Background Paper

Barriers to formal entrepreneurship in developing countries

Emmanuelle Auriol
Toulouse School of Economics
1 Introduction

Developing countries are characterized by a dual economy where a small modern industrialized sector co-exists with a large informal sector with little capital and low marginal productivity of labor. It is difficult to get an accurate estimate of the size of the informal sector in developing countries. Nevertheless all existing evidences suggest that it is large. For instance Enste and Schneider (2000) estimate in a panel of 76 countries that the average size of the shadow economy is 39% for developing countries. In comparison it is 12% of GDP for OECD countries. The employment level provides another indicator of informal sector size. The International Labour Organization (ILO 1999) estimates that urban informal employment absorbs 61% of the urban labor force in Africa, and it absorbed between 40 and 50% in pre-crisis Asia. Similarly 80% of new jobs created between 1990 and 1994 in Latin America were in the informal sector, in Africa it was more than 90% (Kuchta-Helbling 2000). The government ability to tax is impaired by this problem. In their survey Burgess and Stern (1993) hence list many special features of developing countries of particular relevance for tax analysis including the importance of the primary sector, dualism, many small-scale enterprises, weak administrative capabilities and substantial evasion. Such features could be grouped together by the observation that developing countries have large informal sectors that are difficult to tax. Indeed tax revenue as a proportion of GDP is typically much lower in developing countries than in rich countries. In economies with large subsistence and informal sectors, the tax base consists of a reduced set of goods. To be more specific, the difference in tax revenues between the poorest and the richest nations of the world is entirely explained by the weakness of direct taxation in developing countries. For instance, direct taxation represents 22% in industrial countries but only 7% of GDP in sub-Saharan Africa. Indeed one cannot implement direct taxation when most of the firms and of the labor force are unrecorded. For instance Das-Gupta, Lahiri and Mookherjee (1995) find that Indian income tax receipts would rise by at least 75% if improvements in compliance measures were made. Similarly in Jamaica, it is estimated that revenue losses, due largely to non-declaration of income by the self-employed, amounted to 84% of the revenue actually collected (see McLaren 1996). Thus among income taxes there is more reliance on company taxes and less on personal taxes.
While the size of the informal economy is widely appreciated in analysis of developing country industrial organization and taxation (see for instance Newbery and Stern 1987), it is usually treated as exogenous constraints on feasible policies. In this paper we go a step further by treating the relative size of the informal and formal sector as endogenous. To be more specific we establish a causal link between a low level of direct taxation and barriers to formality. We examine two channels. The first important determinant of informality, studied in Section 2, is the existence of entry sunk costs to the formal sector. We hence focus on the administrative barriers to formal entrepreneurship in the form of official entry fees. Since governments cannot raise tax from the competitive informal sector, the fiscal revenue imperative creates an incentive to restrict competition in the formal sector, creating rents that can be appropriated through entry fees and profit taxes. This approach differs from previous papers in treating the relative size of the informal and formal sectors as the result of deliberate government policies, and hence endogenous. The second channel, studied in Section 3, focuses on social barrier to formality in the form of family taxation in Sub-Saharan Africa. Paralyzed by their low fiscal revenue, developing countries do not provide much social protection to their citizen. This is especially true in Sub-Sahara Africa. In the absence of public safety net African have developed a culture of forced mutual help. This implies that local entrepreneurs in the formal sector have the social obligation to subsidize their family. They fill this duty by employing their relatives. This strategy reduces the firms productivity because family members who seek an employment in their relatives' firms are not the most productive workers. Reduced profit margins, due to a plethoric and poorly qualified workforce, then discourage entrepreneurship: everything else being equal, local people becomes less often entrepreneurs than outsiders. We hence show that a low level of taxation and the lack of social protection that ensued have damaging consequences on the development of the formal sector, and thus of firm growth.

2 Administrative Barrier to Formality

Enste and Schneider's (2000) cross-country study, confirmed by all existing evidence, reveals that the increase of the shadow economy in OECD countries is best explained by an increasing burden of direct taxation and social security contributions, combined with rising state regulatory activities. The taxation burden from direct taxation is indeed very high in industrialized countries. This creates strong incentives to evade taxation through concealment or under reporting. For instance in her survey of the literature on informal sector formation
Gerxhani (2004) wrote: ``Some of the earliest primary reasons to participate in the underground economy mentioned in the literature are: (1) to evade taxes; (2) to avoid losing government benefits; (3) to circumvent regulations and licensing requirements; (4) a reaction by both firms and individual workers to the labor unions; and (5) the impact of international competition." If these factors play a role in developing countries, they cannot explain per se the size of their shadow economies. Overall taxation and social security contributions are lower in developing countries, so if they were the principal determinants of the shadow economy it should be smaller in developing countries than in advanced economies. We cannot directly transpose results obtained for developed countries to developing countries. In developing countries taxes, especially direct ones such as income taxes or taxes on profit, are just a small part of the cost of setting up a business.

A major reason why many micro-enterprises stay informal in developing countries is because becoming formal involves large fixed costs, most of them sunk. Official registration is simply beyond the reach of poor entrepreneurs. A cross-country study of 75 nations by Djankov et al. (2000) indicates that the official cost of setting up a firm entails fees worth at best 1.4% of GDP per capita in Canada and at worst 260% of GDP per capita in Bolivia. The average cost for the panel is 34% of GDP per capita. On top of this official monetary expense the authors show that registering a business can be very complicated and time consuming. In the best case establishing a new firm requires 2 steps and 2 days in Canada, and in the worst case it requires 20 procedures and 82 business days in Bolivia. For the panel on average it involves 10.17 steps and 63.05 business days. These are official time and expense required to establish a new business, they do not include bribes or administrative delays, which tend also to be larger in poorer countries. The study by Djankov et al. (2000) concludes that firm entry barriers are higher in countries with lower GDP per capita. Similarly De Soto (2000) shows that to obtain legal title to real estate involves 168 bureaucratic steps in 53 public and private agencies and takes 13 to 25 years in the Philippines, 77 bureaucratic procedures dealing with 31 public and private agencies taking 5 to 14 years in Egypt, 111 bureaucratic steps and about 12 years in Haiti. Similarly he found that in Peru 21.7% of the costs of remaining formal were tax-related whereas 72.7% were linked to following administrative procedure.

Since the costs to become formal are largely endogeneous (i.e., the government chooses the level of the registration fees, the complexity and the length of the procedure, and so on), it is important to analyze why in equilibrium these costs end up being proportionally higher in poor countries. Auriol and Warlters (2005) show that this is consistent with a deliberate
government policy for raising tax revenue. In the formal sector the barriers to entry generate market power for the firms. The rents are confiscated by the government through entry fees and taxes. Entry fees then fill two purposes. As barriers to entry they create market power for firms whose rents are captured by the government. As tax instruments they have low administrative cost. The relevance of the theory is assessed on a sample of 63 countries. The empirical analysis, which studies the determinants of the size of the shadow economy and of taxation revenue as a percentage of GDP, supports the results of the paper.

To be more specific Auriol and Warlters (2005) paper implies at least two testable implications that contrast with former results obtained in the literature focused on rich countries. The first result concerns the size of the shadow economy. According to the analysis the size of the shadow economy in developing countries is explained by the weakness of demand and the existence of barriers to entry in formal markets. The theoretical predictions of the model are corroborated by the available data: based on Auriol and Warlters (2005) estimates an increase of 1% of the entry fees (in terms of per capita GDP) raises the size of the shadow economy by roughly 14% (see table 1). The impact of market entry fees, labeled "SUNKCOST" in table 1, on the emergence of the shadow economy, labeled SHADOW, is quite large.¹

Table 1: Explaining the size of the shadow economy

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>28.05 (11.22)***</td>
<td>27.08 (7.62)***</td>
<td>32.90 (8.55)***</td>
<td>30.89 (7.84)***</td>
</tr>
<tr>
<td>GNP</td>
<td>-0.0006</td>
<td>-0.0006</td>
<td>-0.0005</td>
<td>-1.23×10⁻³</td>
</tr>
<tr>
<td>POP</td>
<td>-6.23***</td>
<td>-4.82***</td>
<td>-4.22***</td>
<td>-1.70*</td>
</tr>
<tr>
<td>SUNKCOST</td>
<td>-0.007 (-2.15)**</td>
<td>-0.006 (-1.70)*</td>
<td>-0.01 (-2.75)**</td>
<td>0.01 (-2.53)**</td>
</tr>
<tr>
<td>TRANS</td>
<td>15.15 (4.01)***</td>
<td>17.25 (2.31)**</td>
<td>13.71 (4.02)***</td>
<td>14.63 (3.69)***</td>
</tr>
<tr>
<td>OECD</td>
<td>-5.82 (-1.96)*</td>
<td>-7.19 (-3.35)***</td>
<td>-1.96*</td>
<td></td>
</tr>
<tr>
<td>No. of obs.</td>
<td>53</td>
<td>47</td>
<td>53</td>
<td>29</td>
</tr>
<tr>
<td>R²</td>
<td>0.58</td>
<td>0.58</td>
<td>0.65</td>
<td>0.26</td>
</tr>
</tbody>
</table>

Columns (1), (3) and (4) were estimated by ordinary least squares. Column (2) was estimated by two stage least squares, using PERCENTPROT, COMLAW and AFRICA as instruments for SUNKCOST. Column (4) is estimated for a restricted sample, with developing countries only. White heteroskedastic-consistent standard errors are used to calculate t-statistics, which are reported in parentheses. Significance is denoted by *** (1%); ** (5%); * (10%).

(1) The dependant variable SHADOW is a measure of the shadow economy in percentage of GDP. The variable TRANS and OECD are dummy variable indicating a transition country and a member of the OECD respectively. POP is the population in millions and GNP the Gross National Product per capita.
The second result, which is more original, concerns government policy. According to their analysis governments in developing countries use barriers to entry in formal sectors to create market power for firms whose profits are confiscated by entry fees and taxes. Empirically we should thus observe a positive relationship between a country's barriers to entry and government tax revenue. This last result is not obvious because another explanation for high entry barriers is corruption. Captured by the governing elite, the rents generated by the entry fees end up in private accounts. In this case the fixed costs to entry do not translate into larger fiscal revenue. If the capture theory is right we shouldn't observe a positive relationship between the level of entry fees and tax revenue, on the contrary. Moreover the variable measuring corruption (Transparency International Corruption Index) should be significant in the regression. The purpose is thus to check whether, everything else being equal, countries that have higher entry barriers to their markets also have larger fiscal revenues. The empirical result is consistent with this result, but not with the "grabbing-hand" theory. Higher barriers to entry imply higher fiscal revenue for the government, everything else being equal. In contrast corruption indexes are not positively related to the entry sunk costs.

To be more specific, in Table 2, which is reprinted from Auriol and Warlters (2005), the authors regress the tax revenue as a percentage of GDP on a set of variables. The first column shows that the direct correlation between tax revenue and SUNKCOST is negative, which is consistent with the theory as developing countries rely more on sunk cost for taxation purpose than advanced economies and simultaneously they tax proportionally less. However, once controlling for the wealth level of a country and other relevant variables, and as predicted by the theory, the SUNKCOST coefficient is positive and significant. The authors show that this is robust to the introduction of many controls. Then everything else being equal, governments that do choose higher entry barriers to their official markets have larger tax revenue. Moreover the coefficient of the dummy variable DEV, that signals a developing country, is also positive and significant. This enlightens the structural differences in tax revenue collection between poor and rich countries stressed by the paper.2

---

2 As previously the coefficient of the dummy variable TRANS is significant and positive, which suggests that everything else being equal, transition economies collect more tax revenue than we could expect otherwise.
Interesting results came out by adding up other explanatory variables. For instance both 'POP' (population size in million) and 'LAND' (land area) coefficients are negative and significant.

If it is intuitive that the larger a country, the lower proportionally its tax revenue is (because:

This is due to the fact that their tax revenue is comparable to that of industrialized countries, but their GDP per capita is lower. These economies used to be centralized and under public ownership. The public sector is still quite large and most citizens and firms are still recorded. The governments are able to tax more easily.

(Reprinted from Auriol and Warlters 2005)
of higher collection cost), it is less clear why a larger population should lead to lower tax revenue. A possible explanation is that the main activity of the government being to create public goods, there are incompressible costs, and many benefits are independent of the population size. The absolute level of tax revenue that it needs to operate is not proportional to the population size. Finally our exploratory study points out to the significance of political economy variables. Collective institutions play a role the government ability to tax revenue. The 'DEM46' (a dummy that equal 1 when a country experienced 46 years of continuous democracy) and 'REPRE' (the total number of representatives in parliament and congress) coefficients are both positive and significant. Countries with a long history of democracy tax more than countries without such an experience. Similarly countries that have larger representatives assemblies (congres, national assembly, senate,...) tax more.

To sum up, in their attempt to raise revenue from firms at a low administrative cost, governments in developing countries erect barrier to the entry of the formal sector in the form of administrative fees. Since they are very effective at blocking out small entrepreneurs, these market entry fees are fostering the emergence of large firms/taxpayers so that a few taxpayers account for a large proportion of total tax collection in developing countries. For instance Baer (2002) reports that 0.4% of tax payers account for 61% of total domestic tax collection in Kenya and 57% in Colombia. The chosen entry barriers may well be optimal in terms of governments' short time horizons, but they come with considerable costs. Firms in the formal sector are given market power to raise prices above marginal costs. This reduces exchange and consumer surplus in the formal economy. Keeping firms in the informal sector exposes them to weakened property rights and hence increased risks. Taxing some sectors and not others distorts resource allocation (see Auriol and Warlters 2012). Eliminating such inefficiencies could provide a significant impetus to growth, and simultaneously tax collection, in the medium to long term.

An effort to broaden the tax base and hence increases formality should be a top priority of policy makers. Reformers could widen their area of interest beyond the standard parameters. By reducing market entry fees involved in officially establishing a new business, developing countries could enlarge their formal sectors. Such a policy needs to proceed gradually, to create the administrative resources necessary to deal with a broader tax base. Our analysis suggests that the governments need also to be compensated for the lost revenue if they are going to abandon the distortive entry fees policy. It would seem possible for imaginative administrations to establish additional mechanisms to encourage the growth of the formal
sector, for example by creating a special status for small entrepreneurs (e.g., without limited liability) associated with discounted entry fees and some benefits (e.g., easier access to micro-credit or to electricity connection). The idea would be to use second degree discrimination to encourage small entrepreneurs to register under the new status created for them without having larger firms doing the same. Alternative revenue raising mechanisms, such as VAT, will also play a role as it is more effective at raising revenue in competitive sectors than profits taxes. If so, the relative importance of profits taxes may diminish, and the introduction of VATs could be the spur for a lowering of entry fees. Recognizing this phenomenon, the IMF has encouraged the establishment of large taxpayer units (LTUs). By concentrating scarce tax administration resources where they are most productive, LTUs permit the adoption of more sophisticated taxation instruments.

3 Social Barrier to Formality: Forced Mutual Help in Sub-Saharan Africa

The study of barriers to entrepreneurship is not new in the literature. Since the seminal paper by Evans and Jovanovic (1989) that has shown on US data the importance of borrowing constraints in entrepreneurial choice, many papers have emphasis that the tightness of credit constraints is a major obstacle to entrepreneurship. In developing countries imperfect capital markets have hence been found to be a key determinant of informality (see for instance Straub 2005, De Mel et al. 2008, Grimm et al. 2010). Another important determinant of informality, studied in Section 2, is the existence of entry sunk costs to the formal sector which are proportionally higher in poor countries than in advanced economies. Similarly, excessive or inappropriate government regulations have also been found to be a significant constraint on entrepreneurship. In this section we are interested into a new set of barriers to entrepreneurship, namely social barriers. These barriers are dependant of the social arrangement prevailing in a given region. They vary from one region to the next and differ in different countries. In this study we hence focus on Sub-Saharan Africa.

Our interest is triggered by the fact that in the African context additional barriers to entrepreneurship must exist for the local people. As pointed out by Tshikuku (2001): "very
few African countries have an indigenous class of dynamic and powerful businessmen. The small and medium enterprise (SME) are almost everywhere in Africa, mainly in the hands of non-African aliens." For instance in his study on SME in Kenya and Zimbabwe Fafchamps (2004) finds that only 32% of firms are in the hand of indigenous-African. This result is confirmed by Biggs and Shah (2006) who find that in Kenya and Zimbabwe less than 40% of the SMEs are in the hand of indigenous-African. In Kenya most firms are in the hands of Asians, while in Zimbabwe they are in the hands of Europeans and to a lesser extent Asians. More generally they find that ethnic minority groups, such as the Indian in East Africa, the European in Southern Africa, the Lebanese in West Africa, dominate many of the major manufacturing activities. In East Africa, for example, business networks of Indian ethnicity concentrate in segments of light manufacturing and import/export trade. In Southern Africa, European business networks control much of the upstream activities in manufacturing and mining. And in West Africa, Lebanese business networks are heavily involved in import/export trade and parts of the wood industry. Across the region indigenous-African, ethically-based networks are found mainly in agricultural and natural resource activities – the Luo, in Kenya, are networked in the fishing industry and the Ashanti, in Ghana, in the cocoa industry. African ethically-based networks can also be found in small-scale industrial activities, such as metal working, furniture, food processing and clothing.

In this paper we aim to explore a new type of barriers to entrepreneurship, related to the absence of social security, that partly explain this equilibrium. With low tax revenue as a proportion of GDP, developing countries do not provide much social protection. Tax revenue is raised to finance essential public goods rather than for redistribution/protection purposes. In fact the difference between OECD and developing countries’ public expenditure is the OECD's expenditure on social security (Tanzi and Schuknecht 2000). In the absence of a public safety net, individuals have developed strategies to cope with risk. Africans have hence developed a culture of "forced mutual help". Wealthy Africans have the social obligation to share their resources with their needy relatives and extended family.

There is a substantial literature, mainly anthropologic but also economic, on the possible negative impact of solidarity norms on economic development. Platteau (2000, 2006) explains that private wealth accumulation is perceived as an anti-social behavior in most traditional

Africa. He quotes the anthropologist Woodburn (1998: 52) who based on his observations of Hadza hunter-gatherers in Tanzania writes: "People who have more than they manifestly need are put under relentless pressure to share". In fact in most social networks in Africa sharing is a moral principle and accumulation is not well perceived.

The impact of these social norms on economic outcome has been shown to be distortive. For instance Anderson and Baland (2002) show that women join roscas to protect their savings from their husbands and hence to save at a higher rate than they would at home. Studying credit cooperatives in Cameroon, Baland et al. (2011) find that 20% of the loans are fully collateralized by savings held by the borrowers in the same credit institutions. Yet the net interest payments represents 13% of the amount borrowed. Based on interviews with members of the cooperatives, the authors show that some individuals systematically use credit as a way to pretend that they are too poor to have available savings. By doing so, they can successfully oppose request for financial help from friends and relatives. Similarly Duflo et al. (2011) argue that Kenyan farmers do not invest in fertilizer, although it would substantially raise their yield, because it is difficult for them to protect their savings from consumption demands. Relying on theoretical analysis, Bernard et al. (2010) investigate the role of social norms in opposing economic differentiation on the emergence, configuration, and activities of market-oriented organizations. They show that with very high resistance to economic differentiation, no market-oriented organizations can emerge. When resistance decreases market-oriented organizations can emerge but they need to be larger than would otherwise be optimal in order to gain acceptability. They test their results using a dataset of 646 village organizations in Burkina Faso. The empirical results support their main conclusions. Finally recent experiments in Kenya and in Liberia confirm that social pressures to share with relatives create disincentives to make profitable investments. In rural Kenya within a controlled laboratory environment, Jakiela and Owen (2010) find that both women, particularly unmarried women, and men, particularly when they have recently been asked for gifts or loans by relatives, are willing to reduce their expected profits to avoid making positive income shocks observable to the community. In a similar type of experiment conducted in Liberia, Niilesen, Beekman, and Gatto (2011) explore how kinship networks affect risky, but potentially profitable investment decisions. Combining survey and experiment data, they find that individuals with strong family ties within the community tend to make lower investments than individuals with weaker family ties, hence distorting profitable investment decisions. They are also willing to pay to hide their money. These findings support the hypothesis that
kinship networks, perhaps in addition to providing support during hardship, can hamper profitable investments, as people want to avoid sharing their wealth with an extensive kinship network.

However these papers do not study how this problem might affect the decision to become an entrepreneur, and thus the development of a healthy productive sector. A noticeable exception is the paper by Grimm et al. (2011). It aims to contribute to the literature on high capital returns in small informal firms by analyzing whether social networks, more specifically those related to the family and kin, act as a constraint for informal entrepreneurs or as an asset. They use an original data set (1-2-3 surveys) covering informal entrepreneurs in seven West-African agglomerations. They find that local social networks within the city have positive effects on factor use and hence added value, presumably by easing credit and insurance markets constraints. However they also find robust negative effects associated with social networks tied to the village of origin. These effects get diluted with geographical distance, probably because with rising distance it is easier to hide the generated income and to protect it from abusive demands. Alby, Auriol and Nguimkeu (2013) is complementary to the Grimm et al. (2011) paper as it focuses on the formal sector. It contributes to the new literature on the forced mutual help constraint by exploring how it impacts the decision to become a formal entrepreneur in developing countries.

Since becoming an entrepreneur in the formal sector marks economic success, it inevitably involves in the African context substantial family taxation. Alby, Auriol and Nguimkeu (2013) show that the forced mutual help constraint is distortive because it leads to patronage and a misallocation of workers in local firms, which as a result are less efficient than firms managed by foreigners. Combined with the lack of credit, the family tax and the resulting distortion in labor management, take their toll on the growth of the African formal economy.

To guide the analysis, they model the choice of potential entrepreneurs with idiosyncratic ability and a fixed amount of capital, between becoming entrepreneur in the formal sector or becoming a wage worker/self-employed in the informal sector. They consider outsiders/foreigners and local entrepreneurs. Contrary to the former, local entrepreneurs have the social obligation to subsidize their family. They minimize the burden of the family tax by employing preferably their relatives. This strategy maximizes the entrepreneur net profit. However it is socially costly because family members who are seeking a job in these firms
have low human capital. Recruiting needy relatives rather than the best qualified people distorts productive efficiency. Local firms are less productive and less profitable than firms owned by foreigners. Reduced profit margins discourage entrepreneurship. Combined with a lack of credit this precludes formal sector from growing. Figure 2 illustrates the main result of the paper. The functions $\theta(K)$ represent the talent threshold in function of $K$, the stock of capital available to the individual. Individuals with talent below the threshold are wage workers or self-employed while those above the threshold are entrepreneurs. The critical level is higher for local, identified by $l$, than for foreigners, identified by $f$: everything else being equal, local people becomes less often entrepreneur in the formal sector than outsiders.

![Diagram](image)

**Figure 2: Entrepreneurship decision for entrepreneur of local and foreign origin**

(Reprinted from Alby, Auriol and Nguimkeu 2013)
There are from the model three main sets of predictions. First the labor force of local firms is less qualified and less competent than the labor force of other type of firms, which implies that the labor force composition and also training programs offered by the local firms differ from those of other firms. Second local firms have a larger labor force embodied in a larger labor/capital ratio than foreign firms. Third the labor productivity of a local firm is lower than the labor productivity of a foreign firm. Finally if the problem of forced solidarity is indeed relevant, the results should be different in countries with relatively better social protection than in countries without such public safety network. The empirical relevance of the model predictions are assessed with the help of the Enterprise Survey database maintained by the World Bank. This database compiles surveys from 10,480 enterprises in 31 Sub-Saharan African countries performed between 2002 and 2007. The estimations reveal that African entrepreneurs are credit constrained consistently with previous results. More interestingly they reveal that African entrepreneurs are also constrained in the labor market. The estimations on labor force composition, training, labor to capital ratio and labor productivity are all consistent with the model predictions (see Alby, Auriol and Nguimkeu 2013).

Figure 3: Profit ($) per employee according to ownership and size

\[ Available\ at\ http://www.enterprisesurveys.org/\]
Figure 3, which is reprinted from Alby, Auriol and Nguimkeu (2013), illustrates the productivity disadvantage of local firms. In the second part of the analysis they use the theoretical model and data on workers of formal firms to perform a structural estimation of the model. This allows them to get an estimate of the fraction of missing African entrepreneurs, that is, the proportion of African wage-workers from the formal sector who would have chosen to become entrepreneurs if potential social pressure to redistribute resources didn't exist. Structural estimates are obtained by maximizing a likelihood function constructed by matching the expected probability of occupations as generated by the model to the actual occupational status observed in the data.

The main results presented in Table 3, which is reprinted from Alby, Auriol and Nguimkeu (2013), show that a significant fraction of African workers are self-excluded from entrepreneurship due to social pressure. The proportion of missing African entrepreneurs represents about 7.15% of the overall workforce of the formal sector.

Using the Institutional Profiles Database as a complementary source of data to assess the presence of social safety nets within each surveyed country, an Institutional Solidarity Index (ISI) is computed for 21 of the 31 countries surveyed by the World Bank. In a scale between 0 (no protection) to 4 (very large fraction of the population covered by social protection), this index goes from a minimum 0.00 for Namibia to a maximum 2.72 for Mauritius. Based from that the countries are split into two sub sample according to whether they are worse or better than the median sample ISI. Regressions show that local firms located in countries with poor social protection are more strongly affected by the forced solidarity constraint while it is less the case for local firms located in countries with better social protection. The proportion of missing entrepreneurs is hence even higher in countries with relatively worse institutional solidarity environment. In particular, the difference in the loss of entrepreneurs across the two stratifications represents a significant proportion of about 1% of the workforce. This finding is consistent with the previous theoretical model and descriptive statistics and further testifies

---

5 Available at [http://www.cepii.fr/anglaisgraph/bdd/institutions.htm](http://www.cepii.fr/anglaisgraph/bdd/institutions.htm)
that better social safety nets may encourage entrepreneurship in Africa by relaxing social obligations.

Table 3: Structural Maximum likelihood Estimates

<table>
<thead>
<tr>
<th>Type</th>
<th>Parameter</th>
<th>Name</th>
<th>Whole sample</th>
<th>Better solidarity</th>
<th>Worse solidarity</th>
<th>Difference</th>
<th>Pvalue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreigners</td>
<td>Log ability - constant</td>
<td>$\delta_{0f}$</td>
<td>6.507 (0.0004)</td>
<td>5.9210 (0.0006)</td>
<td>6.718 (0.0015)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Log ability - education</td>
<td>$\delta_{1f}$</td>
<td>0.3212 (0.0005)</td>
<td>0.4141 (0.0003)</td>
<td>0.2760 (0.0042)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Log ability - experience</td>
<td>$\delta_{2f}$</td>
<td>0.2103 (0.0128)</td>
<td>0.3814 (0.0002)</td>
<td>0.1845 (0.0041)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stand. dev. for ability</td>
<td>$\sigma_f$</td>
<td>0.4529 (0.0012)</td>
<td>0.7231 (0.0002)</td>
<td>0.3162 (0.0059)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td>Locals</td>
<td>Log ability - constant</td>
<td>$\delta_{0l}$</td>
<td>6.815 (0.0002)</td>
<td>5.302 (0.0006)</td>
<td>7.061 (0.0012)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Log ability - education</td>
<td>$\delta_{1l}$</td>
<td>0.3011 (0.0002)</td>
<td>0.3912 (0.0004)</td>
<td>0.2021 (0.0025)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Log ability - experience</td>
<td>$\delta_{2l}$</td>
<td>0.1901 (0.0142)</td>
<td>0.3002 (0.0002)</td>
<td>0.1445 (0.0018)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stand. dev. for ability</td>
<td>$\sigma_l$</td>
<td>0.3891 (0.0011)</td>
<td>0.6901 (0.0009)</td>
<td>0.1283 (0.0052)</td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>Capital returns</td>
<td>$\alpha$</td>
<td>0.0412 (0.0025)</td>
<td>0.0781 (0.0016)</td>
<td>0.0392* (0.0253)</td>
<td>0.0584</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Log-likelihood</td>
<td>-4686</td>
<td>-2370.1</td>
<td>-2480.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of Obs.</td>
<td>9258</td>
<td>4619</td>
<td>4639</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frac. missing entrepreneurs</td>
<td>$m$</td>
<td>0.0715 (0.0044)</td>
<td>0.0706 (0.0055)</td>
<td>0.0781 (0.0076)</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

Asymptotic standard errors in parenthesis
* Not significant at 5%
This section argued that the social norm of forced solidarity prevailing in most African countries is detrimental to the continent economic growth as it precludes many talented people to become formal entrepreneurs. Local entrepreneurs are constrained not only on the credit markets but also on the labor market. As a result their firms are less productive compared to their counterpart without such family liability. They become less often formal entrepreneurs. This helps to explain why minority entrepreneurs, like the Indians in East Africa and the Lebanese and Syrians in West Africa, are key actors in the economic development of these regions (see Platteau 2000). It also sheds a new light on the puzzling result that very small firms in developing countries exhibit extremely high returns on capital (e.g., Banerjee and Duflo, 2004; De Mel, McKenzie and Woodruff, 2008, Grimm, Kruger and Lay 2010, Kremer, Lee and Robinson 2010). The non-monotonicity of capital returns according to firms size is usually explained by inefficient financial markets. This paper suggests that the excessive returns are also the result of additional labor market constraints: very talented entrepreneurs are stuck with informal, small firms because they cannot afford to hire their family members and relatives. Combined with tight credit constraint it helps to explain the excessive returns on their small firms.

4 Conclusion

This paper has analyzed barriers to formal entrepreneurship, and thus to the formal sector growth. An effort to broaden the tax base is a typical element of tax reform in developing countries (Burgess and Stern 1993). Our analysis suggests that tax reformers could widen their area of interest beyond the standard tax parameters.

First by reducing market entry fees developing countries could enlarge their formal sectors and hence the tax base. The chosen entry barriers may well be optimal in terms of governments’ short time horizons, but they come with considerable costs. Firms in the formal sector are given market power to raise prices above marginal costs. This reduces exchange and consumer surplus in the formal economy. Keeping firms in the informal sector exposes them to weakened property rights and hence increased risks. Taxing some sectors and not others distorts resource allocation. Eliminating such inefficiencies could provide a significant impetus to growth, and simultaneously tax collection, in the medium to long term.
Second our analysis reveals that social security, public retirement plans, and other public schemes aimed at protecting unemployed, sick or old people in advanced economies are not solely explained by people inner taste for solidarity and redistribution. They are also economic tools to prevent an inefficient allocation of labor in firms. The lack of such mechanisms in Sub-Saharan Africa appears to be very costly. Although the structural estimates are just a suggestive insight of what a more refined research using more thorough information and less stringent functional forms assumptions may reveal, the results mentioned in section 3 are very appealing. The social cost incurred by the forced mutual help that hinders talented people from starting a business in the African society has drastic consequences on the economy in terms of welfare loss. It is important to note that the 7.6% of missing entrepreneurs obtained here is an underestimated proportion of the overall missingness. In fact, it only estimates the proportion of formal wage-workers who are not willing to become entrepreneurs in spite of having good entrepreneurial abilities. It does not include, for example, possible informal entrepreneurs who have the capacity of becoming formal but are not willing to do so because they don't want to send a too strong signal of successfulness to their family and relatives. Nevertheless, the fraction of missing entrepreneurs obtained in this framework represents an important amount of implied wealth and an even higher proportion of implied jobs that are missing to contribute to the improvement of the overall welfare and to substantially reduce the levels of poverty. Moreover, these missing formal enterprises represent a gap in the formal sector and in tax revenues that may be used to improve social safety nets to further lower the need of mutual help. By eroding the local firms productivity, forced mutual help constitutes additional barriers to formal entrepreneurship. With an atrophied formal sector, tax revenues are low. This reduces further the government ability to develop social security and insurance, reinforcing the need for family/ethnic solidarities.
REFERENCES


International Labour Organisation (1999), "Trade Unions and the Informal Sector".


