

Does Firm-size Matter in the Informal Sector?

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Newly available data on informal firms in 11 African countries shows that informal firms while generally small can vary substantially in size. Using these data, this note explores the relevance of firm-size among informal firms. Data show that firm-size is important in the informal sector. For example, compared with the relatively small informal firms, large informal firms are less productive, have more educated owners, show a greater willingness to formalize or register and are more likely to use banks and microfinance institutions to finance their day-to-day operations. Hence, policies aimed at the informal sector could benefit from distinguishing between small and large informal firms.

Introduction

There is a large and growing body of work that highlights important differences between small and large firms, especially in the formal sector. Presence of sunk costs and scale economies not just in the production process but also in exploring and developing new markets and dealing with the business climate and government officials could explain some of these observed differences. For example, studies show that compared with small firms, large firms are more likely to engage in research and development and also spend larger amounts on it (Cohen and Klepper 1996); however, innovations per dollar spent on R&D are lower among the relatively large firms (Acs and Audretsch 1991 and Plehn-Dujowich 2006). Exporting activity is also concentrated among large firms. According to the new Exporter Dynamics Database (2012) compiled by the World Bank, a few large companies dominate export markets in developing and developed countries, with the top 1 percent often accounting for more than half—and sometimes nearly 80 percent—of total exports. Another strand of the literature finds that large firms enjoy better access to finance while the adverse effects of a poor financial system are magnified on the smaller firms (see for example, Beck et al. 2005). Other elements of the business climate like corruption, anticompetitive practices, etc., have been shown to hurt the smaller firms more than the larger firms although this body of work is still in a nascent stage.

However, in many developing countries, a substantial proportion of output and employment originates in the

unregistered or the informal sector (see for example, La Porta and Shleifer 2008). It is well known that firms in the informal sector (henceforth, informal firms) are very small and often run by the owner himself/herself; they do not engage in R&D, do not export and most of them have difficulty getting finance from banks and other organized financial institutions. For example, for the 11 countries and 1,349 informal firms in Africa that the present note focuses on, about 30 percent of the firms have a single employee (including the owner/manager if he/she works at the firm), 24 percent have 2 employees, 15 percent have 3 employees and the remaining 30 percent have more than 3 employees. The mean number of employees at the firm equals 3.1 and the median value is 2 employees. Given the relatively small size of the bulk of informal firms one wonders if firm-size has any relevance at all for the informal sector.

The issue of heterogeneity in the informal sector in developing countries has been discussed in the literature (see for example, Cunningham and Maloney 2001 and Mead and Morrison 1996). However, the relationship between firm-size and diverse sets of issues such as firm productivity, growth, willingness to register, sources of finance, education level of the owner(s), infrastructure availability, etc., has not been much discussed. Using data from Enterprise Surveys on informal firms in 11 countries (discussed below), Amin (2013) looks at the issue of firm-size and its correlation with a large number of firm-level variables. This note summarizes some of these results and also explores new ones. Understanding the relevance of firm-size for informal

firms is important not just for academic reasons but also from a policy perspective. For example, if we do find firm-size to be correlated with a firm's desire to register, ease with which a firm can access external sources of funds, etc., then policy measures can be appropriately targeted between small and large informal firms.

The data we use comes from a survey of informal firms in 11 countries in Africa conducted by the World Bank's Enterprise Surveys between 2009 and 2011. The countries include Angola; Botswana; Burkina Faso; Cameroon; Cabo Verde; Congo, Democratic Republic; Côte d'Ivoire; Madagascar; Mali; Mauritius and Rwanda. The number of firms surveyed range between 99 (Botswana) and 240 (Rwanda) and total 1,487 across all 11 countries. The surveys cover only the unregistered (i.e. informal) firms and are restricted to 1 or 2 main cities in each country. Due to lack of adequate information on the universe of informal firms (sampling frame), the surveys do not claim to be representative of the informal economies either at the country or the city level. Hence, the results presented below should be treated with due caution as pertaining to the surveyed firms rather than the larger informal economy.

The measure of firm-size we use is the log of number of employees working at the firm during a regular month in the last year prior to the date of the survey (*Employment*). In the full sample, the mean value of *Employment* equals 0.856 (or 3.1 employees without logs) and the standard deviation equals 0.717 (2.9 without logs). That is, the coefficient of variation (standard deviation as a percentage of mean value) of *Employment* variable equals 83.8 percent. Individually across countries, the coefficient of variation ranges between a low of 43.8 percent in Angola and a high of 108 percent in Mauritius. In other words, there is substantial variation in firm-size to warrant an analysis (figure 1).

Information is also available in the survey on the monthly sales of the firm over the last year. As expected, sales and employment figures show a high positive correlation (correlation coefficient of 0.38) and this is statistically significant at less than the 1 percent level. However, cross-

checking our results, we found some differences in how various firm characteristics relate to employment versus sales. This note focuses on the employment measure for two reasons. First, the employment measure is reported by a larger number of the sampled firms than the sales measure (91 vs. 82 percent, respectively). Second, given the small number of workers employed by the firms, we suspect that firms are less likely to make an error in recalling employment than in recalling sales figures. Nevertheless, extension of the results to the sales measure of firm-size would be a fruitful area for future research.

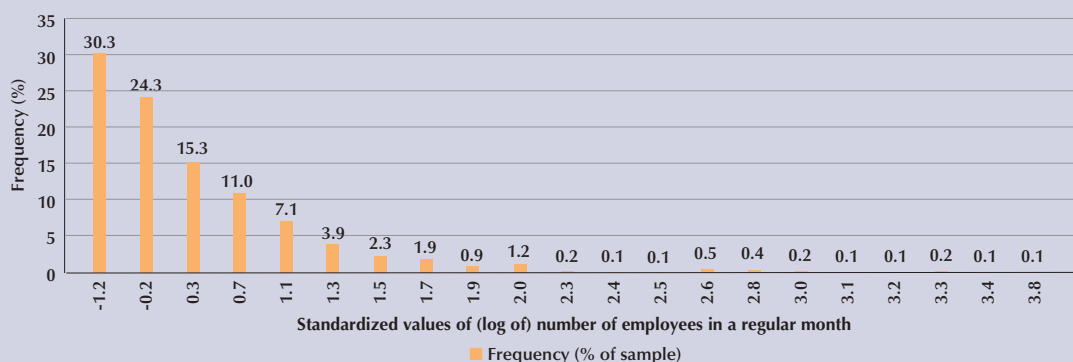
The results discussed below are obtained using appropriate regression analysis. Unless stated otherwise, all the results discussed below are statistically significant at the 10 percent level or less and they are robust to country and sector (firm manufactures the product or not) fixed effects. We note that our results hold in the full sample and not necessarily in any given individual country. We do check that a single outlier country is not driving the results. The results are as follows.

Smaller firms have higher labor productivity

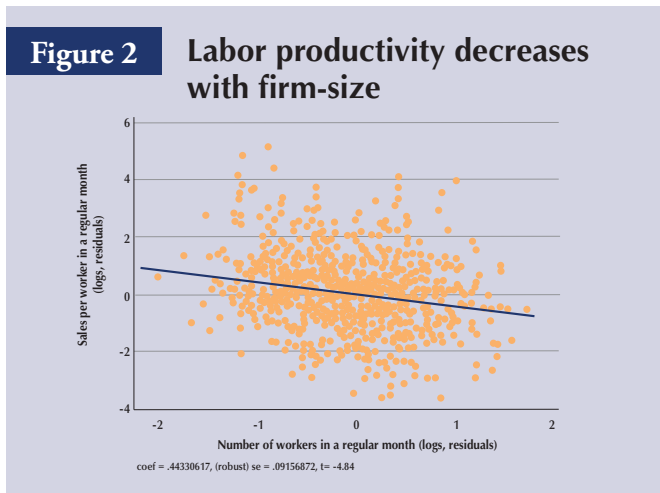
We define firm-efficiency or labor productivity as the (log of) sales in a regular month over the last year divided by the total number of employees working at the firm in a regular month over the last year. *Ceteris paribus*, one would expect labor productivity to decrease with firm-size since larger firms have resources or other inputs spread out more thinly across workers. Of course, this tendency for diminishing returns to labor could be countered if more workers imply more of other complementary inputs.

The results indeed show a sharp decline in labor productivity as the number of workers at the firm increases (figure 2).¹ For example, the median level of labor productivity equals USD 152 (per month) among firms with 2 or less employees (below median employment). The corresponding figure for firms with more than 2 employees is much lower at USD 131. Note that the latter is about 86 percent of the former. To be more conservative, we take firm-level factors such as female ownership, whether firms manufacture products,

Figure 1 Size distribution of the firms in the sample



Source: Enterprise Surveys.



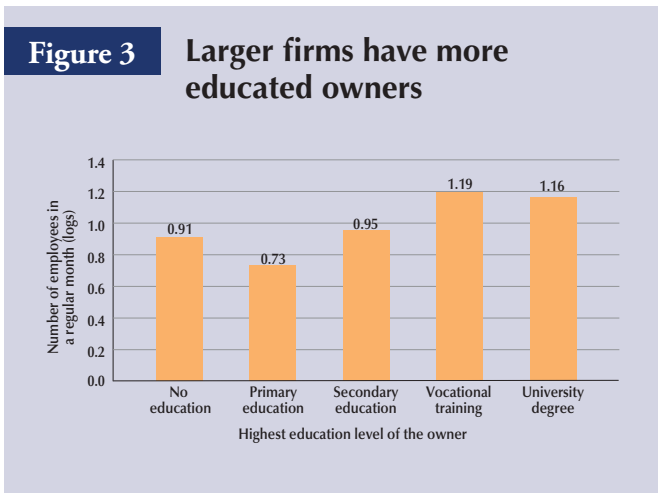
Source: Enterprise Surveys.

Note: The figure is a partial scatter plot obtained after controlling for country fixed effects, age of the firm (logs), and separate dummy variables indicating if the firm has a female owner, firm uses machinery, firm uses electricity and if the firm manufactures the product itself. The negative relationship shown is significant at less than the 1 percent level with Huber-White robust standard errors clustered on the country. One observation is dropped in the figure above (outlier) although this does not change any of the results in the figure or in the text above.

etc., into consideration and still find a negative relationship between labor productivity and employment. This finding indicates that expanding employment in the informal sector may require provision of complementary (to labor) resources so that labor productivity and therefore income level of the informal workers does not decrease too much as the sector expands.

Large firms have more educated owners than small firms

The importance of education can hardly be exaggerated. For one, education implies greater and better quality of human capital and therefore greater ability to benefit from existing opportunities. Focusing on the education level of the largest owner (henceforth owner) of the firm, only 9 percent of the firm owners in our sample have no education at all. The overwhelming majority have some education including primary education (32 percent), secondary education (35 percent), vocational training (14 percent) and university degree (11 percent). In our sample, education level of firm owners is higher among the relatively larger firms (figure 3). However, this positive correlation between the level of education of the owner and firm-size is primarily due to differences in firm-size between owners with secondary, primary or no education vs. the rest of the owners who have vocational training or university degree. A unit increase in the number of employees at the firm is associated with an increase of 12.2 percentage points in the likelihood of the firm having an owner with vocational training or university degree rather than having just primary, secondary or no education at all.



Source: Enterprise Surveys.

Large firms show a greater willingness or preference to register than small firms

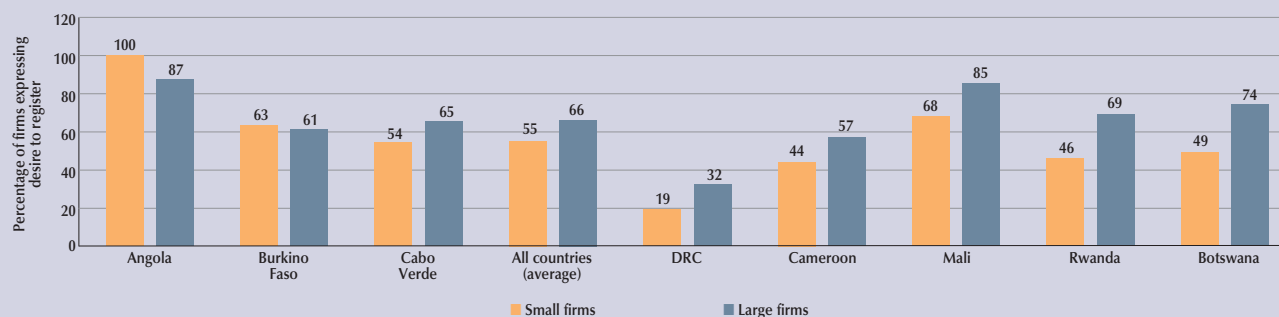
It is commonly believed that registration—the move from informal to formal sector—is beneficial to the economy in terms of tax revenues, better compliance with laws, etc. There are some benefits to the firm too, such as better access to finance, greater protection provided by the law, etc., but these do come with the attended cost of taxes and compliance with the laws. Hence, the question arises whether informal firms are willing to register or not. In one of the survey questions, firms were asked if they would like to be registered. Nearly 59 percent of the firms answered in the affirmative. A greater proportion of small firms than large firms in Angola and Burkina Faso showed willingness to be registered; however, in the full sample, the desire to register was much more common among large firms than small firms. According to the most conservative estimate based on controlling for some important firm characteristics, a unit increase in the number of employees (without logs) is associated with an increase of 9 percentage points in the likelihood of a firm wanting to be registered (against the mean level of 59 percent). Figure 4 illustrates the point.

The survey also asked firms if registering would benefit them through better access to finance, better access to raw materials, infrastructure and government services and through less bribes to pay. We find no evidence that the likelihood of a firm reporting any of these benefits differs significantly by firm-size. Similarly, a firm’s perception of the maximum and minimum time it takes to register a business is roughly same for firms of different sizes.

Large firms are more likely to use banks and microfinance institutions than small firms in order to finance their day-to-day operations

Focusing on financing of day-to-day operations of the

Figure 4 Large firms are more likely to express the desire to register than the small firms



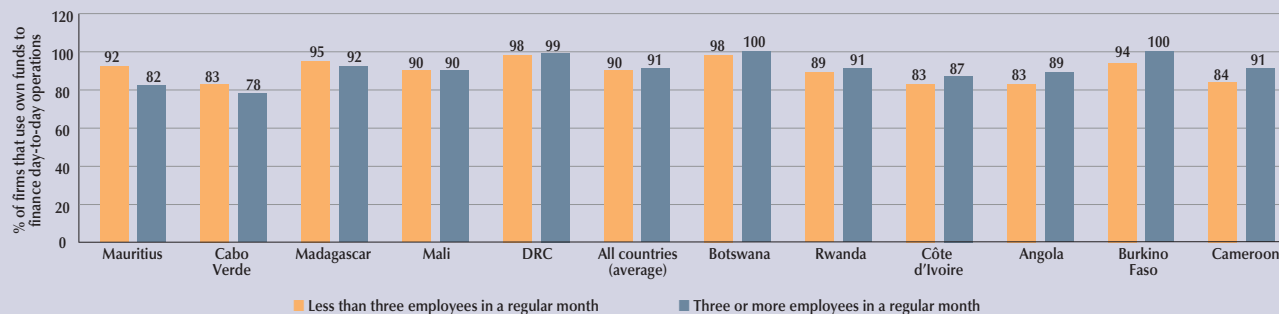
Source: Enterprise Surveys.

Note: Small firms are those firms that have less than 3 employees in a regular month and the rest are large firms. DRC in the figure is Congo, Democratic Republic.

firm, it is well known that informal firms rely heavily on their own funds. This is supported by our sample as well with 91 percent of the firms reporting use of own funds to finance their day-to-day operations. Nevertheless, use of other sources of finance is not entirely absent—21 percent of firms report using credit or advances from suppliers and customers, 22 percent borrowed money from friends and relatives, 7 percent used moneylenders, 4 percent used banks and 5 percent used microfinance institutions. Somewhat surprisingly, we find no significant differences between small and large firms in the proportion of firms using own funds (figure 5). Similarly, firm-size is uncorrelated with the likelihood of a firm using other sources of finance—except for banks and microfinance institutions. Large firms show a higher probability of obtaining financing from banks and microfinance institutions—considered separately or jointly—than the small firms.

Summarizing, using newly available data on informal firms in 11 African countries, this note explores whether firm-size matters within the informal sector. Is there a meaningful distinction between large and small informal firms and if so, in what ways? Results discussed show that compared with small firms, large firms are less productive, more willing to register, have more educated owners and are more likely to make use of banks and microfinance institutions for obtaining finance. These results are a starting point and we hope that they will encourage more research on the relevance of firm-size for the informal sector.

Figure 5 Large and small firms are equally likely to use their own funds to finance day-to-day operations



Source: Enterprise Surveys.

Note: Small firms are those firms that have less than 3 employees in a regular month and the rest are large firms. DRC in the figure is Congo, Democratic Republic.

Notes

1. The negative relationship here is statistically weak and insignificant at the 10 percent level without any other controls but becomes large and significant (at the 1 percent level) once we control for country fixed effects. That is, the relationship is weak across countries but strong within countries.

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