in firm entry, investment and growth (Beck and Demirgüç-Kunt, 2006). Policy efforts geared at reducing bottlenecks such as credit constraints and infrastructure facilities are therefore imperative. Cost of doing business attributable to unfavorable investment climate in Africa is estimated at 20-40 percent above the average for developing countries, a key concern for industrialization policy (Page, 2012). Policies directed at improving regulatory, institutional and physical environment within which firms operate has since 1990s continued to gain policy attention but much is yet to be achieved in Sub-Saharan Africa (Page, 2012; UNIDO, 2008). Recent World Bank (2016) Doing Business report shows that Kenya is ranked at position 108 out of 189 economies which points to investment climate as potential constraints to firm investments and growth.

This paper extends extant research (McPherson, 1996; Mead and Liedholm, 1998; Moyi, 2013; Wang, 2016) by investigating additional investment climate variables such as entrepreneur perception regarding effectiveness of judicial system, incidences of insecurity, access to bank credit and connections to basic utilities such as electricity and water. Theory also points at the role of internal resources such as managerial capability in shaping the path of firm growth (Penrose, 1959). We therefore also consider effects of internal resources such as ownership structure and human capital resources including entrepreneur experience and education levels.

Literature review
Theoretical literature
There has been a growing theoretical literature attempting to explain firm growth commencing with the work of Gibrat (Aguilar and Kimuyu, 2002). The Gibrat's (1931) Law of Proportionate Effect, henceforth LPE, postulates that firm growth is a random phenomenon that is independent of firm size. This theoretical perspectives, also referred to as stochastic models (McPherson, 1996), postulate that firms realize growth from a distribution such that lucky firms continuously portray higher growth rates over time (McPherson, 1996). This theoretical perspective, however, views firm growth as a random phenomenon, thus ignoring role of policies.

In another strand of theories, existence of firms is explained by the benefits accruing from improved coordination of factors of production resulting to reduced transaction costs

that emerge during production and exchange (Coase, 1937). This view points at the economic importance of emergence of firms and management structure. Firms tend to grow fast when they face lower coordination costs and supply price of factors of production (Coase, 1937). Complementary to the Coase's view is the celebrated theory of the firm growth (Penrose, 1959) postulating that firm growth is primarily driven by internal resources, particularly managerial capabilities to plan and efficiently utilize resources. While external factors such as pull of demand are also important, internal resources are fundamental for exploiting the external opportunities and promote firm growth (Penrose, 1959).

The life cycle theory of the firm (Mueller, 1972) postulates that firm growth is dependent on age of the firm and available investment opportunities. A firm growth follows S-shaped growth pattern with slow growth at start-up, followed by rapid growth and eventually slow down or stagnation as the firm reaches maturity due to exhaustion of profitable opportunities (Mueller, 1972).

In contrast to Gibrat's LPE, Jovanovic's (1982) theory of "noisy" selection asserts that firms learn from the past in improving efficiency and consequently efficient firms grow and survive while inefficient firms retard and shut down. This theory underscores managerial inefficiencies resulting from limited experience in optimizing production (Aguilar and Kimuyu, 2002; McPherson, 1996). The Jovanovic's model predicts that over time managerial efficiency improves through learning such that as firms grow in terms of age and size, growth rate retards due to diminishing opportunities accruing from learning surprises (McPherson, 1996).

According to traditional neoclassical economics (O'Farrell and Hitchens, 1988) declining short run cost curves and hence savings accruing from lower unit costs incentivize firm growth. This view hypothesizes that fixed factors of production such as capital limit productivity of variable factors such as labor. Firm growth is driven by changes in technology, wage rate and price of the product such that more workers are added to increase output up to the point where marginal product equates to the wage rate (McPherson, 1996). Thus firm growth depends on expansion of capital (Aguilar and Kimuyu, 2002) as well as growth of demand to absorb increased production (Aguilar and Kimuyu, 2002; McPherson, 1996).

In summary, review of theories reveals importance of internal resources to drive firm growth (Jovanovic, 1982; Penrose, 1959) as well as role of external factors that limit internal capabilities (Penrose, 1959; Mueller, 1972; O'Farrell and Hitchens, 1988; McPherson, 1996). Analyses in this study thus encompass both firm-level internal resources and external constraints.

Empirical literature
In support of neoclassical economics view of diminishing returns to variable factors of production in the short run, variables that affect productive capacity of firms have been established to affect firm growth. Access to finance positively affects firm growth (Beck and Demirgüç-Kunt, 2006; Demirgüç-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998; Aynadis and Mohammednur, 2014; Wang, 2016) as it eases capital constraints. Because entrepreneurs in developing countries are constrained by inefficient financial markets, enhanced financial intermediation enhances returns on assets, investments in profitable opportunities and consequently firm growth (Bond *et al.*, 2015). Recent empirical evidence demonstrates that access to informal sources of credit significantly impede firm investment and growth (Bah and Cooper, 2015). The implications of these latter findings are that for countries with underdeveloped financial markets, informal finance can play a supplementary role in firm investment and growth. The relative impacts of access to formal and informal finance, however, remain policy questions for empirical analyses.

The level of human capital embodied in the entrepreneur positively affects firm survival and growth. Proprietor education level positively affects firm growth (Aggrey *et al.*, 2012; Gitonga, 2008; Bates, 1990; McPherson, 1996; Moyi, 2013; Aynadis and Mohammednur, 2014).

Further, MSEs with male entrepreneurs demonstrate higher growth rates (Aggrey *et al.*, 2012; Gitonga, 2008; Mead and Liedholm, 1998; Tefera *et al.*, 2013) possibly due to asset endowments of male entrepreneurs (Johnson, 2004) and heavy utilization of female-generated funds for family consumption which may create incentives for female entrepreneurs to minimize risks involved in firm expansion (Downing, 1991). Recent evidence, however, shows that as loan contract enforcement improves leading to better access to finance, firm size is decreasingly associated with owner endowments and become increasingly correlated with operating profits generated by the firm (Bond *et al.*, 2015). Emerging literature also suggests importance of firm networks in shaping firm performance through innovation diffusion and linking of otherwise unconnected ideas and resources (Chesbrough, 2003; Schøtt and Jensen, 2016). The benefits of interfirm networks are however not guaranteed, as the firm capability-ability to exploit network resources have moderating effects (Parida *et al.*, 2016). The findings point at the role of internal capabilities in exploiting external opportunities.

Consistent with learning theory (Jovanovic, 1982) empirical evidence shows inverse relationship between firm growth and both firm size (Evans, 1987; Mead and Liedholm, 1998) and firm age (Aggrey *et al.*, 2012; Aguilar and Kimuyu, 2002; Evans, 1987; Mead and Liedholm, 1998) which can be attributable to exhaustion of profitable opportunities (Mueller, 1972). Further non-linear relationship exists between firm size and firm growth, demonstrating existence of some threshold level for firm size at which related benefits are exhausted (Aguilar and Kimuyu, 2002). Recent study (Coad *et al.*, 2016) investigates relationship between research and development investments and firm growth at different age brackets, showing that effect of firm growth among MSEs change from negative at lower quantiles to positive at upper quantiles. They also establish that innovation among MSEs result to more employment growth relative to larger firms.

In terms of access to infrastructure, unreliable electricity supply lowers investment in productive capacity of firms (Reinikka and Svensson, 2002). Related to infrastructure, agglomeration externalities positively affect firm growth due to benefits accruing from specialization and hence lower production costs (Pyke *et al.*, 1990). MSEs in urban areas demonstrate growth rate of almost twofold their counterparts in rural areas possibly due to better infrastructure and agglomeration dividends (McPherson, 1996). Additionally, business development services such as technology, access to work sites and markets promote growth of small enterprises (Moyi, 2013).

Quality of institutions (Ayyagari *et al.*, 2007; Beck and Demirgüç-Kunt, 2006; Chakraborty, 2016) has also been established to affect firm growth. Entrepreneurs are more likely to reinvest profits if they feel secure in the system of property rights protection (Cull and Xu, 2005; Johnson *et al.*, 2002; Beck and Demirgüç-Kunt, 2006). Prevalence of political instability negatively affects firm growth (Ayyagari *et al.*, 2008). Efficient property rights protection systems, sound contract enforcement (Laeven and Woodruff, 2007; Beck and Demirgüç-Kunt, 2006) and higher levels of credit information sharing (Ayyagari *et al.*, 2007) have also been established to positively affect firm growth. Furthermore the effects of institutional quality on firm performance are stronger among firms in contract-intensive industries (Chakraborty, 2016).

Sector differences have also been established to affect firm growth with MSEs in construction, service, chemicals and plastic sectors demonstrating higher growth (McPherson, 1996; Mead and Liedholm, 1998). The sectoral differences in firm growth may, however, be linked to underlying transformation in structure of the economy. Key factors underlying economy transformation leading to relatively higher growth in some sectors can be either sectoral specialization with economies prioritizing on their most competitive sectors; or are as a result of inducements from potential growth in demand or advent of new products (André, 2015).

In summary review of empirical literature demonstrates the importance of internal resources as well as business environment in shaping growth dynamics of MSEs, an indication of the need for comprehensive policy interventions to promote MSE growth in developing economies.

Methodology

Conceptual framework

Firm growth is a multidimensional phenomenon emanating from internal productive resources such as managerial capability that incentivize innovations and external market opportunities that constrain internal resources (Penrose, 1959; McPherson, 1996). Based on neoclassical economic view, firms in competitive markets increase output to the level where marginal costs equal marginal revenue. In the short run firms, however, experience diminishing returns to variable inputs such as labor. Thus, factors such as credit constraints stifle opportunities for capital expansion and consequently limit firm growth (Bond *et al.*, 2015). On the other hand, in the presence of costly investment climate, marginal costs will increase at higher rate such that firms reach profit maximization output at lower quantities than in the presence of less costly environment.

With respect to human capital, viewing physical and human capital as complementary inputs, resources embodied in entrepreneur such as education and years of experience are expected to increase productivity of a given physical capital. Furthermore, pooling of human capital through joint ownership can bring about benefits of specialization and learning. Recent literature on innovation suggests that internal capability of firms can drive absorptive capacity of technology through networks, improving productivity and growth of enterprises (Chesbrough, 2003; West and Bogers, 2014).

To relate investment climate to firm growth, g, assume that the growth of the firm is proportional to its new investment, I, that is:

$$g = \lambda I \tag{1}$$

All new investments originate either from internal profitability or external borrowings. In the absence of external financing, investment from retained earnings will be:

$$I_t = \alpha_t \left[\left(\prod{}_t - D_t \right) \right] \tag{2}$$

where $\prod$ is the firm's net profit and is a function of revenue net of operating, financing and investing costs. D is the portion of net profit distributed to entrepreneur for external uses. In the presence of external financing:

$$I_t = \alpha_t \left[\left(\prod{}_t - D_t \right) \right] + ExtFin_t \tag{3}$$

where $ExtFin_t$ is the amount of external finance. Consequently, Equation (1) can be re-written as:

$$g = \lambda I = \lambda \left[\alpha_t \left(\left(\prod{}_t - D_t \right) \right) + ExtFin_t \right] \tag{4}$$

and any factor that adversely affects I will lower firm growth. $ExtFin_t$ affect I_t directly through expansion of capital and indirectly through reduction of $\prod_t$ for reinvestments via financing costs (interest costs).

Data and empirical model

This study utilizes the micro, small and medium enterprises (MSMEs) Competitive Project Baseline Survey 2008 data collected by the Kenya Institute for Public Policy Research and Analysis (2008). The survey was part of a five-year World Bank funded project that addresses competitiveness of MSMEs through three components: access to finance; strengthening enterprise skills and market linkages; and improving the business environment. Sampling frame was compiled based on lists of both service and manufacturing MSMEs licensed by local authorities. The data set comprises of 2,593 sample observations as follows: 2,197 micro firms (one to nine employees), 339 small firms (10-49 employees), 50 medium firms (50-100 employees) and seven large firms (more than 100 employees) covering 29 districts (at least three districts in each of the now defunct eight provinces). Medium and larger firms (> 50 employees) were excluded from the analysis. We thus define MSEs to include firms employing 1-50 people as per Kenya's MSE Act. The definition is also congruent with the one used by a study covering five Southern African countries (McPherson, 1996).

Two competing indicators used to measure firm growth are sales and employment growth, though the two indicators demonstrate high correlation (McPherson, 1996). Use of sales approach has the advantage of mitigating technology choice of the firm. Sales growth is thus widely used indicator for firm growth (Baum *et al.*, 2000; Walter *et al.*, 2006; Parida *et al.*, 2016). The natural logarithm of change in sales growth between 2004 and 2006 was used as the dependent variable. Taking logs of a variable has the advantage of reducing range of the variable, making estimates less sensitive to extreme values (Wooldridge, 2013):

$$\ln \triangle \text{sales}_i = \alpha_{0+} \beta_1 \text{lneducation}_i + \beta_2 \text{lnfirm\_age}_i + \beta_3 \text{ownership}_i$$
$$+ \beta_4 \text{lnbus\_experience}_i + \beta_5 \text{sector}_i + \beta_6 \text{location}_i + \beta_7 \text{premises}_i$$
$$+ \beta_8 \text{pipewater}_i + \beta_9 \text{electconnect}_i + \beta_{10} \text{insecurity}_i$$
$$+ \beta_{11} \text{creditformal}_i + \beta_{12} \text{judicialincex}_i + \varepsilon_i$$

The variable descriptions, measurement levels and coding are summarized in Table I.

Results and discussions

Descriptive statistics

Table II shows descriptive statistics of the variables used. The average sales growth was about Ksh2.8 million. The wide variation of sales growth as evident from the standard deviation supports the need for transformation of the dependent variable by taking its log. Most MSE owners demonstrate moderately low education levels with a mean of 12.3 years, corresponding to completion of secondary school. The mean age of MSEs was about 5.8 years, reflecting their short-life expectancies. Entrepreneur experience in the sector on average was 7.4 years. The average MSE age (5.8 years) is less than entrepreneur experience in the sector (7.4 years) which can be explained by high mortality of MSEs especially during the initial years of start-up (Mead and Liedholm, 1998) and determination of the entrepreneur to start a new business (Parker, 1994). The relative mean ages may also be a reflection of majority of MSEs being owned by sole proprietors (Mead and Liedholm, 1998) possibly with lack of successions. As shown in Table II only 16.1 percent of MSEs are jointly owned, indicating that sole proprietorship is dominant.

About 84.8 percent of the MSEs reported they did not experience insecurity incidences during the preceding year. Access to credit from formal financial institutions is of major concern with only 15.6 percent of MSEs reporting they accessed bank credit in the preceding five years. On average MSEs weakly agree (mean judicial index is 2.4 compared with the possible maximum of 5) that courts deal with business disputes in a fair, timely and

Variable name	Description	Measurement	Coding
ln∆sales	Natural logarithm of change in sales between 2004 and 2006	Ratio	None
lneducation	Natural log of number of years of schooling of the firm owner	Ratio	None
lnfirmage	Natural log of age of the firm since inception to 2007	Ratio	None
Ownership	Whether the firm is sole proprietorship or jointly owned	Nominal	1 = joint ownership 0 = sole proprietorship
lnbus_experience	Natural log of number of years of firm owner business experience	Ratio	None
sector	A dummy variable on whether the firm is in manufacturing sector. The inclusion of this variable was targeted at controlling for sectoral differences	Nominal	1 = manufacturing 0 = non-manufacturing sector
location	A dummy variable on whether the firm is in industrial location	Nominal	1 = industrial location 0 = non-industrial location
premises	A dummy variable on whether the firm operates in permanent premises	Nominal	1 = permanent premises 0 = temporary structures
pipewater	A dummy variable on whether the firm is connected to piped water	Nominal	1 = has pipe water 0 = has no pipe water
electconnect	A dummy variable on whether the firm has electricity	Nominal	1 = connected 0 = not connected
insecurity	A dummy variable on whether the firm experienced insecurity in the previous one year	Nominal	1 = experienced insecurity 0 = no insecurity experienced
creditformal	A dummy variable on whether the firm accessed bank loan in the previous 5 years	Nominal	1 = received bank loan 0 = did not receive bank loan
judicialindex	An equally weighted Likert scale index of perception of MSE owner that the court system is fair, timely, affordable and carries out enforcements in dealing with business disputes 1 = strongly agree 5 = strongly disagree	Ratio	None

Source: Authors' construct

Table I.
Variable definitions
and measurements

affordable manner with adequate enforcement. The extent to which contracts can be enforced affects entrepreneur decision to take risks and invest in profitable opportunities which in turn affects enterprise growth (Bond *et al.*, 2015). From this line of argument strong positive perception of the fairness of the courts in dealing with disputes can be expected to promote MSE growth. Ability of economic agents to enforce contracts has additional benefits such as improved private sector access to credit (Djankov *et al.*, 2007) which in turn affects investments in productive capacities.

Diagnostic tests for normality of error terms
The importance of assumption of normality of error term distribution emanates from the fact that the *t*-statistic and *F*-statistic may not be truly applicable unless it is normally distributed, implying that its major application is hypothesis testing (Studenmund, 2014). Diagnostic tests show error terms are normally distributed (Shapiro-Wilk $p > z$ 0.6017). Thus, the test fails to reject a null of normality of error term distribution. The Breusch-Pagan

Variable	Obs.	Mean	SD	Min.	Max.
Sales growth	878	2,828,161	1.83e + 07	−1.45e + 08	2.50e + 08
Education	2,294	12.2755	3.7143	0	16
Firm age	2,296	5.7679	7.1528	0	80
Ownership (1 = joint)	2,293	0.1609	0.3675	0	1
Owner experience (years)	2,296	7.3950	6.9937	1	57
Business sector (1 = manufacturing)	2,296	0.3284	0.4697	0	1
Business location (1 = industrial)	2,290	0.0253	0.1571	0	1
Premises (1 = permanent)	2,290	0.7362	0.4408	0	1
Piper water (1 = have access to pipe water)	2,229	0.3329	0.4714	0	1
Electricity (1 = connected to electricity)	2,290	0.6930	0.4613	0	1
Insecurity (1 = no insecurity experienced)	2,240	0.8478	0.3593	0	1
Bank loan (1 = have borrowed from bank)	2,296	0.1564	0.3633	0	1
Judicial index	2,296	2.3779	0.8214	1	5

Source: KIPPRA (2008)

Table II.
Descriptive statistics

test for homoskedasticity further shows a constant variance of error terms (prob > χ^2 (0.6252). As shown in Figure 1 the Kernel density confirms the results of normally distributed error term.

Correlation matrix and diagnostic tests for multicollinearity
We present the correlation matrix in Table III. The correlation matrix shows positive relationship between MSE growth and access to basic utilities (electricity and water), access to credit, being located in permanent premises and industrial location. Joint ownership and education of the entrepreneur also show positive relationship with MSE growth. Negative perceptions with fairness of the court system are associated with negative MSE growth. The highest correlation among explanatory variables is between age of the firm and entrepreneur experience (+71 percent), which may be explained by limited succession of MSEs ownership. This is in congruence with the results in Table I, with only 16.1 percent of the firms being jointly owned (limited liability companies or partnerships). Access to electricity and piped water demonstrates fairly strong correlation (43 percent). This may be interpreted to mean that distribution of basic infrastructure to which MSEs are exposed follow similar patterns. Though weak, there is also positive relationship between education levels of the entrepreneur and both age of the firm and joint ownership. This means that more educated entrepreneurs are more likely to engage in pooling of human capital resources and MSEs with improved human capital are more likely to last. The mean
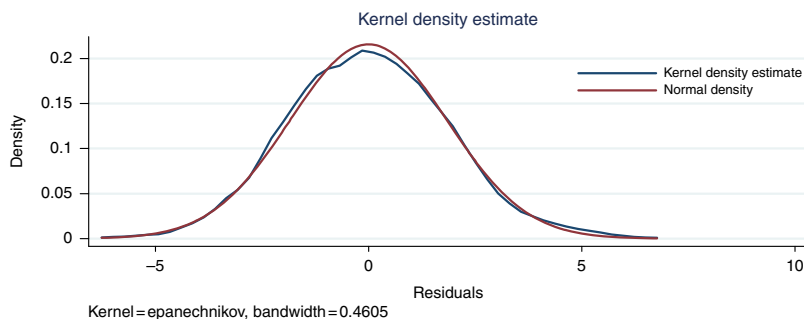
Figure 1.
Distribution of error terms with natural log of sales as the dependent variable

Source: Authors' construct from the survey data

	lnsgrowth	lneduc	lnagefirm	ownership	lnownerexp	bus_sector	bus_loc	premises	pipewater	electricity	Insecurityinc	bank_loan	lnjudicial_index
lnsgrowth	1.0000												
lneduc	0.2755	1.0000											
lnagefirm	0.0303	0.0339	1.0000										
ownership	0.1886	0.0980	0.1050	1.0000									
lnownerexp	-0.0196	0.0008	0.7066	0.0658	1.0000								
bus_sector	0.0315	-0.0694	-0.0149	-0.0117	-0.0094	1.0000							
bus_loc	0.1014	-0.0132	0.0552	0.0472	0.0178	0.0417	1.0000						
premises	0.1841	0.1493	0.0149	0.1195	-0.0526	-0.1200	0.0791	1.0000					
pipewater	0.3848	0.2706	0.0839	0.1087	0.0162	0.0063	0.1006	0.1450	1.0000				
electricity	0.3314	0.2948	0.1101	0.1362	0.0235	-0.0938	0.0222	0.3310	0.4313	1.0000			
Insecurityinc	0.0234	-0.0374	-0.1370	-0.0707	-0.0831	-0.0183	0.0212	0.0126	-0.0608	-0.0461	1.0000		
bank_loan	0.2928	0.1740	0.1130	0.0868	0.0963	0.0348	0.0551	0.0513	0.2882	0.1625	-0.0819	1.0000	
lnjudicial_index	-0.1847	-0.0177	0.2270	-0.0216	0.2801	-0.0356	-0.0332	-0.0533	-0.1265	-0.0094	0.0284	-0.0675	1.0000

Source: KIPPRA (2008)

Table III.
Correlation matrix

variance inflation factors (VIF) range between 1.03 and 2.09 with a mean of 1.31. A VIF of > 10 may indicate presence of high multicollinearity (Wooldridge, 2013). Thus, there was no sufficient evidence of presence of high multicollinearity among the explanatory variables.

Regression results

Controlling for firm and owner characteristics, the analysis shows that investment climate variables have significant effects on firm growth. The regression results are provided in Table IV. Negative perception of the fairness, cost and efficiency of the judicial system adversely affects MSE growth ($p < 0.01$). The possible channels through which this variable affects MSE growth include ability to engage in risky but potentially profitable opportunities, and access to resources such as credit and other contractual arrangements. The findings are in line with the extant studies which demonstrate that improvements in loan contracts enforcements moderate effects of smaller firm size being negatively associated with access to credit (Bond *et al.*, 2015), with implications for firm growth. Furthermore the findings are in view of prior studies showing entrepreneur confidence in property rights protection enhance firm investment (Beck and Demirgüç-Kunt, 2006). The regression results also show MSE growth is positively affected by access to formal credit ($p < 0.01$). Lack of credit access stifles MSE growth possibly by limiting investments in productive capacity and new product lines. Finance is an important input to innovation process required for firm productivity and competitiveness.

The coefficients of connection to electricity and water are both positive and significant ($p < 0.01$). Connections to utilities such as water and electricity play complementary roles to investment in productive capacity. Lack of and/or shortage of utilities may limit the extent to which MSEs invest in profitable projects due to possibility of underutilization of capacity, resulting to higher implicit costs. Lack of connections to these basic utilities may also imply that MSEs rely on costly alternatives such as generators for electricity supply, and purchase of water from private vendors, all of which contribute to explicit costs. The findings on

Variables	Coefficients, *p*-values and SEs	*t*-stat
Education (natural log)	0.657 (0.183)***	3.59
Firm age (natural log)	0.00942 (0.113)	0.08
Ownership: Joint ownership	0.632 (0.189)***	3.35
Owner years of business experience (natural log)	−0.0123 (0.128)	−0.10
Sector: manufacturing	0.230 (0.161)	1.43
Location: industrial	0.740 (0.494)	1.50
Premises: permanent	0.305 (0.203)	1.50
Water: access to piped water	0.858 (0.179)***	4.80
Electricity: access to electricity	0.749 (0.204)***	3.67
Insecurity: no insecurity experienced	0.406 (0.197)**	2.06
Credit: accessed bank loan	0.919 (0.202)***	4.55
Judicial index (natural log)	−0.772 (0.198)***	−3.89
Constant	9.928 (0.540)***	18.38
Observations	615	
R^2	0.2787	
Adj. R^2	0.2643	
$F(12, 602)$	19.39	
Prob $> F$	0.0000	
Root MSE	1.8664	

Table IV.
Regression results

Notes: Standard errors in parentheses. Significant at **$p < 0.05$; ***$p < 0.01$
Source: KIPPRA (2008)

effects of utility connections are in light of extant literature (Reinikka and Svensson, 2002) demonstrating that unreliable electricity supply lowers firm investment.

The coefficient for insecurity was also found to be significant ($p < 0.05$) with MSEs which did not experience insecurity realizing higher growth rates. Insecurity incidences act as a negative tax on MSE performance, thus potentially limiting growth opportunities. Where firms privately hire security, it involves additional explicit costs to the firm. Such costs can lower profitability or create disincentives for investments, thus diminishing growth opportunities.

Majority of the variables related to owner and firm characteristics also affects firm growth. Firm age shows no evidence of effects on firm growth consistent with the Gibrat's LPE. Higher education level of firm owner positively affects firm growth and this is in congruence with the theory of firm growth (Penrose, 1959) suggesting the role of internal capabilities to align and utilize resources. Joint ownership positively affects MSE growth, compared with sole proprietorship. The positive effects of joint ownership could be due to resource pull advantages such as managerial resources, division of labor and continuity of the enterprise.

The findings show no evidence of sectoral differences on MSE growth after controlling for investment climate and firm characteristics. Similarly location (industrial vs non-industrial) and whether MSE operates from permanent premises or temporary structure seem not to have significant effects once the host variables are included as controls. With regards to industrial location variable, however, only 2.5 percent of MSEs (Table II) reported to be operating from industrial location. Limited variation in this variable may have therefore dampened its explanation of the dependent variable.

Conclusion

The purpose of this paper was to investigate determinants of MSE growth in Kenya. Limited growth of MSEs in developing countries stifles their envisaged contributions to the economy in terms of employment and contribution to gross domestic product. Growth constraints facing MSEs in developing countries are anchored on empirical evidence on size distributions of enterprises, commonly termed as "missing middle" to reflect limited transformation of MSEs into competitive medium size firms. Using firm-level survey data for 2,536 MSEs in Kenya, this paper has shown that both investment climate variables and firm-specific factors affect MSE growth. With regards to investment climate variables, positive entrepreneur perception of the court system, access to formal credit, connections to piped water and electricity, and lower incidences of crime positively affect MSE growth. Policies targeting growth of MSEs in Kenya have often focused on these issues as part of the policy agenda. Given that the highlighted investment variables still stifle MSE growth, there is need to evaluate the extent of policy implementations. It is possible to have good policies but weak implementation, which weakens realization of policy goals. With regards to firm-specific variables, joint ownership, entrepreneur education and years of business experience positively affect MSE growth, consistent with resource-based theory of firm growth. The findings imply that to holistically address MSE growth, complementary interventions targeting both investment climate and internal resources should be employed. MSE growth policies should target to achieve access to formal credit, lower incidences of crime, access to basic utilities, and efficient, affordable judicial systems that instil confidence in entrepreneurs. These policy efforts targeted at business environment should be corroborated by measures to enhance MSE internal capabilities such as business skills and promotion of joint ownership to aid in resource pooling.

Suggestions for future research

Two suggestions are imperative for future research. The first relates to survey approach, and the second relates to empirical analyses. With regards to the survey approach, future

surveys should employ longitudinal approach to data collection to aid in investigation of dynamic relationships of factors affecting MSE performance. Related to this, there is also need for more frequent national-level surveys to track and analyze impacts of policy reforms on MSE performance in developing countries. For the case of Kenya, the Kenya National Bureau of Statistics – the national statistical agency, has embarked on carrying out a comprehensive national-level survey of micro, small and medium enterprises at the time of writing this paper. Though the new survey is still cross-sectional, it can however still provide insights in light of recent policy developments.

With regards to empirical analyses, future research can interrogate issues such as MSE coordination frameworks and effectiveness of policy implementations. Certainly such an approach would require cross-country analysis to have variation in institutions. Further insights are also required on role of alternative policies on MSE innovation activities, productivity performance and resulting effects on growth. There is also need to unpack factors affecting MSE perception of the judicial system, as negative perceptions of the judicial system have been shown to negatively affect firm growth.

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Corresponding author

Dulacha Galgallo Barako can be contacted at: barakodg@gmail.com