This paper is a draft submission to the

Inclusive Growth in Africa:
Measurement, Causes, and Consequences

20–21 September 2013 Helsinki, Finland

This is a draft version of a conference paper submitted for presentation at UNU-WIDER’s conference, held in Helsinki on 20–21 September 2013. This is not a formal publication of UNU-WIDER and may reflect work-in-progress.

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Youth Entrepreneurship in Africa: Policy Analysis and Evidence from Swaziland

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With youth unemployment remaining a major challenge in Africa, the continent’s policy makers are increasingly turning to youth entrepreneurship as a part of the solution. Evidence points to numerous constraints to productive business start-ups by youth in Africa, with the lack of entrepreneurial skills and start-up capital as key. This paper develops a model where due to these constraints young entrepreneurs have more difficulties turning their ideas into businesses than adults. We show how targeted support to start-up finance and training can narrow the entrepreneurial activity gap between the two groups. Results are tested on data from a new survey of entrepreneurs in Swaziland. The paper concludes with international experiences on youth entrepreneurship policies that can inform design and implementation of such interventions.

JEL classification: J11, J08, L26, O11

Key words: youth entrepreneurship, model of skills and structural transformation, policies, Africa

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1. Introduction

For the past decade, the middle income countries in Southern Africa (e.g., Botswana, Lesotho, Namibia, South Africa and Swaziland) have been among the less growing economies on the continent. Further, Swaziland, South Africa and Botswana were among 10 least growing in Sub-Saharan Africa in the past five years. With unemployment around or above 20 percent of the labor force and even higher youth unemployment, inclusive growth in these countries remains elusive (African Development Bank et. al., 2013; Ncube et al., 2013; Brixiová and Kangoye, 2013). Despite oversized public sectors, overall employment rates are low, reflecting limited private sector job creation and entrepreneurship, both in the formal and informal sector.  

The middle income countries in Southern Africa were also hit fairly heavily by the global financial crisis, through close trade ties with Europe – directly (such as South Africa) or via South Africa (as in Lesotho and Swaziland) – or trough drops in commodity export proceeds (Botswana, Namibia). In Swaziland, the labor markets were a key channel in transmitting the fiscal crisis to households via reduced public employment or SMEs. A nationally representative survey carried out in Swaziland in November 2011 found that 7.3% of households had at least one member who lost job during 2011 fiscal crisis (UN Swaziland, 2012).

With the current tight fiscal conditions, new jobs in the region are unlikely to come from the public sector. Policy makers are thus once again turning to entrepreneurship to generate jobs for youth. Among numerous obstacles to youth entrepreneurship, evidence points to shortages of start-up capital and skills as key. Governments in the regions have already undertaken some measures to address them. For example, in South Africa, the National Youth Development Agency and Intel aim at equipping young entrepreneurs with skills and motivation to facilitate firm start-ups and growth. In Swaziland, the government established the Youth Enterprise Fund, to provide start-up business capital for youth. While such initiatives are in the right direction, they would need to be significantly scaled up and linked with better incentives to help address youth unemployment.

This paper aims to analyse policies to overcome the main obstacles to youth entrepreneurship in Swaziland, with implication for other African countries. The paper first documents the youth employment challenge in Africa and provides evidence on key constraints to youth business start-ups. These include the lack of entrepreneurial skills, the limited start-up capital, and poor tailoring of entrepreneurship programs to youth needs. The paper then presents a model of high productivity start-ups, where young entrepreneurs have less start-up capital and business skills than adults. Policies aimed at overcoming these constraints, such as youth entrepreneurship training and start-up subsidies, are examined. Finally, the paper tests results of the model with data from a recent survey on constraints to youth entrepreneurship in Swaziland.

This research takes place at the time of heightened interest among African policymakers and academics to unlock the potential of entrepreneurship to improve prospects for decent employment for youth. Relative to the literature on youth entrepreneurship in Africa, our work adds value in three aspects. First, it highlights challenges in Southern Africa – a region with the highest youth unemployment rates on the continent. Second, extending the framework of

2 The high HIV rates and widespread poverty are also major social challenges.
Brixiová et al. (2009) and Brixiová (2013) for entrepreneurial skill shortages, we develop a model of key constraints to youth entrepreneurship and suggest ways to overcome them. Third, the model is tested on a recent survey of youth entrepreneurship from the region.

The paper is organized as follows. Section 2 outlines the main characteristics of the youth employment challenges in Southern Africa and elsewhere on the continent. Constraints to youth entrepreneurship also presented in this Section. Section 3 then develops model of structural change and entrepreneurship, with focus on shortages of skills and start-up capital. Section 4 looks into possible policies to address the youth disadvantages in business start-ups such as government support for training and start-up capital. Section 5 tests the results of the model with data from Swaziland. Results are compared with experiences of other countries that implemented youth entrepreneurship interventions. Conclusions are in Section 6.

2. Evidence on youth labor markets and entrepreneurship in Southern Africa

2.1 Demographic trends and labor markets in Southern Africa

For the purpose of this paper, which looks into constraints to youth entrepreneurship, we define youth as population aged 15 -35. This broader definition of youth is more relevant for our study than the standard ILO definition (ages 15 – 24), since in the region productive entrepreneurship is rare among people younger than 20 years but more common among the 25 – 35 age group.

Utilizing the standard (ILO) definition, the share of young people in the working age population (15 – 64) in 2010 ranged from 30% in South African to 43% in Swaziland (Figure 1a, Annex I). The potential demographic dividend is shown by falling dependency ratios (Figure 1b, Annex I). Figure 1 below reveals that in all Southern African countries youth defined as 15 – 35 years exceeds 50% of the working age population and in Swaziland and Lesotho it amounts to more than 2/3 of population.

Currently, large shares of the labor force in Southern Africa middle income countries, and their young populations, are underutilized. For example, youth unemployment rate is higher in South Africa, Swaziland and Namibia, which exceeds 40% of the labor force, is higher than anywhere else in Africa (Figure 2 and Table 1, Annex). In some countries a substantial portion of youth has been discouraged from participating in the labor market, resulting in low employment rates. The labor markets deteriorated further in the aftermath of the fiscal crisis of 2011.

Figure 1. Share of youth (15 – 34) in working age population in Southern Africa

Source: Authors’ calculations based on UN population statistics.
**Figure 2. Factors of entrepreneurship in developing countries**

**Figure 2a.** New firm entry and quality of regulations, 2004 - 2011

![Graph showing the relationship between new firm entry and quality of regulations.](image)

**Figure 2b.** New firm entry and cost of start-ups, 2004 - 2011

![Graph showing the relationship between new firm entry and cost of start-ups.](image)

**Figure 2c.** Innovation and education index, 2012

![Graph showing the relationship between innovation and education index.](image)

**Source:** Authors’ calculations based on the World Bank Doing Business, KAM, Entrepreneurship and Governance databases.
2.2 Factors and constraints to productive entrepreneurship

Numerous factors constrain start-up entrepreneurship across developing countries. Besides well-studied access to credit for established SMEs, key among them appear to be regulatory framework and the business environment, start-up capital and entrepreneurial skills (Figure 2). In Southern Africa, the existing SMEs viewed access to finance as the top constraint, followed by crime and corruption. Workforce skills were also viewed as important, constituting a major constraint for more than 16% of SME respondents (Figure 3).

Figure 3. Constraints to entrepreneurship in Southern Africa (% of respondents)


2.3 Studies on constraints to youth entrepreneurship

With relatively weak growth prospects of the middle income countries in Southern Africa and especially in Swaziland, solutions to youth labor market challenge that rely mostly on the supply side without stimulating demand for workers will not be effective. While entrepreneurship alone cannot tackle youth employment challenge, it can be an important part of the response. We now summarize the main constraints faced by young entrepreneurs in Africa.

Schoof (2006) examined a range of key constraints that impede young people in different countries, mostly in Sub-Saharan Africa, from starting a successful business, while also identifying incentives and measures to tackle these barriers. The study confirms the need to differentiate between youth and adult entrepreneurship, stemming from unique constraints and greater barriers that young people face as a result of their limited resources as well as life and work experiences. Entrepreneurial education, access to start-up capital and business provider services were found among the key factors impacting youth entrepreneurship, alongside societal attitudes and a regulatory framework. The importance of capacity building, along with societal attitudes towards youth entrepreneurship, was underscored in the ILO report by Chigunta et al. (2005), which looked into constraints to youth entrepreneurship in Eastern and Southern Africa.
2.4 Findings from focus group discussions

During September – December 2012 UNDP Swaziland undertook focus group discussions (FGDs) with young Swazi entrepreneurs, to capture their views on constraints. The participants were also asked to provide solutions to challenges they identified. Opinions on how to create enabling entrepreneurship framework conditions, especially for youth, were sought.

The FGDs were a qualitative exercise, carried out with active and potential young entrepreneurs. Students of Entrepreneurship courses at the University of Swaziland (UNISWA) were included. Interviews with key stakeholders in the public sector (e.g., Ministry of Economic Planning and Development; Ministry of Commerce, Trade and Industry, and Youth Enterprise Fund, FINCORP), the private sector (e.g., NedBank, FINCORP) and NGOs (e.g., TechnoServe) were also carried out to triangulate the dialogue.\(^3\) While the results of the FGDs are not representative but only indicative, they provide useful in-depth insights.

The FGDs pointed out to the lack of involvement of youth in the economic activities, including in the design of training programs, as a key bottleneck to entrepreneurship for this age group. Young people were concerned about not having a say in policies geared towards ‘promoting’ their economic interests, including entrepreneurship. This is in part due to traditional decision-making structures, which exclude youth. As a result, economic development programs for youth have limited effectiveness and often fail to meet young people’s needs.

A weak business environment was another key factor impeding youth entrepreneurship. Young people perceived the business environment as unfriendly because of heavy administrative procedures and the lack of transparency. During the discussions, it became apparent that barriers in the business entrepreneurs impact youth disproportionally because of their lack of experience in overcoming them and the limited links to professional networks. Further on the business environment, the limited access to finance for start-up capital, which reflects young people’s limited assets for collateral and the absence of financial history, impacts Swazi youth severely.\(^4\)

The lack of skills in identifying business opportunities and turning them into firms was voiced as a top barrier – alongside finance – by young entrepreneurs. Young people also lack the relevant work experience (e.g., sectoral, managerial). Students of entrepreneurship from the UNISWA thought that the entrepreneurship classes they took put too much emphasis on concepts, while not equipping them with the ‘know-how’ to start and run a business.\(^5\) The FGD participants suggested that training programs should go beyond business plan preparation. The programs should also foster linkages of youth to business service providers and entrepreneurship networks.

Networking was seen as critical for entering sectors beyond those in ‘low entry barriers/high competition.’ Providing information on potential business opportunities was also high on the priority

\(^3\) The methodology underpinning the FGDs and their detailed findings are in UNDP Swaziland (2012). The FGD results were supplemented by findings from the quantitative survey to undertaken in November – December 2012.

\(^4\) Methods such as use of psychometrics (as applied by the Standard Bank in number of other African countries) or biometrics (as utilized by the financial sector in Malawi) have so far not been widely applied in Swaziland.

\(^5\) Moreover, most of them also did not encounter any entrepreneurship classes at lower educational levels.
list. Moreover, youth emphasized that in Swaziland supportive infrastructure such as incubators for youth business ideas still needs to be developed.

In sum, the findings of the FGDs confirmed the gap in entrepreneurial skills and training programs to be a critical hindrance for youth business start-ups, alongside the lack of the initial capital.

2.4 Policies towards youth entrepreneurship

Policies in Swaziland

Recognizing the need to support youth entrepreneurship, in 2009 the Government of Swaziland established the Youth Enterprise Fund (YEF) to provide training and start-up capital for emerging young entrepreneurs. The YEF distributed E 5.8 million (580,000 euros) to about 800 young entrepreneurs in 2010 and another E2 million (200,000 euros) to 200 entrepreneurs in 2011.\(^6\) Still, while this initiative is a step in the right direction, substantial scaling up would be required for it to achieve meaningful reduction in youth unemployment. The 2011 fiscal crisis that Swaziland experienced has undermined the YEF financing with low repayment rates by recipients of start-up grants and inadequate support from the government. The low repayment rates were mostly a result of disbursed funds not being adequately monitored and of weaknesses in the YEF’s business proposal assessment process. Creating a viable recapitalization strategy for the YEF would reduce the Fund’s dependence on unstable Government financing (UN Swaziland, 2013).

*TechnoServe Swaziland*, NGOs supporting entrepreneurship, provides youth with training, mentoring, and networking as well as seed capital. Since access to credit is a key obstacle for young entrepreneurs in Swaziland who lack collateral and are considered ‘higher risk’ because of their limited business experience, TechnoServe launched a loan guarantee facility that was taken up by Standard Bank and Nedbank Swaziland. More recently, the Nedbank extended credit under the Central Bank of Swaziland guarantee scheme, conditional on training from the Swazi Small Enterprise Development Company. As TechnoServe, Junior Achievement Swaziland (*JASD*) focuses on capacity development of potential young entrepreneurs. The JASD conducts courses for high school students on entrepreneurship and financial literacy, drawing on partners from the private sector, education institutions and the Government. As the demand for the JASD courses has been rising, the Ministry of Education and its National Curriculum Committee aim to increase the share of entrepreneurial courses in the curriculum.

While the above initiatives play a catalytic role, their small size and budgets as well as fragmentation limit their effectiveness. Swaziland still needs to develop a comprehensive youth employment and entrepreneurship strategy on how to integrate effectively young people into the labor market.

International experience with youth entrepreneurship interventions

International experiences show that youth entrepreneurship training programs and start-up subsidies can form successful government interventions, provided that necessary preconditions (e.g. time limit, targeting) are in place.

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\(^6\) No collateral is required. Young entrepreneurs have up to 3 months to start their business upon receiving the funds; they have to repay loans within 24 months. Interest rate is about 10%, well below the commercial rates.
Depending on the goals of the program, the youth interventions can target vulnerable youth (e.g., in rural areas, from low income families) or high potential youth. Puerto (2007) reviewed 289 studies on youth employment interventions for vulnerable youth in countries across the world and found that interventions focused mostly on the supply side of the labor market. While systematic evaluations of programs targeting the demand side of the labor market, especially youth entrepreneurship, are limited, examples of what has worked include:

- **Project Baobab in Kenya** targeted low income youth (mostly females) in rural areas and provides them with basic business skills in entrepreneurship and those submitting promising business proposals also receive small start-up grants. 2007 evaluation showed that between 2000 and 2004 about 50 percent of youth who received the start-up grant were running business with good-to-marginal success.

- **Jua Kali Voucher Program in Kenya** was administered as a pilot program by the SME training and technology project in the late 1990s – early 2000s. Under this program, almost 40,000 vouchers were issued to entrepreneurs and employees in SME with employment below 50 workers. The scheme boosted employment and business for participating enterprises, but the subsidization was challenging to phase out.

- **Self-employment program in Bulgaria** showed increases in employment for high-potential youth, that is highly educated and with short spells of unemployment. However, cost-effectiveness of these programs needs to be further explored.

- **Young micro entrepreneurs’ qualification program in Peru** aimed to counteract significant skill shortages among youth entrepreneurs. The training focused on developing business plans and the creation of profitable businesses. The program led to 8 percent increase in entrepreneurs’ likelihood to operate business and 8 percent increase in their average income over the short term; a follow up evaluation is needed.

- **Youth promotion project in Bosnia and Herzegovina**, which raised attractiveness of agribusiness entrepreneurship for youth and reduced pressures for rural-urban migration. The project offered training in selected agricultural fields and fostered the establishment of small farms. It may be of particular interest to Swazi policymakers, as it encourages youth to work in agriculture and in general promotes the agribusiness.

In sum, the marginal effects of entrepreneurship training programs for in developing countries can be substantial. In the next section, we develop a simple theoretical model reflecting these facts, conduct policy analysis and test the results on data from Swaziland.

### 3 The model and policy analysis

Reflecting the above facts, we develop a model of entrepreneurial start-ups in an economy with limited entrepreneurial skills, costly search for business opportunities and costly start up (i.e. requiring initial capital). We extend the frameworks of Snower (1996) for start-ups and modify models of Brixiová et al. (2009) and Brixiová (2013) for differences in the initial skill level and experience and differences in access to start-up capital between young and adult entrepreneurs.
This is a model of structural transformation, where both young and adult entrepreneurs face some shortages of skills, but these shortages are more pronounced among youth.\(^7\)

With their lack of work and entrepreneurial experience, weak links to professional networks, and limited start-up capital and access to credit, young entrepreneurs face higher cost than adults when searching for opportunities and turning them into businesses.\(^8\) For young entrepreneurs the skill shortages can be explained by the lack of experience while in the case of adults they reflect the need to move to a new productive sector.\(^9\) The model is applied to analyze policies to stimulate start-ups by subsidizing entrepreneurial training/search or start up. The efficiency–equity trade-offs involved in promoting youth vs. overall entrepreneurship are also examined.

Consider a one-period economy with the population size normalized to one. There are two types of agents, entrepreneurs and workers, with population shares \(\mu\) and \(1 - \mu\), respectively. Furthermore, a portion \(1 - p\) of both entrepreneurs and workers are adults and portion \(p\) are young people. All agents receive \(\bar{w}\) amount of consumption good, \(c\), from their domestic or informal sector production. They have risk neutral preferences in consumption \(E(c)\) where \(E\) denotes the expectations agents form at the beginning of the period about the income they will receive from their activities. Both young entrepreneurs and workers are ‘less skilled’ than their adult counterparts. Specifically, young entrepreneurs thus have more challenges to find viable business opportunities/turn them into firms than their adult counterparts. Similarly, because of the lack of work experience and education that does not fully correspond to demands of the private sector, young workers have fewer employable skills than adults.\(^10\)

At the beginning of the period, entrepreneurs search for opportunities to open firms and incur cost equal to \(d(x_i) = x_i^2 / 2\gamma_i\), where \(i = A, Y\) for adults and youth, respectively and \(\gamma\) is a search efficiency parameter that takes on two values: \(\gamma_Y\) for the young entrepreneurs (that is with probability \(p\)) and \(\gamma_A\) with probability \(1 - p\), where \(\gamma_A > \gamma_Y > 0\). The difference in search efficiency reflects the differences between young and adult entrepreneurs in their initial skill levels, with youth being less able to search for opportunities and turn them into firms than adults.\(^11\) The search results in probability \(x_i\), \(i = A, Y\) of opening a business, which – after paying start-up cost \(k\), then produces output \(y\) using \(n\) amount of labor as follows:

\[
y = \frac{1}{1 - \alpha} z^\alpha n^{1 - \alpha}
\]

where \(z\) is the business capital and \(\alpha\), \(0 < \alpha < 1\), is the share of capital in the output. With entrepreneurs paying workers a market-determined (competitive) wage \(w\), each entrepreneur

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\(^7\) By limiting the model to one period and focusing on skills, we abstract from inter-generational issues.

\(^8\) Because of the lack of experience, young workers are likely to have fewer employable skills than adults.

\(^9\) In the Swaziland context, due to the adjustment of the size of the public sector, the former public sector employees would need to gain new skills either to be employed or run their own firm in the private sector.

\(^10\) This assumption also reflects the mismatch that exists between the skills supplied by the current educational system and those demanded in the private sector, putting premium on work experience.

\(^11\) The model applies to other groups with skill or start-up capital disadvantage (e.g. women; people in rural areas).
running a firm earns profit amounting to \( \pi = \frac{1}{1-\alpha} z^\alpha n^{1-\alpha} - wn \). The market clearing condition for entrepreneurs is \( \mu = m + m_u \) where \( m \) is aggregate the number of entrepreneurs who run a business and \( m_u \) are entrepreneurs who did not find a business opportunity to open a business become self-employed in the informal sector and earn income \( b \).

At the beginning of the period, workers acquire skills for the private sector at a cost of \( k(q_i) = q_i^2/2\theta_i \), where \( i = A,Y \) while \( \theta \) again takes on two values: \( \theta_i \) for youth and \( \theta_A \) with probability \( 1-p \), with \( \theta_A > \theta_Y > 0 \). Workers’ learning efforts result in probability \( q_i \), \( i = A,Y \) of obtaining skills and job in the private sector at wage \( w \), which reflects their marginal product of labor. Denoting \( N \) as the total labor working in the private sector \( n \) (e.g., \( N = mn \)), the market clearing condition is \( 1-\mu = N + N_u \), where \( N_u \) are the unemployed.

3.1 Agents’ problem and the equilibrium

The entrepreneur of type \( i = Y,A \), where \( Y \) denotes young and \( A \) denotes adult, solves:

\[
\text{max } E(c_i) \\
\text{s.t. } c_i \leq \bar{w} + x_i(\pi - k) + (1-x_i)b - \frac{x_i^2}{2\gamma_i}
\]

Similarly, the worker of type \( i = Y,A \) solves:

\[
\text{max } E(c_i) \\
\text{s.t. } c_i \leq \bar{w} + q_iw - \frac{q_i^2}{2\theta_i}
\]

The equilibrium in this economy is defined as a wage rate and an allocation of workers and entrepreneurs such that (i) entrepreneurs and workers maximize their utilities (consumptions) and (ii) labor and output markets clear so that \( m = \mu \bar{x} \) and \( N = (1-\mu)\bar{q} \); where \( \bar{x} \) is the average search effort of entrepreneurs and \( \bar{q} \) is the average learning effort of workers.

3.2 Decentralized solution

Solving the utility maximization problems of workers and entrepreneurs and substituting from the labor market clearing condition \( N = mn \) yields:

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12 Disaggregating by age, \( m = m_Y + m_A \) and \( m_u = m_{uY} + m_{uA} \). Again, \( N = N_Y + N_A \) and \( N_u = N_{uY} + N_{uA} \).
\[
\bar{x} = \pi - k - b = \frac{\alpha}{1 - \alpha} \left[ \frac{(1-\mu)\bar{q}}{\mu k z} \right]^{1-\alpha} - k - b
\]  
(4)

\[
\frac{\bar{q}}{\bar{\theta}} = w = \left[ \frac{\mu k z}{(1-\mu)\bar{q}} \right]^a
\]  
(5)

where \( \bar{x} = px_i + (1-p)x_A \) is the average search effort and \( \bar{\theta} = p\gamma_i + (1-p)\gamma_A \) is the average search cost of young and adult entrepreneurs.\(^{13}\) The entrepreneurs’ marginal search effort for a business opportunity equals to net profits: \( x_i / \gamma_i = (\pi - b)_i, i = Y, A. \)

According to equation (4), in equilibrium the marginal cost of searching for business opportunities for an average entrepreneur equals the expected net marginal benefit from operating a firm (premium of the profit over the income in the informal sector). Similarly, equation (5) states that the marginal cost worker’s training effort equals the expected wage. Hence a lower number of searching entrepreneurs reduces also the expected wage and thus discourages workers to acquire skills needed in the private sector.

As equation (4) shows, the searching effort of entrepreneurs is positively related to the search efficiency parameter, \( \gamma_i, i=Y,A. \) Entrepreneurs with higher searching costs (lower efficiency) put less effort into finding business opportunities and are more likely to work in the informal sector. Conversely, when search for opening businesses is less costly (or subsidized, as discussed below), entrepreneurs will increase their search effort (\( x \) rises with \( \gamma \)). The resulting higher private sector wage (Equation 5) increases incentives of workers to retrain for the ‘good’ (high paying and secure) jobs in the private sector, raising employment.

### 3.3 Standard optimal solution

The standard approach to derive the optimal solution is to maximize utility derived from consumption (in this case from maximizing output) by solving the social planner’s problem:\(^{14}\)

\[
\text{Max } \left( m \left[ \frac{z^\alpha}{[1-\alpha]} \right] n^{1-\alpha} - mk - \mu \frac{\bar{x}^2}{2\bar{\theta}} - (1-\mu) \frac{\bar{q}^2}{2\bar{\theta}} \right)
\]  
(6)

s.t. \( m = \mu \bar{x} \); \( n = \frac{(1-\mu)\bar{q}}{\mu \bar{x}} \); \( 0 < \bar{x}, \bar{q} < 1 \)

In solution to (6), the condition for optimal effort by workers to acquire skills remains identical to (5), but (4) now changes to:

\[^{13}\] \( \bar{q} = pq_y + (1-p)q_A \) is the average learning effort and \( \bar{\theta} = p\theta_y + (1-p)\theta_A \) is the average learning cost.

\[^{14}\] In the past, in practice the focus on welfare maximization through raising consumption/output has often manifested itself by policymakers’ focus on high growth. This approach, which does not take into account inequality and hence inclusiveness or sustainability, can be problematic, as discussed below.
\[
\frac{x}{\bar{p}} = \pi - k = \frac{\alpha}{1 - \alpha} \left[ \frac{(1 - \mu)q \bar{z}}{\mu \bar{z}} \right]^{1 - \alpha} - k
\] (7)

From (4) and (7), the solution to the social planner’s problem and in the decentralized economy would be identical if \( b = 0 \). However, with a positive level of income from the informal sector \( b > 0 \) as in the benchmark decentralized case, incentives for entrepreneurs to search for business opportunities are reduced. This also lowers the equilibrium private sector employment relative to the outcome in the social planner’s problem (Figure 4).

**Figure 4.** Decentralized and social planner’s solution

![Graph showing decentralized and social planner’s solution](image)

Source: Authors’ calculations.

3.4 **Policies to stimulate entrepreneurship**

Subsidies to entrepreneurial search/start up

We now discuss how can policies such as *subsidizing the entrepreneurial search efforts* offset the disincentives created by the informal sector income. Specifically, we assume that entrepreneurs’ search is subsidized at a constant rate \( s \) (e.g., subsidy per entrepreneur takes form \( x, s \)). The entrepreneur of type \( i \) solves (8a) with solution being described by (8b) and (5):

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\(^{15}\) In fact, if the social planner would include output in the informal sector, \( b \), in the objective function, the decentralized and the optimal solutions would be identical. Not including \( b \) in the objective function is consistent with the goal to promote ‘good’ – high productive, secure and well-paid – jobs.
Equation (8b) shows that under the above forms of financing, the subsidy per worker could exactly offset the expected disincentive effect from the income in the informal sector, that is $s = b$. It is straightforward to show that financing the subsidy from profit taxation would be much less effective than for example consumption taxation, since higher profit tax rate would work in the opposite direction of the subsidy, offsetting its impact. In economies with severe shortages of productive entrepreneurship, such as Swaziland, tax base should be broadened and taxation should shift, where possible, to other sources away from firm profits.

Support to entrepreneurship training programs

The government can support entrepreneurship with training.\(^{16}\) Participation in such programs lowers entrepreneurs’ income from the informal sector by a fraction $\xi$ and also reduces the rate of search cost (or raises search efficiency) by a fraction $\sigma \in (0,1)$. With this type of support, the problem of an entrepreneur of type $i$ is described by (9a), while the solution is characterized by (9b) and again (5):

$$\max_{b<z<x} \left( \bar{w} + x_i (\pi - k) + (1 - x_i) b - \frac{x_i^2}{2\gamma_i} + sx_i \right); \quad i = Y, A$$  \hspace{1cm} (9a)

$$\frac{\bar{x}}{\bar{\gamma}} = (\pi - k - b + s) = \left\{ \frac{\alpha}{1 - \alpha} \left[ \frac{(1 - \mu) \bar{q}}{\mu \bar{\alpha} \bar{z}} \right]^{1 - \alpha} - k - (b - s) \right\}$$  \hspace{1cm} (9b)

Based on (9b), the increase in search efficiency resulting from entrepreneur’s participation in retraining programs amounting to $\sigma = \bar{\gamma} b / \bar{x}$ would offset the disincentives arising from the informal sector income. Again, effectiveness of this measure will depend on how the entrepreneurship training programs – if sponsored by the government – are being financed. Again, cuts in non-priority expenditures or increases in rates of less distortionary taxes (lump-sum, consumption) would be a preferred option to profit or income taxation.

\(^{16}\) Such programs are already ongoing in Swaziland, albeit on a small scale.
3.5 Considering equity between young and adult entrepreneurs

While the solution to the social planner’s problem maximizes the aggregate output and consumption, it does not take into account inequalities between young and adult entrepreneurs that may arise. These inequalities can constitute another reason for public interventions.\(^{17}\)

As already mentioned, in Swaziland and elsewhere, young people in most sectors (with the possible exception of high-tech sectors) are disadvantaged relative to adults when looking for entrepreneurial opportunities. To reflect this observation in our model, young people incur higher search cost for business opportunities than adults, that is \(0 < \gamma_Y < \gamma_A\). Subsequently, the solution to the decentralized problem characterized by (4) and (5) will result in a larger share – relative to the relevant labor force – of potential young entrepreneurs failing to find a suitable business opportunity than is the case for adult entrepreneurs \((m_Y < m_A)\).

When ‘optimal’ government policies target only output and thus output-maximizing solutions are adopted, the government would provide identical subsidy \(s=b\) to young and adult entrepreneurs or reduce their search cost by the same fraction \(\sigma\) through training. Under such measures, inequalities between the two groups would not be eliminated or even narrowed.

What **subsidies to entrepreneurial search** could then government provide so as to put search effort of youth on equal footing with that of adult entrepreneurs? Conditions (4) and (5) show that when the government subsidizes search of adult entrepreneurs by the amount \(b\), the equal search effort of young entrepreneurs would be achieved through subsidy to young entrepreneurs that exceeds \(b\), \(s_Y > b\), amounting to:

\[
s_Y = k + b + \frac{\gamma_A - \gamma_Y}{\gamma_Y}
\]

where \(s_Y > s_A = b > 0\) since \(\gamma_A > \gamma_Y\).

To ensure that the **government-sponsored entrepreneurial training programs** equalize search efforts of young and adult entrepreneurs, youth should be prioritized for the training, so that its efficiency of search converges to that of adults. The following condition needs to hold:

\[
\frac{\gamma_Y}{\gamma_A} = \frac{1 - \sigma_Y}{1 - \sigma_A}
\]

It follows from (11) that since \(\gamma_A > \gamma_Y\), the government needs to sponsor training for young entrepreneurs so that their search effectiveness rises more than that of adults: \(\sigma_Y > \sigma_A\).\(^{18}\)

---

\(^{17}\) Swaziland is one of the ten most unequal countries in Sub-Saharan Africa (measured by Gini coefficient).

\(^{18}\) Where possible, these government interventions should be financed through lump sum-like taxation (e.g., real estate) or with taxes on consumption (e.g., VAT).
3.6 Optimal solution with social costs of (youth) unemployment

Besides the standard form of the social planner’s problem described by (6), the optimal solution also depends on the objectives that the society sets for its sustainable development. When government policies target only output (or growth) and thus output-maximizing solutions are adopted, other priorities such as income distribution, low unemployment and inclusiveness can be compromised. However, high growth with widespread unemployment point to exclusive development path, which is typically not sustainable.

Protracted unemployment or idleness is taxing on young people and can lead to ‘scarring’, that is the impairment of their employment and income prospects through low wages; underemployment, and; low-pay-no-pay cycles, and the loss of human capital. Negative consequences of youth underutilization extend well-beyond economics. For example, social exclusion is an important negative consequence of youth unemployment and idleness. The young people miss out on critical life-skill building experiences such as applying their knowledge, developing a sense of own abilities autonomy as well as contributing meaningfully to society (Khumalo, 2011).

We now modify the objective function (6) to show a situation where the society experiences disutility from unemployment. The social planner’s objective function then changes to:

$$\max \left( m \left[ \frac{z^\alpha}{1-\alpha} n^{1-\alpha} - km - \frac{\bar{x}^2}{2\tilde{y}} - (1-\mu) \frac{\bar{q}^2}{2\tilde{\theta}} - \frac{A}{2} (\mu - \mu x)^2 \right] \right)$$

(12a)

s.t. $m = \mu \bar{x}$; $n = \frac{(1-\mu)\bar{q}}{\mu \bar{x}}$; $0 < \bar{x}, \bar{q} < 1$

where $\frac{A}{2} m_u^2 = \frac{A}{2} (\mu - \mu x)^2$ is cost of unemployment; with $m_u$ denoting entrepreneurs who did not find a productive business opportunity and are unemployed/in the informal sector. When the society assigns social costs to youth unemployment only, problem (12a) becomes:

$$\max \left( m \left[ \frac{z^\alpha}{1-\alpha} n^{1-\alpha} - km - \frac{\bar{x}^2}{2\tilde{y}} - (1-\mu) \frac{\bar{q}^2}{2\tilde{\theta}} - \frac{A}{2} (\mu - \mu x_y)^2 \right] \right)$$

(12b)

s.t. $m_y = p \mu x_y$; $m_A = (1-p) \mu x_A$ $n = \frac{(1-\mu)\bar{q}}{\mu \bar{x}}$; $0 < \bar{x}, \bar{q} < 1$; and $m = m_y + m_A$

Solution to (12a) is characterized again by (5), but (7) changes to:

$$\frac{\alpha}{1-\alpha} \left[ \frac{(1-\mu)\bar{q}}{\mu \bar{x} z} \right]^{-\alpha} - k = \frac{\bar{x}}{\tilde{y}} + A \mu^2 (x - 1)$$

(13)

Comparing (7) and (13) shows that since $x < 1$, the optimal entrepreneurial search is higher when the society accounts in this objectives for the negative cost of unemployment than when this cost
is not taken into account. Similarly, when the society assigns particularly high costs to youth unemployment (reflecting, for example, the ‘scarring’ effects), the government measures to reach optimal solution should no longer be ‘neutral’ (e.g., identical for both groups) but need to focus on stimulating youth entrepreneurship (Figure 5).

**Figure 5. Optimal search with and without youth unemployment cost**

![Diagram showing optimal search with and without youth unemployment cost](image)

*Note:* E(1) is the decentralized equilibrium, E(2) is the social planner’s solution when social cost of youth unemployment are not taken into account and E(3) is the optimal solution with youth unemployment cost.

5 **Empirical Evidence from Swaziland**

In the following sections, we bring our model to data and test it on a recent survey of entrepreneurs in Swaziland,

5.1 **Survey of young entrepreneurs**

In November 2012, the UN Swaziland conducted a survey of entrepreneurs in urban Swaziland. It relied on the face-to-face interviews with 640 entrepreneurs in urban areas of the country’s Hhohho and Manzini regions. The sampling frame was small and medium-sized enterprises (SMEs) listed in the 2011 SME directory of the Ministry of Commerce, Industry and Trade (provided by the SME unit). Using this frame, all firms listed in the six cities that provided their full addresses were selected for interviews.

---

19 The choice of urban areas was informed by the evidence from 2007 and 2010 labor force surveys, which revealed that the ratio of youth to adult unemployment was particularly high (almost triple) in urban areas compared to rural areas. Manzini and Hhohho regions were selected as areas where most entrepreneurial activities have been concentrated and for their potential to generate positive spillovers to the rest of the country.

20 This choice implied that new and very small firms as well as those that outgrew the ‘SME status’ or are not listed in the directory and operating more informally may be systematically underrepresented. To partly correct for this bias, a large number of enterprises were interviewed (relative to the population in selected areas).
The survey covered young and adult entrepreneurs to understand differences between these groups in terms of personal characteristics, skills, social networks, values and views on the constraints they face. Among the 640 entrepreneurs interviewed, 255 were classified as young (i.e. ages 18 – 35) and 385 as adult (above 35 years of age). Young and adult entrepreneurs with similar demographic and social characteristics (gender, sector of operation) were chosen to learn about the differences age introduced to the entrepreneurial experience in Swaziland’.

The interviews aimed to obtain information about the entrepreneurs’ background, objectives of the firms they run and the constraints they encounter most frequently. The survey also collected data on the main characteristics of the enterprise (years of operations, sector, employment and turnover). The questionnaire concluded with a section on entrepreneurs’ recommendations for policymakers and financial institutions, gathered to bring their perspective into policy debates.

5.1 Results

Who are Swazi young entrepreneurs?

We first cover differences in means between young (15 – 35) and adult (36 +) entrepreneurs (Table 1). The mean age of young entrepreneurs in our sample was 30.3 years, while that of adult entrepreneurs was 47.1 years. Regarding experience in the same firm, the businesses of young entrepreneurs were 4.1 years old on average, relative to 7.2 years of those of adults. Further on the human capital, while only one third of young entrepreneurs had higher education, but almost half of adult the adults did. Similarly, less than 1 out of 5 young entrepreneurs received business training, while more than 1 out of 4 adults was trained. Only 38 percent of young entrepreneurs had prior work experience, relative to 58 percent of adults. All these indicators thus point to skill disadvantage of youth.

While being more experienced and skilled that youth, the indicators of effort/commitment – hours of work, operating at full capacity, involvement in search for another job, etc. – portrait adult entrepreneurs as putting in more effort into their business and being more committed to it than youth. Finally, all indicators of outcomes – sales, turnover, employment and prospects – also point to adults as performing better than youth. Figure 4 also illustrates the higher sales of adult entrepreneurs than those of youth.

Results of probit estimations

Finally, we test which of the entrepreneurs’ characteristics impact their performance in a multivariate regression. Longer duration of the business is significantly positively related to firm performance in probit specification. Similarly, firms where entrepreneurs received more business training and credit for initial capital from informal sources performed better than those with less training and funding for start-up capital. At the same time, the impact of formal education, while positive, is not significant suggesting that formal education does not provide skills needed for productive entrepreneurship (Table 2).
### Table 1. Differences between young and adult entrepreneurs in Swaziland, 2012

<table>
<thead>
<tr>
<th></th>
<th>All entrepreneurs</th>
<th>Young entrepreneurs</th>
<th>Adult 36 and above</th>
<th>Young 15 - 35</th>
<th>SE and 36 - 35</th>
<th>SE and 15 - 29</th>
<th>SE and 29 - 35</th>
</tr>
</thead>
<tbody>
<tr>
<td>(in % of total entrepreneurs unless otherwise indicated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education and experience</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of entrepreneur (years)</td>
<td>30.3</td>
<td>47.1</td>
<td>0.57 ***</td>
<td>26.7</td>
<td>32.8</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Age of business (years)</td>
<td>4.1</td>
<td>7.2</td>
<td>0.57 ***</td>
<td>3.7</td>
<td>4.5</td>
<td>0.4 *</td>
<td></td>
</tr>
<tr>
<td>Higher education</td>
<td>35.3</td>
<td>48.3</td>
<td>3.97 ***</td>
<td>33.0</td>
<td>36.8</td>
<td>6.12</td>
<td></td>
</tr>
<tr>
<td>Received formal business training</td>
<td>18.4</td>
<td>26.5</td>
<td>3.40 **</td>
<td>12.6</td>
<td>22.4</td>
<td>4.93 **</td>
<td></td>
</tr>
<tr>
<td>Prior work experience</td>
<td>37.8</td>
<td>57.8</td>
<td>4.01 ***</td>
<td>32.0</td>
<td>41.6</td>
<td>6.26</td>
<td></td>
</tr>
<tr>
<td><strong>Resolve/Commitment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours of work (per week)</td>
<td>39.3</td>
<td>42.3</td>
<td>1.70 *</td>
<td>39.5</td>
<td>39.2</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>Operating at full capacity (months)</td>
<td>9.5</td>
<td>10.4</td>
<td>0.14 ***</td>
<td>9.1</td>
<td>9.8</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Involved in job search</td>
<td>26.1</td>
<td>9.2</td>
<td>2.9 ***</td>
<td>35.6</td>
<td>19.6</td>
<td>5.6 ***</td>
<td></td>
</tr>
<tr>
<td>Would accept job offer</td>
<td>35.3</td>
<td>17.9</td>
<td>3.4 ***</td>
<td>38.8</td>
<td>32.9</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td>If fails would start another firm</td>
<td>52.2</td>
<td>55.1</td>
<td>4.02 ***</td>
<td>46.6</td>
<td>55.9</td>
<td>6.37</td>
<td></td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm stable or growing</td>
<td>60.0</td>
<td>69.9</td>
<td>3.81 ***</td>
<td>56.3</td>
<td>62.5</td>
<td>6.26</td>
<td></td>
</tr>
<tr>
<td>Sales (monthly, E thousand) 1/</td>
<td>71.2</td>
<td>110.1</td>
<td>76.2</td>
<td>13.1</td>
<td>110.9</td>
<td>75.6</td>
<td></td>
</tr>
<tr>
<td>Sales same or higher than last year</td>
<td>34.5</td>
<td>37.7</td>
<td>3.89</td>
<td>37.8</td>
<td>32.2</td>
<td>6.08</td>
<td></td>
</tr>
<tr>
<td>Turnover (monthly, E thousand) 1/</td>
<td>138.7</td>
<td>354.7</td>
<td>79.7 ***</td>
<td>85.9</td>
<td>174.1</td>
<td>61.7</td>
<td></td>
</tr>
<tr>
<td>Employment (av. 2012)</td>
<td>1.8</td>
<td>2.4</td>
<td>0.38</td>
<td>1.3</td>
<td>2.1</td>
<td>0.38 **</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Authors’ calculations based on 2013 UN Swaziland survey. E stand for emalangeni (local currency). *, **, and *** denote 10%, 5% and 1% significance levels.

**Figure 4.** Kernel\(^a\) (epanechnikov) density estimate of entrepreneurial sales\(^b\)

![Kernel density estimate of entrepreneurial sales](image)

**Note:** \(^a\)Sales in a regular month. \(^b\)Bandwidth = 0.4625.
Table 2. Firm performance, skills and access to credit: probit estimations 1/

<table>
<thead>
<tr>
<th>Dependent var.: sales are flourishing (=0 if decreasing or stagnating; =1 if flourishing 2 years ago)</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>t-student</th>
</tr>
</thead>
<tbody>
<tr>
<td>First business handled</td>
<td>-0.0109</td>
<td>0.114</td>
<td>-0.1</td>
</tr>
<tr>
<td><strong>Age of business (log)</strong></td>
<td><strong>0.109</strong>*</td>
<td><strong>0.049</strong></td>
<td><strong>2.19</strong></td>
</tr>
<tr>
<td>Engaged in business by opportunity</td>
<td>-0.047</td>
<td>0.078</td>
<td>-0.6</td>
</tr>
<tr>
<td>Highest education: primary</td>
<td>0.113</td>
<td>0.462</td>
<td>0.24</td>
</tr>
<tr>
<td>Highest education: secondary/high school</td>
<td>0.099</td>
<td>0.386</td>
<td>0.26</td>
</tr>
<tr>
<td>Highest education: college</td>
<td>0.168</td>
<td>0.391</td>
<td>0.43</td>
</tr>
<tr>
<td>Highest education: university</td>
<td>0.189</td>
<td>0.394</td>
<td>0.48</td>
</tr>
<tr>
<td><strong>Received business training</strong></td>
<td><strong>0.246</strong>*</td>
<td><strong>0.077</strong></td>
<td><strong>3.18</strong></td>
</tr>
<tr>
<td>Age</td>
<td>-0.035</td>
<td>0.033</td>
<td>-1.07</td>
</tr>
<tr>
<td>Age squared</td>
<td>0.0004</td>
<td>0.0003</td>
<td>1.11</td>
</tr>
<tr>
<td>Gender (=1 if female)</td>
<td>-0.028</td>
<td>0.08</td>
<td>-0.35</td>
</tr>
<tr>
<td>Married</td>
<td>0.011</td>
<td>0.089</td>
<td>0.13</td>
</tr>
<tr>
<td>Swazi citizenship</td>
<td>0.077</td>
<td>0.104</td>
<td>0.74</td>
</tr>
<tr>
<td>Number of employees (log)</td>
<td>0.049</td>
<td>0.054</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Informal source of initial capital</strong></td>
<td><strong>0.302</strong>*</td>
<td><strong>0.114</strong></td>
<td><strong>2.64</strong></td>
</tr>
<tr>
<td><strong>Applied for formal credit 2/</strong></td>
<td><strong>0.241</strong>*</td>
<td><strong>0.09</strong></td>
<td><strong>2.69</strong></td>
</tr>
<tr>
<td>Share of personal contribution in initial capital (log)</td>
<td>0.001</td>
<td>0.047</td>
<td>0.03</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.404</td>
<td>0.715</td>
<td>0.57</td>
</tr>
<tr>
<td>Obs</td>
<td>182</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R-square</td>
<td>0.15</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Source:** Authors’ calculations based on the UN Swaziland (2013) survey of entrepreneurs. 1/ Probit model and variables are specified in Annex II. 2/ Many applications for formal credit are turned down.

Our model and empirical results suggest that the government interventions can help youth overcome numerous obstacles on their way to productive entrepreneurship. The results underscore the need for policy interventions to go beyond improving the business environment. The government should also prioritize assistance to young entrepreneurs through business training and subsidies for start-up capital to even their chances of entrepreneurial success with those of adults.

### 6. Conclusions

In this paper, we documented the youth labor market disadvantages in Southern Africa, especially in Swaziland, and constraints that SMEs in the region face. We also summarized evidence from focus group discussions with the Swazi youth on constraints to business start-ups. Reflecting these facts, we developed a model where young entrepreneurs experienced skill and start-up capital shortages and thus faced greater challenges turning their ideas into businesses than adults. We utilized the model to show the impact of the government support for training and
start-up subsidies, while taking into account equity considerations. Finally, we tested the results on a recent survey of young entrepreneurs in Swaziland, to draw policy recommendations.

A key policy message from our analysis is that an enabling business environment is a necessary, but only one aspect behind dynamic youth entrepreneurship. The government support to entrepreneurial training and start-up capital is needed to prevent the otherwise sub-optimal effort of individual entrepreneurs searching for business opportunities. Moreover, to put chances of entrepreneurial success of young and adult entrepreneurs on equal footing, the government needs to prioritize interventions targeted at the young entrepreneurs. Concrete policy designs can draw on experiences of other countries that implemented successful youth entrepreneurship interventions. Specifically:

- The OECD (2012) study of youth entrepreneurship interventions in Europe emphasized support for high potential young entrepreneurs, to stimulate high and inclusive growth. The following lessons emerged: (i) importance of selectivity to ensure that youth with viable projects are supported; (ii) preference of more intense support per entrepreneur rather than spreading resources thinly; and (iii) integrated packages of support are more effective than a single instrument. However, the focus on high potential young entrepreneurs may exacerbate the disparities in income and human capital between different groups of youth.

- The importance of integrated service packages rather than isolated measures is also a key lesson from entrepreneurship programs in Sub-Saharan Africa targeting vulnerable youth. Another lesson is that if start-up subsidies are involved, credible exit strategy needs to be developed and implemented. Moreover, training schemes are more effective when administered by the private sector, even though the government needs to provide incentives the existence of these programs in the first place.\(^{21}\)

The area of effective government policies fostering productive youth entrepreneurship in Africa is relatively understudied and provides opportunities for high-impact policy-oriented research. Further studies in this area could explore the role of African youth in technology adoption and innovation as well as different policies that the African governments could adopt towards high potential and vulnerable youth groups.

\(^{21}\) These points are elaborated in Johanson and Van Adams (2004) and others.

Table 1. Unemployment and Labor Force Participation in Southern Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Unemployment rate</th>
<th>Participation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total ( % of the labor force)</td>
<td>Male</td>
</tr>
<tr>
<td>Botswana</td>
<td>2006</td>
<td>17.6</td>
<td>15.3</td>
</tr>
<tr>
<td>Lesotho</td>
<td>1999</td>
<td>27.3</td>
<td>21.5</td>
</tr>
<tr>
<td>Namibia</td>
<td>2004</td>
<td>21.9</td>
<td>19.3</td>
</tr>
<tr>
<td>Swaziland</td>
<td>2010</td>
<td>26.3</td>
<td>22.7</td>
</tr>
<tr>
<td>South Africa</td>
<td>2008</td>
<td>22.9</td>
<td>20.0</td>
</tr>
</tbody>
</table>

Source: AfDB et al., 2012 and SLFS 2010.

Figure 1a. Southern Africa: Share of the youth (15 – 24) in the population 15 - 64, 1950 - 2030

Source: Authors’ Calculations based on UN Populations Statistics. 1/ Dependency ration is people aged 0-14 and 65+ over working age population (15 – 64).

Figure 2. Youth and adult unemployment in selected African countries

Source: Based on SLFS (2007-10) and AfDB et al. (2012). Note: Countries other than Swaziland were included based on data availability in the ILO KILM, 7th Edition. The unemployment rates are in % of the labor force.
### Annex II. Probit Estimations – Model and Variables

#### Table 1, Annex II. Variables used in probit estimations

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Definition</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales are flourishing</td>
<td>Dummy variable indicating whether total current sales have been decreasing or stagnating (=0), or have been flourishing as compared with sales 2 years ago</td>
<td>Proxy of performance</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First business handled</td>
<td>Dummy variable indicating whether the business is the first one to be handled by the interviewee entrepreneur</td>
<td>Proxy of the experience in business management</td>
</tr>
<tr>
<td>Age of business (log)</td>
<td>Log of the age of business in age</td>
<td>Proxy of the experience in business management</td>
</tr>
<tr>
<td>Engaged in business by opportunity</td>
<td>Dummy variable indicating whether the entrepreneur has engaged in self-employment for the following reasons: “be his own boss”, “challenge and test his own abilities”, “gain status in the society”, “realize its own ideas/vision”, “skilled in business”</td>
<td>Proxy of the determination and vision in entrepreneurship at the initial stage</td>
</tr>
<tr>
<td>Highest education: primary</td>
<td>Dummy variable indicating whether the highest education level attained in the primary level</td>
<td>Proxy of education</td>
</tr>
<tr>
<td>Highest education: secondary/high school</td>
<td>Dummy variable indicating whether the highest education level attained in the secondary/high school level</td>
<td>Proxy of education</td>
</tr>
<tr>
<td>Highest education: college</td>
<td>Dummy variable indicating whether the highest education level attained in the college level</td>
<td>Proxy of education</td>
</tr>
<tr>
<td>Highest education: university</td>
<td>Dummy variable indicating whether the highest education level attained in the university level</td>
<td>Proxy of education</td>
</tr>
<tr>
<td>Received business training</td>
<td>Dummy variable indicating whether the entrepreneurs has ever received a formal, informal, advanced business training or has simply been introduced to business or nor.</td>
<td>Proxy of business skills</td>
</tr>
<tr>
<td>Age</td>
<td>Age in years</td>
<td>Entrepreneurs’ socio-economic characteristics</td>
</tr>
<tr>
<td>Age squared</td>
<td>Age in years squared</td>
<td>Entrepreneurs’ socio-economic characteristics. Allowed testing whether there is non-linearity in the relationship between age and business success.</td>
</tr>
<tr>
<td>Gender (=1 if female)</td>
<td>Dummy variable taking the value of 1 for female entrepreneurs and 0 for male entrepreneurs</td>
<td>Entrepreneurs’ socio-economic characteristics</td>
</tr>
<tr>
<td>Married</td>
<td>Dummy variable indicating whether the entrepreneur is married or not.</td>
<td>Entrepreneurs’ socio-economic characteristics</td>
</tr>
<tr>
<td>Swazi citizenship</td>
<td>Dummy variable indicating whether the entrepreneur has the Swazi citizenship or not.</td>
<td>Entrepreneurs’ socio-economic characteristics</td>
</tr>
<tr>
<td>Number of employees (log)</td>
<td>Log of the total current number of employees</td>
<td>Business characteristics</td>
</tr>
<tr>
<td>Informal source of initial capital</td>
<td>Dummy variable indicating whether the source of initial capital was “savings” or “parents/friends/relatives”</td>
<td>Proxy of access to credit</td>
</tr>
<tr>
<td>Applied for formal credit</td>
<td>Dummy variable indicating whether the entrepreneur has applied for credit from a formal financial institution or not</td>
<td>Proxy of access to credit</td>
</tr>
<tr>
<td>Share of personal contribution in initial capital (log)</td>
<td>Log of the ratio of the amount of personal contribution on the amount of the initial capital</td>
<td>Proxy of the determination in entrepreneurship at the initial stage</td>
</tr>
</tbody>
</table>
The following probit model has been used:

\[ \text{Evolution of sales}_i = \alpha + \beta [\text{Experience}]_i + \gamma [\text{Education}]_i + \delta [\text{Skills}]_i + \zeta [\text{Determination/Vision}]_i + \theta [\text{Access to credit}]_i + \lambda [\text{Business characteristics}]_i + \nu [\text{Socio-economic characteristics}]_i + \eta_i \]

where \( i \) stands for individual entrepreneurs. The dependent variable (\textit{Evolution of sales}) is a binary variable indicating whether the total sales have increased (=1) or stagnated/decreased (=0) as compared with total sales two years ago. \textit{Experience} is proxied by the age of business and the dynamics of ownership; \textit{Education} is proxied by the highest level of education attained (primary, secondary or tertiary levels); \textit{Skills} is proxied by the business training received; \textit{Determination/Vision} is proxied by the motivation to engage in self-employment, the level of personal contribution in the initial capital; \textit{Access to credit} is proxied by the reliance on informal sources of capital; \textit{Business characteristics} is proxied by the number of employees; \textit{Socio-economic characteristics} are proxied by age, sex, marital status and citizenship.
References


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