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Entrepreneurship and the Business Environment in Africa: An Application to Ethiopia

by

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Entrepreneurship and the Business Environment in Africa: An Application to Ethiopia

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Abstract

Policymakers in developing countries have recognized that productive entrepreneurship can help eliminate extreme poverty. This paper develops a search model of costly entrepreneurial start-ups under a constraining business environment and skill gaps, where one of the equilibrium outcomes is a low-productivity trap. The model reflects stylized facts from the urban labor markets in low income countries such as Ethiopia where low rates of productive entrepreneurship coexist with high output growth in some sectors. Creating an enabling business environment could help move the economy into the high-productivity equilibrium if the regulatory improvements are substantial and other bottlenecks such as skill gaps addressed. We test the role of the business environment in entrepreneurial sales on data from a recent World Bank survey of enterprises in Addis Ababa.

Key words: Model of start-ups, productivity, multiple equilibria, low income countries, Africa

JEL classification: L26, J24, J48, O17

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1. Introduction

Policymakers in low income countries (LICs) have long recognized the private sector, and productive entrepreneurship in particular, to be a key part of their agenda to eliminate extreme poverty.² Still, contribution of productive entrepreneurship to growth and employment has been limited, especially in LICs where the productive, high value-added type has been mostly missing. One of the reasons has been lower competitiveness in a number of African countries, stemming in part from an overall weaker business environment and larger human capital gaps than in other regions. Raising competitiveness through improving the business environment as well as training and education is thus a top policy priority for the LICs in Africa and other developing regions.

This paper develops a model of costly entrepreneurial start-ups in an economy with a rigid business environment, skill gaps, and a large informal sector. It contributes to closing a gap in the 'entrepreneurship and development' literature, which consists mostly of empirical studies and surveys, but analytical underpinnings have been scarce. The model extends the framework of Brixiová (2013) and applies it to Ethiopia. It builds on Snower (1996) who showed that labor market failures, including imperfect information, lead to suboptimal outcomes in developed countries. Such failures are even more prevalent in LICs where the business environment is still weak, skill gaps prevalent, and the labor market institutions underdeveloped.

The paper focuses on highly-productive start-ups, as their absence constrains sustained growth and job creations in LICs such as Ethiopia. It develops a model where under a weak business environment and skill gaps the economy can end up in a low-productivity trap, with the informal sector accounting for most of the private sector output and employment. The model reflects key stylized facts of the labor markets in Ethiopia and other LICs. The emphasis on firm creation and the informal sector, which characterize LICs, distinguishes this framework from Snower (1996) who analyzed vacancies in existing firms in the formal sector in advanced economies. In sum, the model in this paper focuses on start-ups of highly-productive private firms in the formal sector, as their absence constrains sustained productivity and job growth in Ethiopia and other LICs.

We examine policies that could move the economy into a highly productive equilibrium. Under convex costs of starting a business, substantial improvements to the business environment need to be made for a marked impact on firm creation and moving the economy out of the low-productivity trap. Further, improvements in educational attainments of both workers and entrepreneurs have a positive impact on firm performance. We test the role of the business environment and entrepreneurs' education for entrepreneurial performance on recent data from the World Bank Enterprise Survey of Ethiopia.

The paper is organized as follows. After this Introduction, Section 2 gives stylized facts on entrepreneurship and the urban labor market in Ethiopia. Section 3 presents the model and policy analysis. Section 4 tests the results of the model on data from the World Bank Enterprise Survey of Ethiopia, in particular Addis Ababa in 2011. Section 5 concludes.

² This recognition has been also reflected in the academic literature. Examples of articles that view entrepreneurship as a possible part of solution to poverty include Anderson et al. (2010), Brixiová (2010), Bruton (2010), McKague and Oliver (2012), Bandiera et al. (2013), Bruton et al. (2013) and Tobbias et al. (2013), among others.

2. The Stylized Facts

Even after departure from the central planning system, Ethiopia's economy exhibits unique features. The predominant role of the state sector in the non-agricultural output, low creation of productive jobs in the private sector, and high unemployment make it akin to an early-stage transition economy. At the same time, Ethiopia is still among the poorest countries in the world, with: (i) a large informal sector and high share of agriculture in output and employment; (ii) pervasive labor market frictions, including imperfect information; (iii) a constraining business environment and (iv) relatively low educational attainments. The sections below highlight main stylized facts about the country's entrepreneurship and the urban labor market.³

2.1 High Growth, Low Labor Productivity

At an average annual growth of 10.6 percent, Ethiopia was one of the fastest growing countries in Sub-Saharan Africa (SSA) and globally during 2005 - 2014. However, growth was driven mostly by the modernization of agriculture (which accounts for 80 percent of employment), commodity boom, public investment, and – with the exception of financial intermediation – the expansion of low value-added services (Geiger and Moller, 2013). For the most part, the performance of the manufacturing sector and high-value added services remained subdued. The structural composition of Ethiopia's output, reliance of its economic performance on public investment, and the burden it has put on its public finance have raised doubts about growth sustainability.⁴ To achieve high and sustained growth, the private sector, including productive entrepreneurship and the export sector, will need to play a greater role (World Bank, 2014a).

Table 1. Labor Productivity in Ethiopia and Selected Countries (2005)

Country	Average	Sector with highest prod.		Sector with lowest prod.	
	Labor Productivity	Sector	Prod.	Sector	Prod.
		(2000 PPP \$)			
South Africa	35,760	pu	91,210	con	10,558
Mauritius	35,381	pu	137,203	agr	24,795
Nigeria	4,926	min	866,646	cspsgs	264
Kenya	3,707	pu	73,937	wrt	1,601
Ethiopia	2,287	firebs	76,016	agr	1,329
China	9,518	firebs	105,832	agr	2,594
India	7,700	pu	47,572	agr	2,510

Source: McMillan and Rodrik (2011). **Note:** 'agr' Agriculture, hunting, forestry and fishing; 'min' Mining and quarrying; 'man' Manufacturing; 'pu' Public utilities; 'con' Construction; 'wrt' Wholesale and retail trade, hotels and restaurants; 'tsc' Transport, storage and communications; 'firebs' Finance, insurance, real estate and business services; 'cspsgs' Community, social, personal and government services.

³ This paper focuses on urban labor markets. Utilizing data from southern Ethiopia, Kimhi (2010) shows that encouraging rural entrepreneurship may be favorable for both income growth and distribution.

⁴ Public investment accounted for most of the growth recorded since mid-2000s, and specifically for 2/3 in 2011/2012 (IMF, 2012, and Geiger and Moller, 2013). ⁴'...Ethiopia pursues a public sector-led growth strategy that focuses on promoting growth through high public investment...' (IMF, 2012, page 4).

Ethiopia’s productivity levels have remained low. Wide productivity gaps with East Asian economies and some African frontier markets persist (Table 1). The overall low productivity is in part explained by the sectoral distribution of employment. Agriculture, which has the lowest productivity level, accounts for 78 percent of employment (Martins, 2014).

2.2 Limited Private Sector and Entrepreneurial Activity

The Ethiopian private sector has evolved in stages.⁵ First, central planning of the Derg regime during 1974-1990 discouraged private sector activities. In contrast, the subsequent government favored implementing market reforms, to cut red tape and encourage growth of the private sector (Geda and Degefe, 2002). Two decades later, productive entrepreneurship blossoms in some sectors (leather, flowers), but is overall limited. SMEs are typically small, low-productivity firms, operating in services such as trade.⁶ The state-owned enterprises prevail in the economy, also because key sectors such as banking or telecoms are not open to foreign investment.

The Global Entrepreneurship Monitor 2013 study found that Ethiopia has one of the lowest rates of entrepreneurial activity in SSA, including among the low-income economies. Only 15 percent of the adults (18 to 64) were starting new firms or running a new business (less than 3.5 years old) in 2012, compared to the average of 28 percent for countries in the region. Further, in Ethiopia, 10 percent of adults were running established businesses relative to the regional average of 13 percent. Only 24 percent of adults reported that they intended to create a firm, which is less than half of the region’s average of 53 percent (Table 2). This is consistent with the observation that about 50 large and medium-sized firms play a key role in the economy (Sutton and Kellow, 2010).

Table 2. Entrepreneurial Activity in Selected LICs, 2012

	Entrepreneurs (% of working age population)		
	Nascent	New	Established
Ethiopia	6	9	10
Ghana	15	23	38
Malawi	18	20	11
Nigeria	22	14	16
Uganda	10	28	31
Zambia	27	15	4

Source: Herrington and Kelley, 2013. Note: Since 2010, Ghana has been classified as a middle income country.

Similarly to other LICs, the informal sector accounts for a large share - 45-50 percent - of the economy, namely urban employment. The informal sector consists mostly of low-productive (e.g., competitive and largely undifferentiated) SMEs, mostly in trade. Some highly productive SMEs also operate there, in particular small-scale manufacturing firms. This more dynamic tier, amounting to about 20 percent of the informal sector, also employs more skilled workers. The informal sector in Ethiopia is thus dualistic (World Bank, 2007b).

⁵ The private sector includes all agents in the economy not formally classified as in the public sector that is agents involved in the government, state-owned enterprises or parastatals, and independent public agencies.

⁶ The leather industry is one of the exceptions. In the early 2000s, leather-show industry has gained a share in the domestic market, with its growth being driven by new entrants and expansion of incumbents (Sonobe et al., 2009).

2.3 Constraining Business Environment

The lack of an enabling business environment – that is institutions and policies that affect firm entry, survival, growth and exit – have contributed to the suppressed private sector. As Lopez-Garcia (2009) notes, the two main barriers to firm creation tend to be the administrative burdens related to starting a business and access to finance, while the government interference and taxes impact the expected profit and firm survival. These are also the main barriers in Ethiopia.⁷

Table 3. Indicators of Starting a Business: Ethiopia and Other African LICs

	Ethiopia	Average		
		EAC	Rwanda	Madagascar
Rank (out of 184)	163	84	8	17
Procedures (#)	9	8	2	2
Time (days)	15	20	3	8
Cost (% of income per capita)	135	34	4	11
Min. Capital (% of income per capita)	249	0	0	0

Source: Authors' calculations based on World Bank's Doing Business 2013.

The firm creation in Ethiopia has been impeded by weaknesses in the business environment (Table 3). In the latest, 2015, World Bank Doing Business report, Ethiopia ranked overall as #132 out of 189 countries, a decline from #97 in 2007.⁸ 'Starting a Business' is challenging (ranking is #168), mostly due to high start-up cost and required minimum capital. It costs 89.3 percent of income per capita and requires paid-in minimum capital of 164.4 percent of income per capita to open a firm in Ethiopia. Substantial regional differences prevail. For example, minimum capital required to start a business in Addis Ababa amounts to 10 times GNI per capita. Another area of doing business that would benefit for strengthening is registering property, which is key for ensuring formal property rights, including land administration. It in turn impacts formation of collateral and access to finance. In 2015, Ethiopia ranked as number 104 out of 189 countries (World Bank, 2014b).

2.4 High Unemployment, Skill Shortages and Mismatches

The low entrepreneurial rates contribute to high unemployment, especially in urban Ethiopia (Figure 1), as the exit rates from the unemployment pool to the private sector have been low. A possible contributing factor to the low entrepreneurial rates and aspirations is the overall low level of education, as the success rates and sustainability of early-stage entrepreneurs are positively correlated with their educational attainment. The level of education, and entrepreneurial education, in Ethiopia is lagging other low income countries in SSA (Table 4).

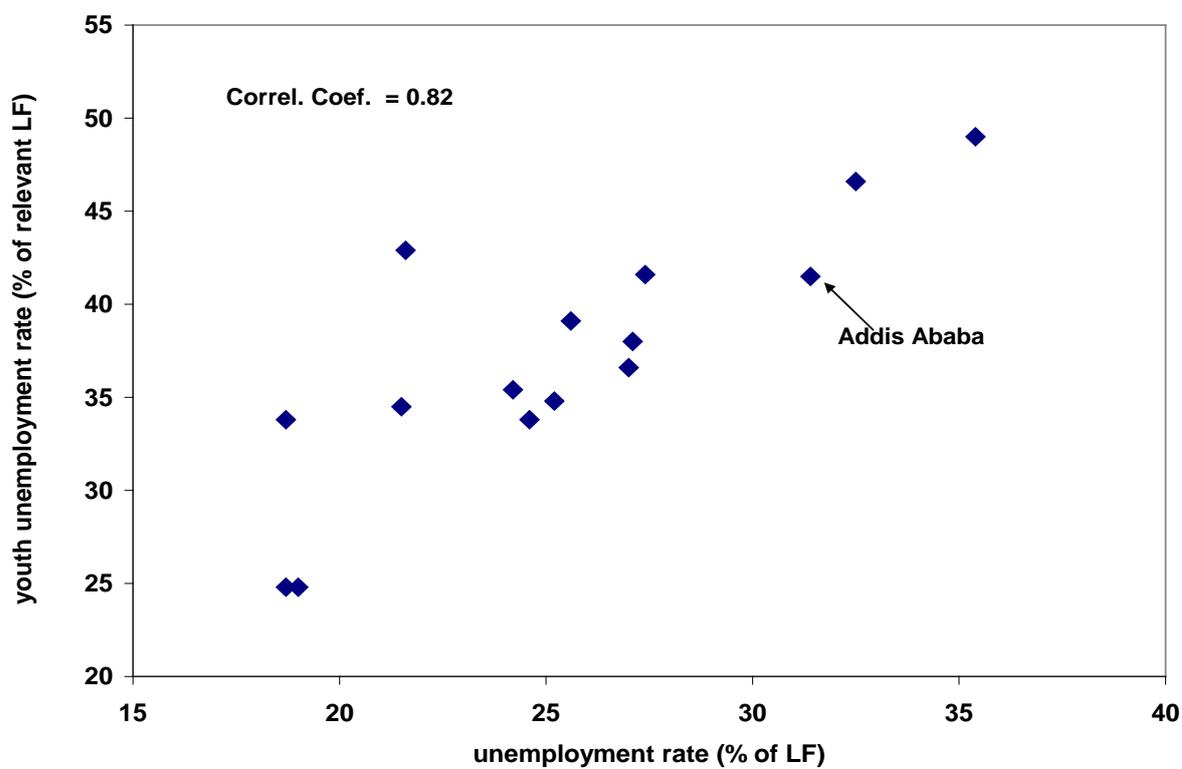
Besides skill shortages, the labor market has been also characterized by mismatches between skills supplied by the educational system and those demanded by the private sector, as evidenced by high urban unemployment rates of young people with high school and higher education (Figure 1).

⁷ This paper considers the access to finance as part of the broader business environment.

⁸ The World Bank Doing Business indicators, while widely used, have received criticism as a measure that would guide government reform priorities. For example, Arrunada (2007) points out that the indicators focus only on costs on regulatory institutions and do not adequately capture the benefits – including information – they generate.

Moreover, 1/5 of vacancies in the early 2000s remained unfilled, due to the lack of skilled workers or their unwillingness to relocate from the urban to the rural areas (World Bank 2007a).

Figure 1. Total and Youth Unemployment Rates by Urban Centers, 2005



Source: Central statistical office and author's calculations. 1/ Urban centers have above 2000 inhabitants.

Table 4. Entrepreneurial Education and Training in Ethiopia and Selected LICs

	ETH	SSA av.	GHA	MLW	NIG	UGA	ZAM
Primary and secondary education:							
encourages creativity, self-sufficiency and initiative	1.9	2.3	2.3	2.3	1.9	1.9	2.2
gives adequate attention to entrepreneurship and new firm creation	2.3	2.0	2.8	2.9	2.7	2.3	2.8
Universities							
provide good and adequate preparation for starting up and growing new firms	1.8	2.5	2.3	2.9	2.6	1.8	2.3
Business and management education							
provide good and adequate preparation for starting up and growing new firms	2.1	2.7	2.8	3.1	2.3	2.1	2.8
Vocational and professional education							
provide good and adequate preparation for starting up and growing new firms	2.6	2.9	3.0	3.3	2.8	2.6	3.0

Source: Herrington and Kelley (2013). Note: Answers are experts' opinions from surveys conducted by the Global Entrepreneurship Monitor, measured on an increasing scale from 0 (lowest score) to 5 (highest score).

Note: Since 2010, Ghana has been classified as a middle income country.

The skill shortages have been amplified by an ineffective matching process where due to the lack of functioning labor market offices skilled workers are not aware of vacancies. In turn, employers posting the vacancies may not know about available skilled workers. The employment exchanges are rarely used, as job seekers search through relatives, stop by at work sites, or start their own enterprise. In addition to job scarcity, the declining vacancy-to-unemployment ratios posted by agencies may reflect the reduced trust of firms in agencies' services (Denu et al, 2005).

3. The Model and Policy Analysis

This section develops a model illustrating the role of an enabling business environment and skills for stimulating productive entrepreneurship. The model builds on Brixiová (2013) and Snower (1996). It includes the informal sector that contains both the self-employed workers and low-productive firms, reflecting the sector's dual nature.⁹ Key frictions in the model are costly search of entrepreneurs for productive business opportunities and inefficiencies in matching searching entrepreneurs and skilled workers. The model illustrates how in this framework (i) low-income economies such as Ethiopia could end up in a low-productivity equilibrium and (ii) reforms in the business environment can help move the economy into a high productivity equilibrium.

3.1 The Environment

The population is normalized to one. There are two types of agents, entrepreneurs and workers, with population shares μ and $1 - \mu$, respectively. They live for one period, are endowed with one unit of time and \bar{w} amount of consumption good, and have preferences, $E(c)$, where c denotes consumption good and E the expectations agents form at the beginning of the period.¹⁰

Entrepreneurs

At the beginning of the period, entrepreneurs search for opportunities to open productive firms in the private sector. This search costs them $\frac{\gamma_1 x + \gamma_2 x^2}{2}$, $\gamma_1, \gamma_2 > 0$, units of the consumption good and results in the probability x of finding a business opportunity with productivity per worker z_s . They can turn a business opportunity into a highly-productive firm by hiring \bar{n}_s skilled workers. Denoting m_p as number of entrepreneurs searching for skilled workers, the matching of the aggregate skilled vacancies, $V_s = m_p \bar{n}_s$, with skilled workers, N_s , follows:

$$h = A \min[N_s; V_s] = A \min[N_s; m_p \bar{n}_s] \quad (1)$$

where h is the total number of matches and A denotes matching efficiency. Entrepreneurs with a high-productivity business opportunity find skilled workers with probability $\rho = A \min[\frac{N_s}{V_s}, 1]$.¹¹

In (1) $A < 1$ to reflect imperfections in the matching process. These can include transportation

⁹ Brixiová and Égert (2012) examined the role of the business environment in transition economies.

¹⁰ This approach, where entrepreneurs have risk-neutral preferences, draws on Blanchflower and Oswald (1998).

¹¹ As Snower (1996) points out, when firms are imperfectly informed about the availability of skilled workers, even skills that are useful to all firms are not general since not all firms have access to these workers. Such skills are also not specific since more than one firm usually has access to a skilled worker.

bottlenecks or imperfect information where skilled workers do not know about available vacancies and searching entrepreneurs about searching workers. Labor market measures that raise the matching efficiency include information dissemination and, more generally, job search support, establishment of a national job databases, and increased quality of labor market placement offices. Transport infrastructure and supply of affordable housing are also important, as they help overcome regional mismatches by linking jobs and workers from different locations.

After finding a highly-productive business opportunity and skilled workers, entrepreneurs pay start-up cost c (e.g. licensing fee, etc.) and produce output according to (2). The output depends on the productivity level, $z_s > 0$, and the quality of the business environment in the formal sector, β^F , $0 \leq \beta^F \leq 1$.¹² Firms in the formal sector pay profit tax τ and earn after-tax profit:

$$\pi^F = (1 - \tau)(\beta^F z_s \bar{n}_s - w_s \bar{n}_s - c) \quad (2)$$

Where w_s is the wage of skilled workers (in the formal sector), determined through bargaining.

Entrepreneurs who do not find highly-productive opportunities or skilled workers open low-productivity firms in the informal sector, with productivity per worker of z_u . The entrepreneurs' productivity is further lowered by the business climate factor in the informal sector β^I where $0 < \beta^I < \beta^F < 1$.¹³ The entrepreneurs employ unskilled workers, \bar{n}_u , where $0 < \bar{n}_u < \bar{n}_s$, that is firms in the informal sector are smaller. Entrepreneurs in the informal sector do not pay taxes, but are subjected to tax monitoring and full confiscation for tax evasion. Their profit amounts to:

$$\pi_u = (1 - \phi)(\beta^I z_u \bar{n}_u - w_u \bar{n}_u) \quad (3)$$

where w_u is the wage of an unskilled worker in a low-productivity, informal firm, which equals the income, b , of the self-employed in the informal sector, and ϕ is the probability that the firm's tax evasion is detected by the tax authority. In sum, $z_s > z_u > b > 0$ are productivity levels in high-productivity firms (in the formal sector), low-productivity firms (in the informal sector), and self-employed, respectively.

Workers

When acquiring skills demanded in the highly productive private firms, workers incur cost, $k(q) = \theta q^2 / 2$ where $\theta > 0$ is the cost parameter. Their effort results in probability q of obtaining skills¹⁴ and probability $\xi = A \min[\frac{V_s}{N_s}, 1]$ of finding a job in a highly productive firm. Workers who do not obtain skilled jobs work in the informal sector, either as self-employed or in a low-productive firm. In both cases they earn income $b < w_s$.

¹² More generally, β^F reflects quality of formal institutions. Amoros (2009) shows empirically that differences in institutional quality help explain differences in entrepreneurship across countries.

¹³ Dethier et al. (2011) observe that not only can better business environments cause firms to be more efficient, but that also that inherently more efficient firms choose better business environments.

¹⁴ x (and q) are between 0 and 1. Despite their efforts, workers (entrepreneurs) occasionally fail to acquire skills (find business opportunities).

While the market for unskilled workers is perfectly competitive, wages for the skilled workers are set through decentralized bargaining between the skilled workers and the productive private firms. If bargaining does not lead to an agreement, the workers would receive income from self-employment in the informal sector, b . The outcome of decentralized bargaining depends on the relative strength of the skilled worker and the firm, α :

$$w_s = \alpha(\beta^F z_s - \pi_u) + (1 - \alpha)b \quad (4)$$

The wage gap between skilled and unskilled jobs amounts to $\alpha(\beta^F z_s - \pi_u - b)$.

The Labor Market Clearing Conditions

The characterization of the environment is completed by the labor market equilibrium conditions. Denoting m_u as the share of entrepreneurs running low-productivity firms and employ the unskilled workers, the market clearing condition for the entrepreneurs is:

$$\mu = m_u + m_p \quad (5)$$

Denoting n_s to be the total number of skilled labor employed in the formal private sector, $n_u = m_u \bar{n}_u$ the total unskilled labor in the informal sector, and n_i as the total number of self-employed in the informal sector, the labor market equilibrium condition for workers is:

$$1 - \mu = n_s + n_u + n_i \quad (6)$$

3.2 Multiple Equilibria

An *equilibrium* in this economy is defined as an allocation of entrepreneurs and workers and wage rate such that: (i) each entrepreneur chooses the effort x put into search for business opportunities; (ii) each workers chooses effort q put into acquiring skills; (iii) wage rate is set through Nash bargaining as in (4); and (iv) labor market clearance conditions are met.¹⁵

In equilibrium, the marginal cost of entrepreneur's search for a business opportunity equals the net profit as in Equation (7). Similarly, the worker's marginal cost of acquiring skills equals the expected difference between a skilled wage and alternative income, given by (8):¹⁶

$$\gamma_1 + \gamma_2 x = \rho(\pi_s - \pi_u) = A \min \left[\frac{(1 - \mu)q}{\mu x \bar{n}_s}; 1 \right] (\pi_s - \pi_u) \quad (7)$$

$$\theta q = \xi(w_s - b) = A \min \left[\frac{\mu x \bar{n}_s}{(1 - \mu)q}; 1 \right] (w_s - w_u) \quad (8)$$

¹⁵ It is straightforward to show that depending on the parameters, the model either has (i) a unique 'low-productivity' equilibrium where workers and entrepreneurs exert zero effort or (ii) one 'low productivity' and one 'high productivity' equilibrium with positive efforts by workers and entrepreneurs.

¹⁶ In (7) and (8), the number of skilled vacancies is $V_s = \mu x \bar{n}_s$, where $m_p = \mu x$ is the share of entrepreneurs with productive business opportunities. Similarly, the share of skilled workers searching is $N_s = (1 - \mu)q$.

and w_s specified in Equation (4). Equations (7) and (8) can be obtained by solving entrepreneur's and worker's problems (Annex I), together with the labor market clearing conditions (5) and (6). In (7), $\gamma_1 + \gamma_2 x \geq 0$ denotes the marginal cost of entrepreneurial search.

The equilibria form at the intersections of the entrepreneurs' 'search curve' as in (7) and workers' 'training curve' given by (8) and (4). The system described by (4), (7) and (8) can lead to two equilibria: (i) a low-productivity equilibrium, where entrepreneurs exert limited effort to start firms and (ii) a high-productivity equilibrium with higher effort by entrepreneurs.

Low Productivity Equilibrium

The first equilibrium is the low productivity trap, where – under a shortage of private firm, i.e. $\mu x \bar{n}_s < (1 - \mu)q$ – the business environment (i.e. tax rates, start – up cost, search cost) is such that $\pi_s - \pi_u \leq \gamma_1 / A$. Equation (7) shows that in such environment where difference between in profit between running high and low productivity firm is small, entrepreneurs will not search for highly productive business opportunities, i.e. $x = 0$. Equation (8) in turn shows that workers will not acquire skills i.e. $q = 0$. The economy will thus consist only of low-productive firms and unskilled workers, both operating in the informal sector.¹⁷ As Snower (1996) emphasized for the case of developed countries, when the economy is in a low-productivity equilibrium (or 'low-skill, bad-job trap'), the need for public stimulus rises markedly relative to other equilibrium cases.

High Productivity Equilibrium

The second, high productivity equilibrium, is above the low productivity trap and comprises both positive entrepreneurial search and workers' learning efforts ($x, q > 0$). A pre-condition for reaching this equilibrium is a business environment conducive enough so that profits in the highly productive private firms employing skilled workers sufficiently higher than those in productive firms with unskilled workers, i.e. $\pi_s \geq \pi_u > 0$. In this equilibrium, the economy consists of both high productivity private firms in the formal sector, low productivity firms in the informal sector as well as self-employed workers in the informal sector.

3.3 Policy Analysis

In this section, we relate the key parameters of our model to evidence on the business environment in Ethiopia and other low income countries. As Ncube (2005) underscores, the type of education and the environment that individuals are exposed to are critical for their entrepreneurial aptitude. In the Ethiopian public universities, entrepreneurship is still in its early phase of development and concentrated mostly in business schools and agricultural colleges. Entrepreneurship promotion centers are also scarce. The country thus needs to integrate entrepreneurship in the curricula while establishing centers of entrepreneurial excellence (Gerba, 2012).

¹⁷ The second case is when the share of skilled workers is below that or same as the share of skilled vacancies, i.e. $(1 - \mu)q \leq \mu x \bar{n}$. When $w^s \leq w^u = b$, that is $\beta^F \leq \frac{\pi^u + b}{z_s}$, unskilled workers will not have incentives

to obtain training. The absence of the skilled workers will remove incentives for entrepreneurs to search for business opportunities requiring skilled workers.

During a start-up phase, each entrepreneur searches for a business opportunity. After a suitable opportunity is identified, the entrepreneurs need to turn it into productive firms. At this stage, they can be hampered by cumbersome registering and licensing procedures, stringent hiring regulations, and the lack of skilled workers, among other factors. The ability of the legal framework to protect property rights is equally important, as it influences the expected profit and hence effort that entrepreneurs put into search. The entrepreneurs also consider the state of the financial infrastructure such as development of capital markets, control of corruption, and effectiveness of the government during their start-up phase (Ncube, 2005).

Improving the Business Environment

This section underscores the impact of improved business environment on (i) entrepreneurs' search for highly-productive business opportunities; and (ii) workers' effort to acquire skills. It follows from (4), (7) and (8) that in the case of shortage of skilled vacancies, $(1 - \mu)q < \mu x \bar{n}_s$, a better business environment (e.g. higher β^F and lower γ) will encourage entrepreneurs to intensify their search effort (x) for productive business opportunities. This in turn, will incentivize unskilled workers to acquire skills.¹⁸ A more intense search by entrepreneurs due to improved business environment and the subsequent additional learning efforts by workers will result in a higher number of productive firms, increased output, and additional productive employment.

Reforming Property Rights

Unclear property rights, which imply a possibility of expropriation (where $\beta^F = 0$), are an important component of the business climate in many low income countries. Denoting probability of expropriation as ψ , the efficiency coefficient in the production function changes to

$\bar{\beta}^F = (1 - \psi)\beta^F + \psi 0$. Entrepreneurs are more likely end up running low productivity firms in the informal sector, as the expected profit in the formal sector is reduced by the possibility of expropriation. The reverse also holds – if improvements to property rights are sufficiently large, entrepreneurs who will increase their search effort and more likely end up in the formal sector.

Given two negative externalities (searching and learning) that characterize the low-productivity trap, sizeable interventions both on the side of business environment (generating labor demand) and training (improving quality of labor supply) are needed. The non-linearity in the searching and learning are key for prioritizing interventions. Specifically, policies should first target the most significant constraint to the creation of productive firms. In sectors or communities with shortages of productive firms, policies should focus on better business environment to encourage entrepreneurial search. In (some high-tech) sectors characterized by skill shortages, interventions encouraging training should be prioritized. Since the binding constraint may be changing over time, complementary, and well-sequenced, policies would be most effective.

¹⁸ More formally, from (2) $\frac{\partial \pi_s^F}{\partial \beta^F} > 0$ and $\frac{\partial \pi_s^F}{\partial \tau}, \frac{\partial \pi_s^F}{\partial \gamma} < 0$. From (7) the entrepreneurial search effort x

becomes $x = A(\pi_s^F - \pi_u) / \gamma$ skilled jobs are scarce. Hence $\frac{\partial x}{\partial \beta^F} > 0$ and $\frac{\partial x}{\partial \gamma}, \frac{\partial x}{\partial \tau} < 0$. From (8) then

$\frac{\partial q}{\partial x} > 0$.

3.4 Illustrative Numerical Solution

To illustrate the impact of policies such as improved functioning of the labor market, A , and a better business environment, β^F , as well as lower cost of search for business, γ , and reduced profit tax τ , this section provides a numerical example. The baseline parameters are set in Table 5; these values were set to yield the share of informal sector employment in total employment of 50 percent and of formal sector firms in total firms of 29 percent.¹⁹

Table 5. Baseline Parameters

Parameter	A	μ	ϕ	θ	γ	β^F	β^I	α	n_s	n_u	z_s	z_u	b	τ
Value	0.5	0.3	0.1	0.1	1	0.55	0.4	0.5	4	2	2	1	0.2	0.35

The indicative elasticity of informal sector employment to changes in each of the business environment variable (A, τ, γ, β^F) is calculated by changing values of these variables by 20 percent and computing the new informal employment rate:

Table 6. Elasticities of Key Outcomes w.r.t. Changes in the Business Environment

Variable	New value	New share of formal firms	New share of informal employment	Elasticity of informal and unskilled employment to 20 % change in variable
		% of total		% change
A	0.60	35	40	-20.0
τ	0.29	31	47	-6.4
γ	1.20	32	45	-9.4
β^F	0.65	37	36	-27.1

The results in Table 6 confirm that improvements in the business climate would raise number of highly-productive firms and high-skilled/high-wage employment. In the example, the 20 percent improvement would lower low-skilled/low-wage employment in the informal sector by 27 percent, with a corresponding increase in employment in the formal sector. Another effective way of raising productive, formal sector employment are improvements in the labor market functioning, including through provision of information and reducing costs of job search. As Table 6 illustrates, reduced costs of entrepreneurial search would increase number of highly productive firms and skilled employment (in either formal or informal sector).

¹⁹ Parameters are chosen to match the limited available information. For example, the wage of unskilled workers in the informal sector amounts to 30-40 percent of the wage of the skilled workers, and the wage gap between skilled workers in the formal and informal sector. 2005, is 30 percent.

4. Empirical Evidence from Ethiopia

This section presents empirical results from the World Bank Enterprise Survey of the urban Ethiopia (namely Addis Ababa in 2011).²⁰ It examines entrepreneurial performance based on the actual and perceived business environment as well as personal characteristics such as education.

Key features of micro- and small enterprises

The empirical analysis utilizes the 2011 World Bank Enterprise Survey of Ethiopia, specifically information on 150 enterprises in the manufacturing and services in Addis Ababa. For practical purposes we identify entrepreneurship with 117 micro (less than 5 employees) and small (5 – 19 employees) enterprises. The rest are the medium (20 – 99 employees) and large (100 or more employees) enterprises. This sub-section examines the differences in means between these two groups of enterprises in terms of performance, characteristics of the owner(s), and characteristics of the enterprise (having a license, an outstanding loan or financial statement inspected by an auditor, among others). Results are reported in Table 7.

First, differences in means in personal characteristics of owners and managers of micro and small firms (with less than 20 employees) and medium and large firms (20+ employees) are presented. While that share of women owners in micro/small enterprises is lower than in large firms, the reverse holds for the share of women managers. Table 1 also reveals that top managers in micro-small firms have lower level of human capital – both in terms of education and years of experience – than their counterparts in medium and large firms. Regarding the business environment, the micro and small enterprises encounter greater challenges w.r.t. power outages or finding time for innovative ideas, but are under less control from tax or financial audits than larger enterprises. Finally, medium and large enterprises markedly outperform small and micro ones in terms of annual sales, while differences in labor and other costs are less pronounced.

Kernel density estimates of entrepreneurial sales

The parts below present the kernel density estimates of the probability density estimates of probability density function of (log of) annual sales for entrepreneurial firms (defined as micro and small enterprises with less than 20 employees – MSEs). They examine if the business environment impact positively entrepreneurial performance, measured by average annual sales.

²⁰ The 2011 World Bank Enterprise Survey of Ethiopia consists of 150 enterprises in the manufacturing and service sectors in Addis Ababa, of which 117 enterprises were micro (less than 5 employees) and small (5 – 19 employees) enterprises and 33 medium (20 – 99 employees) and large (100 or more employees) enterprises. For empirical purposes of this paper entrepreneurship is represented by micro and small firms, i.e. firms with less than 20 employees.

Table 7. Differences between micro/small and other enterprises in Addis Ababa

Variables	All enterprises		
	Micro/small 0 - 19 employees	Medium/large 20+ employees	SE and stat. sign.
(in % of enterprises, unless otherwise indicated)			
<i>Personal characteristics of owner(s)</i>			
Gender (female)	12.0	33.3	21.4***
Nationality (Ethiopian)	88.0	100.0	12.0***
<i>Personal characteristics of top manager</i>			
Experience in the sector (years)	9.7	10.7	1.0
Education (higher)	41.9	54.5	12.6*
Gender (female)	27.3	17.1	-10.2**
<i>Business environment</i>			
Monthly power outages (#)	6.9	4.8	-2.0**
Applied for phone line	11.2	36.4	25.2*
Time for new ideas	27.4	39.4	12.0*
Inspected by tax officials	71.8	96.9	25.0***
Audited fin. statement	27.9	69.7	41.9***
<i>Outcomes and costs</i>			
Annual sales (Birr)	2,816,588	7,858,134	5,041,546*
Annual labor cost (Birr)	122,647	239,080	116432.6**

Source: Authors' calculations based on the data of the 2012 World Bank Enterprise Survey of Ethiopia.

Note: *, **, *** denote 10%, 5%, and 1% significance levels, respectively.

Figure 2 presents results for the sales distributions by MSEs with less than 20 employees according to the enterprise characteristics. Figure 2a shows that almost the entire probability density function shifts to the right for MSEs operating under a government contract relative to those without such contract. At higher sales ranges, registered firms outperformed unregistered ones (Figure 2b).

Figures 2c and 2d examine the internal operating environment of the micro and small firms. Enterprises which experienced power outages posted lower annual sales than firms without outages throughout most of the sales range except the very low and high annual sale ranges (Figure 2c). However, none of the entrepreneurs reported that they have not experienced power outages reported very high sales, suggesting that other factors impact sales of the best performing firms.²¹ In contrast, firms with a website achieved higher sales than firms without website throughout the entire sales range (Figure 2d). This can be in part due to sector differences (discussed below).

Enterprise characteristics such as education of the top manager or access to loan also impact performance. Firms where the top manager had higher education outperformed firms with less educated managers for most of the sales range, except the highest sales. Firms where owners did not use personal loans for business recorded higher sales than those that did (Figures 2e and 2f).

²¹ An alternative explanation could be that firms with higher sales consume more electricity and hence are more likely experience power shortages. The issue can be examined in further research.

Figure 2. Obstacles to operations, MSE characteristics and estimates of sales in Addis Ababa

Figure 2a. Type of contract

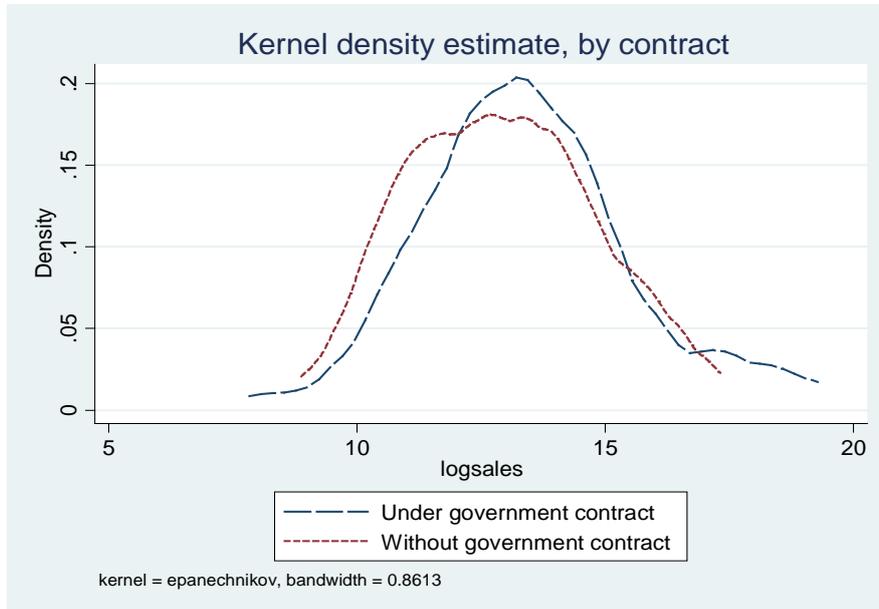


Figure 2b. Registration

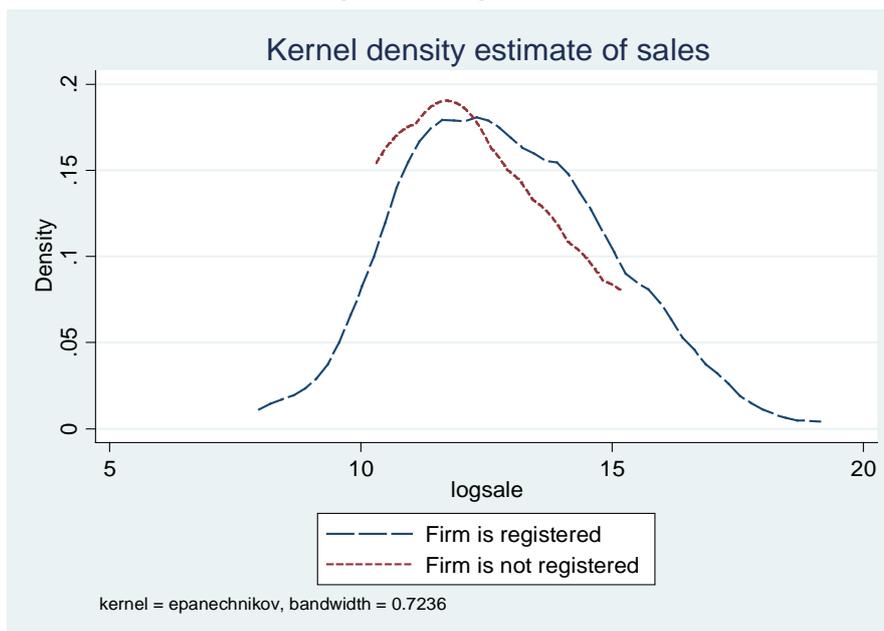


Figure 2c. Power outages

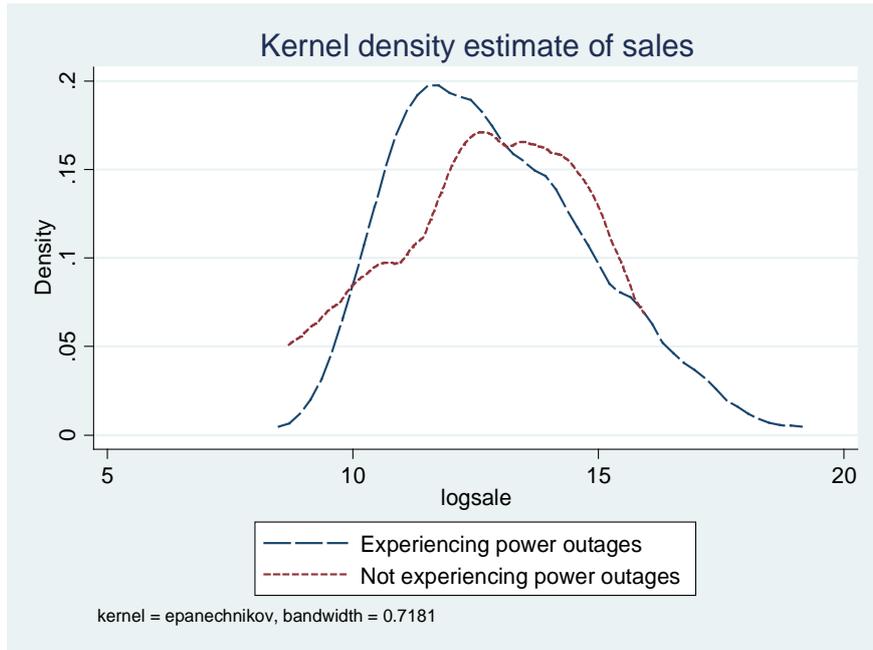


Figure 2d. Website

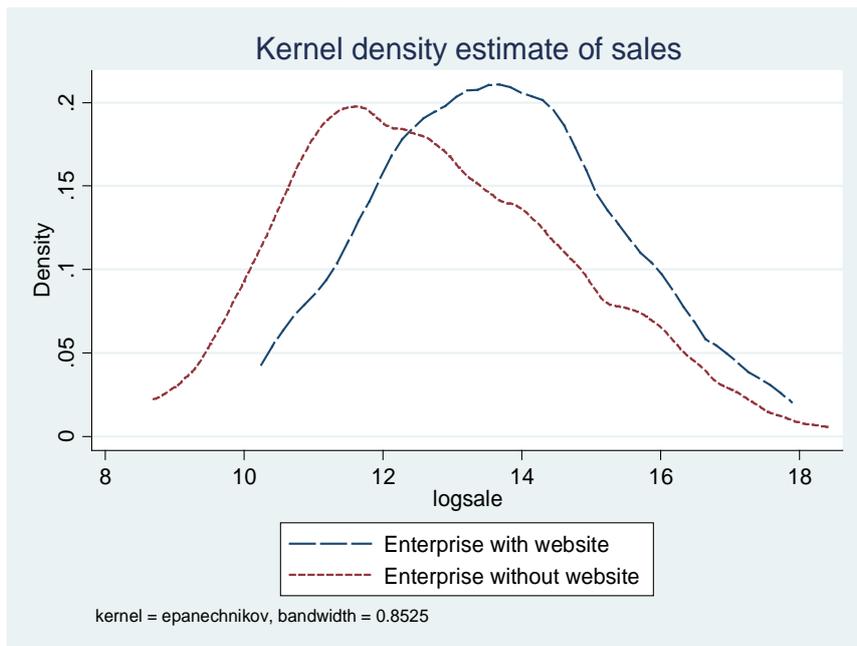


Figure 2e. Education of manager

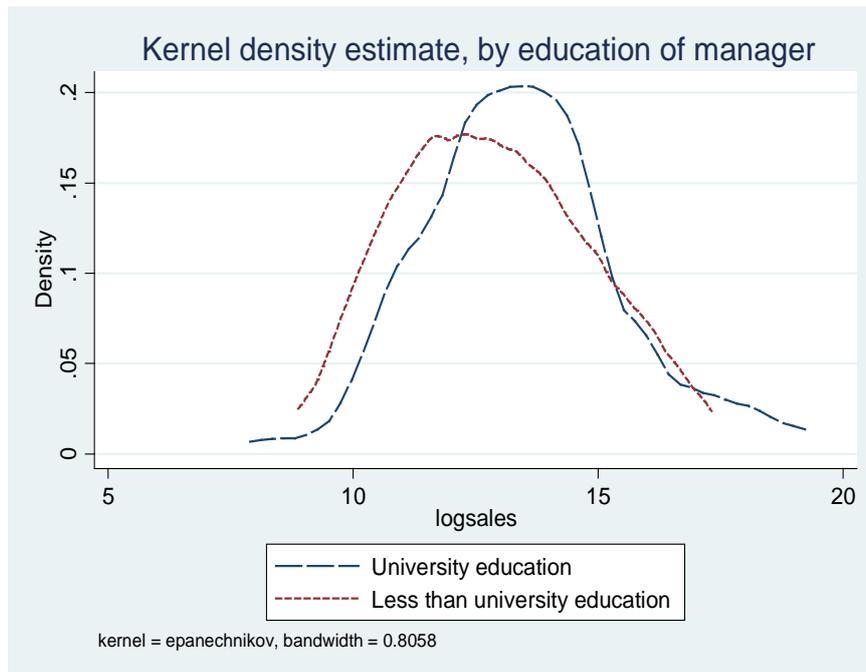
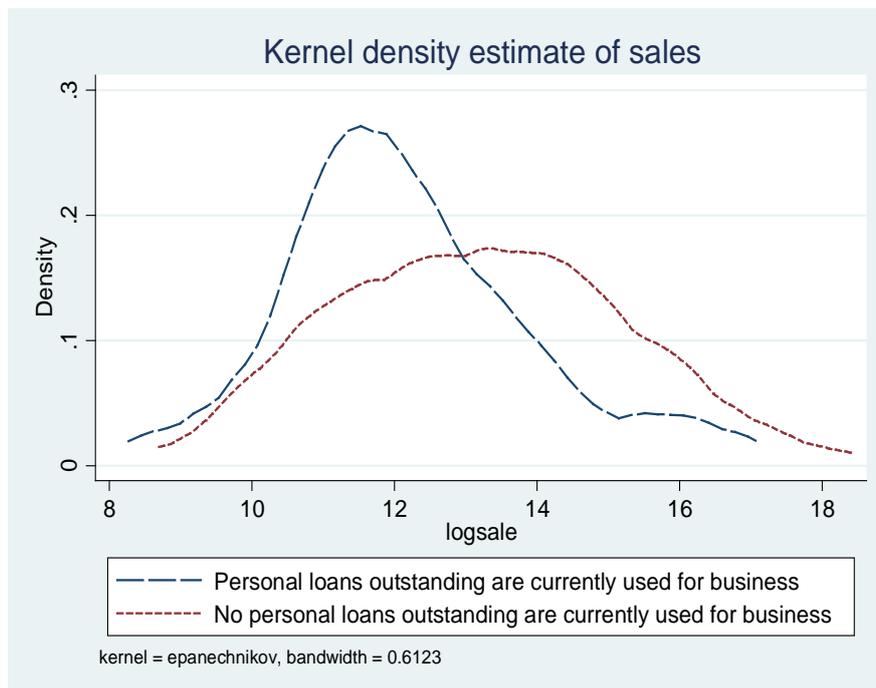


Figure 2f. Personal loan financing



Source: Authors' calculations based on the World Bank Enterprise Survey of Ethiopia (Addis Ababa, 2011). Note: Enterprises with less than 20 employees are included in the graphs.

Figure 3. Perceived obstacles to operations and estimates of sales in Addis Ababa

Figure 3a. Tax administration

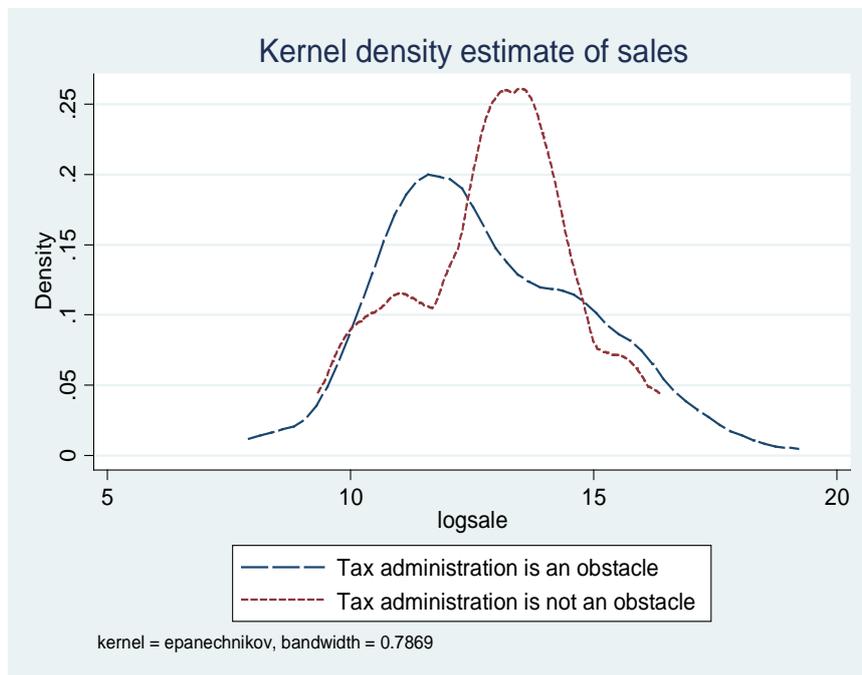


Figure 3b. Access to land

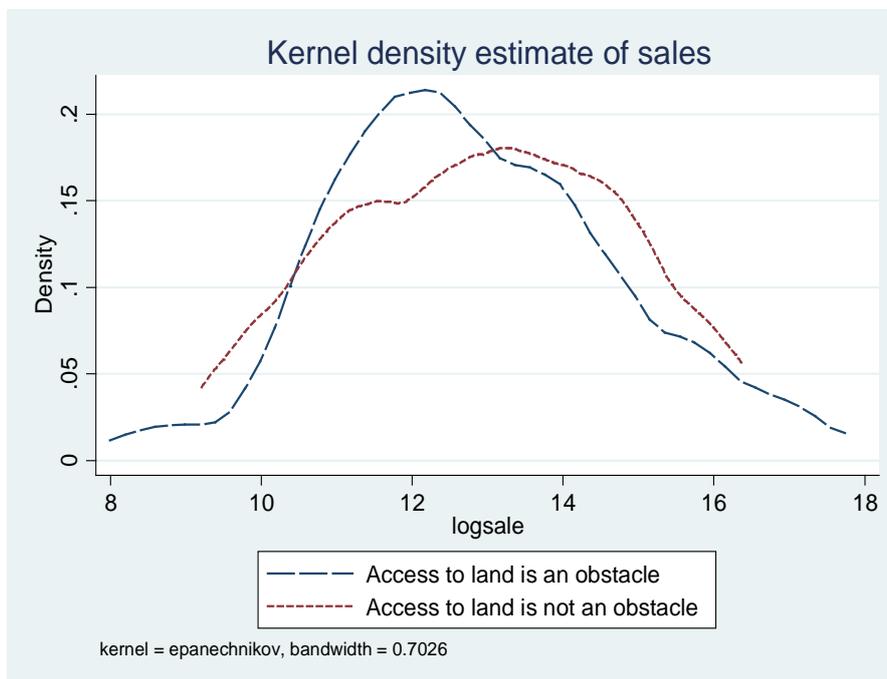


Figure 3c. Access to finance

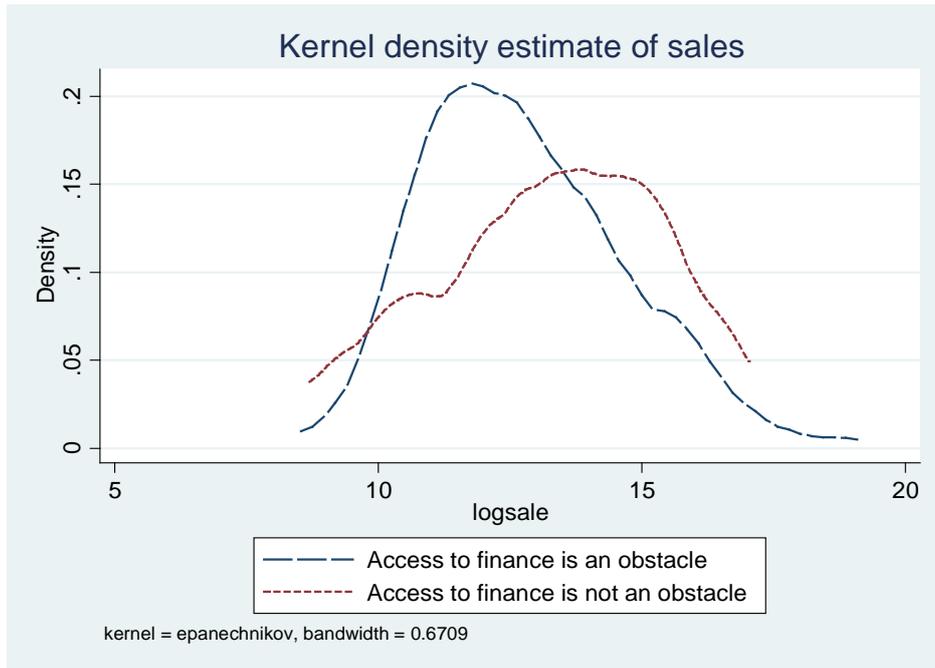


Figure 3d. Access to electricity

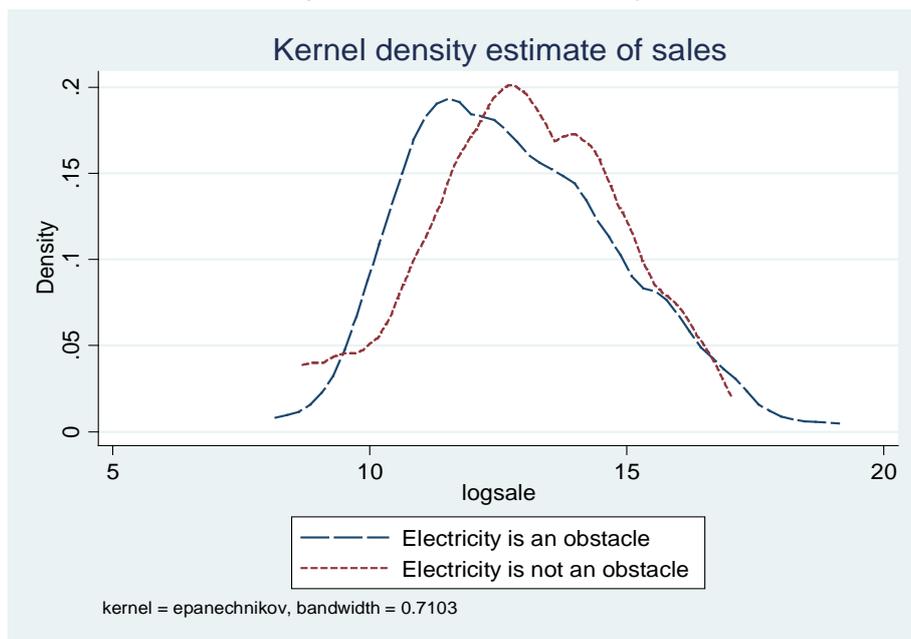


Figure 3e. Obtaining license

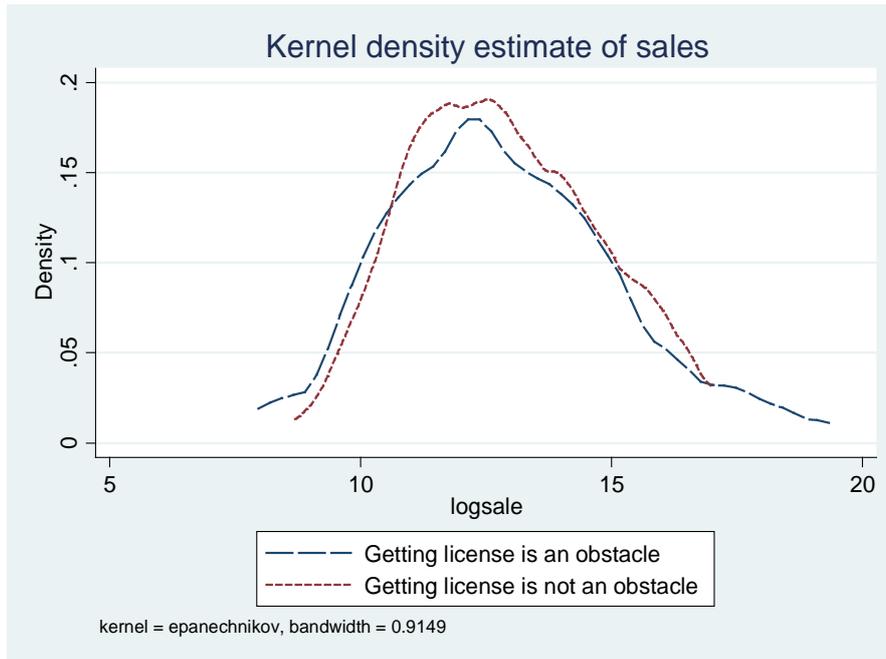
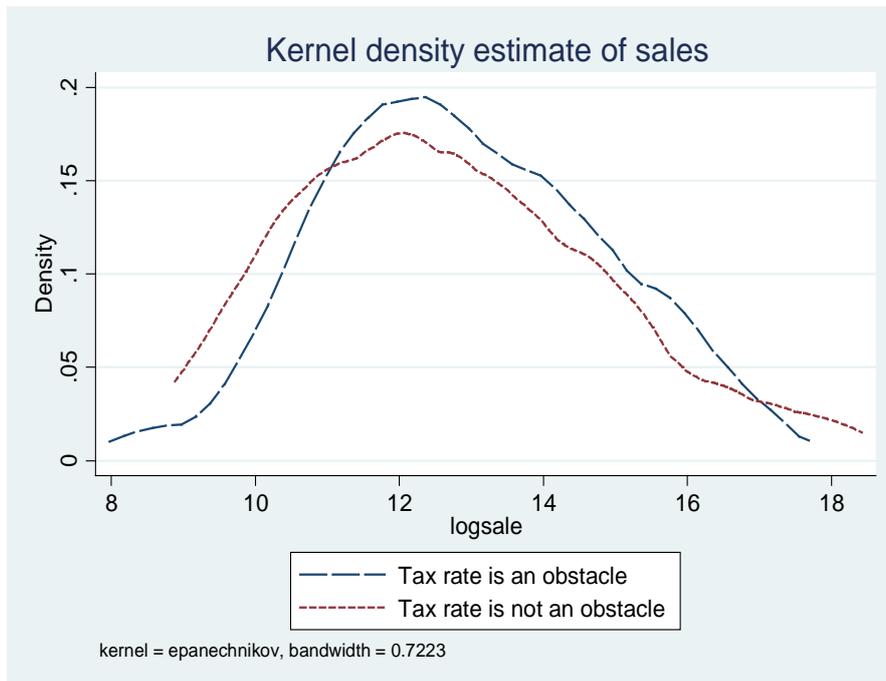


Figure 3f. Tax rates



Source: Authors' calculations based on the World Bank Enterprise Survey of Ethiopia (Addis Ababa, 2011). Note: Only enterprises with less than 20 employees are included in the graphs.

Among various business environment impediments, more than one out of five firms reported the access to finance to be the most serious obstacle to their operations, followed by tax rates (one out of five firms) as well as the availability of electricity and barriers to trade (almost one out of ten firms). Figure 3 shows the association between perceptions of MSEs on obstacles and the actual sales.

Firms that perceived factors in the business environment such as access to land, electricity, finance and tax administration as an impediment to their operations typically posted lower sales than those who did not perceive such obstacles (Figure 3a – 3d). The important exceptions are the highest sales ranges where firms noted obstacles but posted highest sales regardless. Other factors in the business environment thus seem to be driving the best performers. Further, obtaining the business license matters only at the very high sales ranges; in the lower ranges the sales are almost identical between firms that perceived getting license as a challenge operations and those who did not (Figure 3e). Finally, and perhaps not surprisingly, MSEs that viewed tax rates as an obstacle to operations reached higher sales through most of the sales range except its highest end (Figure 3f).

Results of the OLS regression estimations

This section tests if the enterprise characteristics or the business environment remain significant for firm performance (e.g., sales) in a multivariate OLS regression. The baseline model links the log of sales to characteristics of the firm such as the year when the firm registered, number of its employees, education of its workers and the top manager, gender of the manager, whether the firm works under the government contract and whether personal loan of the owner are used to fund business. Sales are also linked with the actual and perceived business environment, such as frequency of power outages, availability of credit. As one of the robustness checks, we also looked at the role of corruption, telecommunications and the combination of the two.

The findings are that sales performance of micro and small enterprises is positively related to the size of the firm (number of employees) and the level of education of its workers. For these variables, the coefficient estimates are positive and statistically significant in the baseline model and the version which tests whether corruption and inadequate telecommunications are perceived as an obstacle, weighted and un-weighted estimates (Table 8). Among the business environment factors, sales are negatively associated with the limited supply of credit and power outages.

The sales performance is also positively correlated with the higher education of the owners (Table 8, Columns 1 and 3). However, since the sampling design was stratified, un-weighted estimates can be biased, while the unbiased estimates were not statistically significant.²² Coefficients for government contract are negative and statistically significant under the weighted estimates (Columns 2 and 4), pointing to negative association between these contracts and firm performance.

Firms that perceived both corruption and the lack of telecommunication services as an obstacle to operations reported lower sales than firms that perceived either only one or none of these factors as an obstacle (Table 8). According to a recent World Bank report, telecommunications is a sector particularly challenged by corruption, due to the lack of accountability and its monopolization by the Ethiopian Telecommunication Corporation (Plummer, 2012).

In Ethiopia, these observations bode for further improvements in the business environment, especially the infrastructure (electricity) and access to credit. Tackling the corruption in the telecommunications could also facilitate entrepreneurial productivity. Other elements and broader reforms to create an ‘enabling entrepreneurship conditions’ also need to be in place. These include macroeconomic and political stability, access to credit, and an educational system that would instill

²² The strata used in the sample encompass three dimensions: region of the establishment, industry screener sector, screener size. See <http://www.enterprisesurveys.org/nada/index.php/catalog/323/sampling> . Under stratified random sampling, un-weighted estimates are biased unless sample sizes are proportional to the size of each stratum. Columns 2 and 4 of Table 8 account for this sampling issue by weighting individual observations by the inverse of the weights, accounting for the fact that the different enterprises have different chances of being included in the sample.

entrepreneurial attitudes from early on. As shown in the model and empirical evidence, education programs for entrepreneurs and workers, together with improvements in the infrastructure, credit and support for entrepreneurial search, are likely to stimulate entrepreneurial start-ups.

Table 8. Firms' performance and the business environment in Addis Ababa

Variables	(1)	(2)	(3)	(4)
Year of formal registration	-0.0723** (0.0301)	-0.0573*** (0.0194)	-0.0760** (0.0295)	-0.0497** (0.0209)
Number Of full-time employees	0.202** (0.0855)	0.441*** (0.102)	0.174** (0.0842)	0.419*** (0.117)
Share by the largest owner(s)	0.00200 (0.00911)	-0.00238 (0.0123)	0.00118 (0.00893)	-0.00313 (0.00976)
Experiencing power outages	-1.013* (0.554)	-1.515* (0.733)	-1.571** (0.606)	-2.320** (0.984)
University education-largest owner	1.199** (0.545)	1.052 (1.332)	1.272** (0.524)	1.671 (1.455)
Education as obstacle	0.487 (0.344)	0.256 (0.239)	0.978** (0.424)	0.645** (0.255)
Educated full time workers	0.0170** (0.00681)	0.0278*** (0.00501)	0.0205*** (0.00669)	0.0269*** (0.00431)
Top manager is female (=1)	-0.0275 (0.718)	-0.765* (0.405)	-0.722 (0.744)	-1.300* (0.617)
Outstanding personal loans	0.948 (0.600)	0.526* (0.247)	1.313** (0.598)	0.745*** (0.213)
Supply of credit	-0.0378* (0.0190)	-0.0596*** (0.0144)	-0.0400** (0.0187)	-0.0643*** (0.0160)
Government contracts	-0.427 (0.598)	-1.071* (0.523)	-0.334 (0.595)	-0.852** (0.345)
Corruption as an obstacle			0.662 (0.761)	0.189 (1.034)
Telecommunication as an obstacle			0.766 (0.675)	0.882 (0.863)
Corruption* telec			-2.632** (1.095)	-2.296* (1.249)
Constant	155.8** (60.98)	127.3*** (39.40)	162.8*** (59.77)	112.4** (42.62)
Observations	54	54	54	54
R-square	0.484	0.642	0.561	0.707
Weights	No	Median cell weights	No	Median cell weights
Normality test (adj. Chi 2)	0.28	2.16	0.36	2.88
Multicollinearity (Mean VIF)	1.27	1.60	1.86	3.03
Specification test : p-values				
Predicted(Log(Sales))	0.708	0.983	0.752	0.893
[Predicted(Log(Sales))]²	0.355	0.524	0.326	0.317

Source: Authors' calculations based on the World Bank Enterprise Survey of Ethiopia (Addis Ababa, 2011). Note: Enterprises with less than 20 employees are included in the graphs. Note: VIF stands for variance inflation factor. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5. Conclusions

This paper first presented several stylized facts about Ethiopia's growth, underscoring that the impressive rate may not be sustainable unless the future growth is more broad-based and private sector-led. High-value added entrepreneurship in particular could play a greater role in raising the economy's output and productivity. Utilizing the World Bank Doing Business Reports, Global Entrepreneurship Monitor Reports and the World Bank 2011 Enterprise Survey of Ethiopia, among other sources, the paper also documented some of the main obstacles that Ethiopian entrepreneurs face, especially at the start-up stage.

Reflecting these facts, we developed a model of entrepreneurial start-ups where an equilibrium outcome could be a low-skill, low-productivity trap. We showed that an improved business environment could foster creation of high-productivity private firms, leading to increased aggregate output and employment, provided that the improvements in the business environment are sufficiently large and other key gaps addressed.

In Ethiopia, firms that perceived their business environment to be without business environment obstacles (land, credit, tax administration and electricity) outperformed their counterparts exposed to such obstacles throughout most of the sales ranges, except for the highest ones. This indicates that factors other than the business environment alone impact the firm performance and should be studied further. Higher education among workers and firm size were also found to impact positively firm sales performance, while the presence of government contract would diminish it. In sum, the empirical analysis illustrated the role of the business environment, in particular infrastructure/access to electricity, access to credit and reducing corruption in telecommunication sector, for fostering productive entrepreneurship.

Many African countries would benefit from addressing the remaining obstacles to private sector activities, such as high costs of starting a business, weak property rights, burdensome profit tax rates, unstable tax regimes, and limited access to finance. In the case of high-tech SMEs, skill shortages among entrepreneurs and workers may need to be tackled to foster innovation and high value-added activities. Stronger institutions, including business service providers and those channeling information about business and funding opportunities would also encourage productive entrepreneurship. These and other constraints to entrepreneurship in various African regions, countries, and sectors could be a topic for further research.

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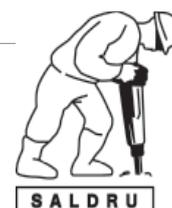
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southern africa labour and development research unit

The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.



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