

Striving for Entrepreneurial Success in Africa: How Relevant is Foreign Direct Investment and Financial Market Development?

Preliminary Draft--Not for Citation

August 2017

Jonathan Munemo
Associate Professor
Perdue School of Business, Salisbury University
Salisbury, MD 21801, USA
jxmunemo@salisbury.edu

Abstract

A panel dataset of 28 African countries spanning the period 2002-2014 is used to empirically analyze the effects of foreign direct investment (FDI) and financial development on new business density, a critical measure of entrepreneurship. Panel fixed effects and dynamic panel regressions were estimated while controlling for other important factors that influence entrepreneurship. The paper finds that FDI enhances entrepreneurship in African countries with more developed financial institutions and markets. This result implies that financial development is a critical determinant of the absorptive capacity which a country needs to benefit from potential FDI spillovers. In addition, the results also show that improving all the different dimensions of financial development (depth, access, and efficiency) is important for stimulating new entrepreneurial activity.

Keywords: foreign direct investment, financial development, entrepreneurship, crowding-out
JEL codes: F23; L26; O16

1. Introduction

Entrepreneurship plays a vital role in a country's growth and overall economic development by creating new firms. Klapper et al. (2006) and Djankov et al. (2002) have pointed out that newly established firms generally tend to be more efficient, and the competitive pressure that they exert on other firms enhances productivity and economic growth. Recently, Aghion (2017) pointed out that growth is generated by innovations resulting from entrepreneurial investments. Earlier studies by Aghion *et al.* (2009), Black and Strahan (2002), and Hause and Du Rietz (1984), among others, have also documented the positive impact that entrepreneurship has on economic growth. Additionally, some studies also demonstrate that start-ups and young businesses contribute much more to job creation than more mature firms (Ayyagari, *et al.*, 2011; Haltiwanger *et al.*, 2010).

This paper examines the significance of foreign direct investment (FDI) and financial development in stimulating new local enterprises and entrepreneurship in Africa. Opportunities created by the crowding-in effect of FDI from multinational corporations (MNCs) can potentially support new and small businesses in Africa through the diffusion of superior technology and transmission of new ideas and skills. This can happen through various mechanisms (see for example Keller, 2004; Ayyagari and Kosova, 2010; and Danakol *et al.* 2013) which include the entry of domestic firms as new suppliers (backward linkages) or customers (forward linkages) of foreign firms, particularly in vertically related industries where they are less likely to be perceived as potential competitors of foreign firms. In addition to these backward and forward linkages, another mechanism for knowledge diffusion is through a demonstration effect, whereby new domestic firms can enter the same industry by adopting practices similar to those introduced by foreign firms. Labor mobility is another mechanism for the diffusion of entrepreneurial skills

from local workers trained and employed by foreign firms. Equipped with these superior skills, workers can establish businesses of their own when they cease to be employees of foreign firms. Finally, the fact that a majority of foreign owned firms export their products can also stimulate local firm entry by opening up export opportunities which local entrepreneurs can exploit using export channels already established by the foreign enterprises.

There is a risk however that the inflow of FDI may also have a crowding-out effect on entrepreneurship if the FDI competes with domestic producers and/or raises technological barriers to entry. This effect is more likely to be horizontal in nature, since the threat of competition is much higher from domestic firms operating in the same industry. Entry barriers for local firms can also arise when foreign firms increase average fixed costs. Another avenue through which foreign enterprises can crowd out new local firms is by providing better working conditions and higher wages than domestic competitors. As a result, the most talented workers may end up working in foreign firms instead of utilizing their skills to establish their own firms. In addition, FDI may also fail to generate other positive externalities that would improve the productivity of domestically owned firms or stimulate the entry of new entrepreneurs. The overall effect of MNCs on entrepreneurship in a host economy therefore depends on which of these two opposing forces dominates.

It is also important to keep in mind that the crowding-in effect of FDI may ultimately depend on local conditions which affect a host country's absorptive capacity (i.e. capacity to harness positive spillovers from FDI). In particular, the domestic financial environment is regarded as one of the most important local conditions, and the evidence from the growth literature points out that lack of financial market development can actually limit a host economy's ability to take advantage of potential spillovers from FDI. For example, Hermes and

Lensik (2003), Durham (2004), and Alfaro et.al. (2004) show that countries with less developed financial systems do not fully exploit the growth benefits from FDI. There is also strong evidence which shows that financial development directly stimulates entrepreneurship by relaxing the constraint on access to finance facing many small and medium enterprises (SMEs) which account for a large share of enterprises in developing countries (see for example Beck and Demirguc-Kunt, 2006).

A panel dataset of 28 African countries spanning the period 2002-2014 is used to empirically analyze the effects of FDI and financial development on entrepreneurship. In the literature, entrepreneurship is often measured by the rate of self-employment, by business ownership, and by the rate of new start-ups (see Naudé 2010; Desai 2009). Following Klapper and Love (2011), we use a World Bank measure of entrepreneurship called entry density, which is defined as the number of newly registered limited liability companies (LLCs) per 1,000 working-age population. This measure is appealing because it captures a key aspect of entrepreneurship (new business creation) and because panel data on this measure have been collected by the World Bank for a very large sample of countries. Also, it is not static or dependent on the level of development like other measures of entrepreneurship based on self-employment. In addition, it overcomes the potential problem of overstating the rate of entrepreneurship that is associated with Global Entrepreneurship Monitor (GEM) measures of entrepreneurship by excluding firms that re-register.

Panel fixed effects and dynamic panel regressions were estimated while controlling for other important factors that influence entrepreneurship. The paper finds that although the direct effect of FDI on entrepreneurship is positive, it is not always statistically significant across different estimations. This could be due to the fact that the crowding-in effect of FDI

significantly depends on local conditions which affect a host country's absorptive capacity, and the level of financial development has been identified as one of the most important local conditions. So in addition to estimating the direct effect of FDI on entrepreneurship, the paper also analyzes how country level-differences in financial development interact with FDI. Two measures of financial development are used for the analysis. The first is domestic credit to private sector, which is the standard measure of financial development most commonly used in the literature. The problem however is that domestic credit to the private sector only measures financial depth, and does not take into account other dimensions of financial development such as access to financial services by individuals and companies and the ability of institutions to supply financial services efficiently. For robustness, the paper therefore uses an alternative measure which takes into account depth, access, and efficiency dimensions of financial development. This measure was recently developed by the IMF and is described in detail by Svirydzienka (2016).

The results show that the estimated interaction effect is statistically significant and positively affects entrepreneurship, implying that FDI enhances entrepreneurship in countries with more developed financial institutions and markets which increase their FDI absorptive capacity. An improvement in both measures of financial development has a positive effect on entrepreneurship. However, the results are more significant for the IMF index of financial development than for domestic credit to the private sector, implying that it's not just financial depth that matters for entrepreneurship, but also access and efficiency dimensions of financial development too. The policy implications are clear: If a nation wishes to promote higher levels of domestic entrepreneurship, top priority should be given to raising the quality of financial development to a level that is sufficient to stimulate entrepreneurship by enhancing the

crowding-in effect of FDI, thereby creating jobs and generating increased economic growth. This will also stimulate entrepreneurship by relaxing the constraint on access to finance facing small and medium enterprises, as pointed out in the prior findings of Beck and Demirguc-Kunt (2006) and other studies.

The remainder of this paper proceeds as follows. Section 2 provides the empirical framework, beginning with descriptions of the data used to measure entrepreneurship, FDI, financial development, and control variables. This is followed by a discussion of country selection, descriptive measures, and the empirical specification used in the analysis. The main findings from the empirical analysis are presented and discussed in section 3, and finally, section 4 summarizes the main findings and implications of the paper.

2. Data and Methodology

The following subsections provide a detailed account of how this study is empirically implemented, including variable choice, specification of the empirical model, and data used in the analysis.

2.1. Entrepreneurship- concept and measurement

Bjørnskov and Foss (2008) make a distinction between three main concepts of entrepreneurship that have been discussed in the literature. The first and most commonly used concept, associates entrepreneurship with innovation activities which are the source of Schumpeterian forces of creative destruction such as the introduction of new products, new production processes, and new organizational modes. A second concept associates entrepreneurship with the notion of being alert to profit opportunities that may arise from arbitrage opportunities and from the discovery of new products or superior production processes, and exploiting these profit

opportunities before potential competitors seize them. The third concept views an entrepreneur as someone who makes business decisions under conditions of uncertainty.

Most definitions of entrepreneurship are broadly based on at least one of these concepts. Wennekers and Thurik (1999: pg. 46-47) for example define entrepreneurship as “the manifest ability and willingness of individuals” to perceive new economic opportunities and take advantage of them under conditions of market uncertainty. Other studies adopt a similar definition (see for example, Bjørnskov and Foss, 2008, and Dreher and Gassebner, 2013).

Empirically, it is difficult to find a measure of entrepreneurship that covers all of the different dimensions discussed above. Some studies have used self-employment rates to measure entrepreneurship (see for example, Avnimelech *et al.* 2014, Dau and Cuervo-Cazurra, 2014, Bjørnskov and Foss, 2008 and 2013, Bowen and De Clercq, 2008, and Nyström, 2008). While this measure may capture the role of an entrepreneur as a risk taker, one of its major drawbacks is that it may be correlated with the level of development. Other studies utilize survey-based responses from the Global Entrepreneurship Monitor (GEM) which provide data on respondents having the intention of starting a business, being in the process of starting a new business, or being engaged in early-stage entrepreneurial activity (see for example Dreher and Gassebner, 2013, and Bjørnskov and Foss, 2008). However, as noted by Nyström (2008), GEM data does not measure formal and informal entrepreneurship separately and it can also easily overstate the rate of entrepreneurship if some individuals who claim to be in the process of starting a business ultimately fail to do so.

In this paper, we use the World Bank measure of entrepreneurship called new business density, which is defined as the number of newly registered firms with limited liability per 1,000 working-age population (ages 15-64). This measure is appealing because it captures a key aspect

of entrepreneurship discussed above and because panel data on this measure has been collected by the World Bank for a very large sample of countries. Also, it is not static or dependent on the level of development like other measures of entrepreneurship based on self-employment. In addition, it overcomes the potential problem of overstating the rate of entrepreneurship that is associated with GEM measures of entrepreneurship by excluding firms that re-register. Data on new business density is published in the World Bank's Doing Business database (www.doingbusiness.org).

However, it should also be noted that this measure has its own drawbacks. Its coverage is limited to only the formal sector. The informal sector, which is an important component of entrepreneurship in some developing countries, is excluded due to the lack of data on the number of firms operating within that sector. Within the formal sector, the focus is only on firms with limited liability because other types of formal businesses such as partnerships and sole proprietorships differ with respect to definition and regulation, making cross-country comparisons difficult.

2.2. FDI and financial market development

The source of data for FDI is the World Bank's World Development Indicators (WDI) databank. FDI is measured by total net inflows of investment (including equity capital, reinvestment of earnings, other long-term capital, and short-term capital) to acquire 10% or more of a firm in the host nation. Two measures of financial market development are used in the study. The first measure is domestic credit to private sector (% of GDP), and is obtained from WDI databank. This measure is preferred because it is more comprehensive than other available measures such as domestic credit provided by the financial sector or domestic credit to private sector by banks. Stock market measures of financial development could not be used as well because data availability is limited for many countries in the sample. For these reasons, domestic credit to the

private sector is the measure widely used in other studies too (for example Demirguc-Kunt and Levine; 1996 and Hermes and Lensink; 2003). The problem however is that domestic credit to the private sector only measures financial depth, and does not take into account other dimensions of financial development such as access to financial services by individuals and companies and the ability of institutions to supply financial services efficiently. For robustness purposes, the paper also uses an alternative measure which takes into account depth, access, and efficiency dimensions of financial development. This measure was recently developed by the IMF and is described in detail by Svirydzenka (2016). An added advantage is that the IMF has assembled a long time series data on this measure for many countries.

2.3. Control variables

In the literature, a country's regulatory environment for business start-ups is an important determinant of entrepreneurial activities at the country level. Following the previous literature (see for example Djankov et al. (2002) and the World Bank (2004)), the number of start-up procedures to register a business and time (in days) required to start a business are used as measures of business startup regulations. Data on these two measures was collected from the Doing Business website. Klapper et. al. (2006), Klapper and Love (2011), and Djankov et al. (2010) and others have shown that an increase in these measures of entry regulation has a negative and significant effect on new business creation. In addition, some of these studies also control for a country's GDP growth and the 2008/09 financial crisis (Klapper and Love, 2011; Klapper et.al. 2015). In the empirical analysis that follows, business start-up regulations, GDP growth (from WDI databank), and a financial crisis dummy are therefore used as controlling variables.

2.4. Country selection and descriptive measures

Table 1 shows the total number of African countries with data on new business density in the dataset. Based on data availability, the final dataset used covers the period 2002 to 2014 and has a panel structure which is unbalanced because of missing data in a few cases. Description of variables and summary statistics of the data are shown in Table 2, and Table 3 provides a correlation matrix for the variables. As a first pass, it is useful to examine data on entrepreneurship, FDI and financial development using scatter plots. The data does not show evidence of a clear positive relationship between FDI and new business density in Figure 1. This could be due to the fact that the relation between FDI and entrepreneurship is contingent on factors that affect a country's FDI absorption capacity. Figure 2 and 3 show evidence of a positive relationship between new business density and measures of financial development, implying that higher levels of financial development are associated with greater new business activity. Further investigation is however warranted to determine if these relationships are causal.

2.5. The empirical specification

To examine more precisely the impact of FDI and financial development on entrepreneurship, fixed effects and dynamic panel data models were estimated for the sample of African countries using annual data between 2002 and 2014. The model specifications are described in the subsections below.

2.5.1. Fixed-effects regression

The model with fixed effects is specified as follows:

$$NewFirms_{it} = \beta_1 FDI_{it} + \beta_2 FD_{it} + \delta' X_{it} + \alpha_i + \lambda_t + \varepsilon_{it}, \quad (1)$$

where subscripts i and t represent country and time respectively. The dependent variable ($NewFirms$) is the natural log of new business density and the focal independent variables are

(*FDI*) and financial development (*FD*). In addition to these variables of main interest, control variables are included as well and are represented by the vector X . The control variables include business startup regulations (measured by the number of start-up procedures to register a business and days required to start a business), GDP growth, and the 2008/09 financial crisis. The estimation strategy also takes into account country fixed effects (α_i) and time fixed effects (λ_t). Country fixed effects are included to control for unobserved time-invariant differences between countries that affect new business formation in the country, while time fixed effects control for unobserved time varying factors that might affect new business creation in all countries. The variable ε_{it} is the disturbance term.

2.5.2. Dynamic panel-data estimation

In addition to estimating equation (1) above, estimations were also performed using generalized method of moments (GMM), which is a consistent estimator for the parameters of a model in the presence of endogenous covariates. The GMM estimator is also designed for panel datasets with a shorter time dimension and a larger country dimension such as the one used in this study.

Lagged GDP growth and business start-up regulations are treated as exogenous variables, while the remaining covariates used in the estimations are treated as endogenous variables. Only the fourth lag of the endogenous variables is used as instruments. Using a larger number of instruments would weaken the Sargan and Hansen tests of over-identifying restrictions (Roodman, 2009a), and in addition, using deeper lags would further reduce the sample size. It is well known that difference GMM suffers from weak instruments. Therefore the two-step system GMM is performed. However, there is still the problem that application of GMM estimators leads to instrument proliferation, which in the case of system GMM, also weakens the Hansen test of instrument validity. To limit the number of instruments generated in system

GMM and avoid bias in the results, the two-step GMM is performed using collapsed instruments, following Roodman (2009b), who describes in detail how this technique can be implemented.

3. Empirical Findings

The following sub-sections present and discuss the results obtained from the fixed effects panel regression and the dynamic panel data estimation.

3.1. Fixed effects model

The analysis starts by estimating the direct effects of FDI and financial development on entrepreneurship and columns (1) to (4) of Table 4 summarize the results from regressions with robust standard errors (shown in parentheses). In column (1), financial development is measured by domestic credit to the private sector and business regulations are measured by start-up procedures. Contemporaneous FDI has a positive effect on entrepreneurship, but its effect is not statistically significant. The estimated coefficient on domestic credit is positive and significant, implying that financial development has a positive and significant effect on entrepreneurship.

The results also show that an increase in start-up procedures significantly reduces entrepreneurship. In column (2), the IMF index of financial development is used instead of domestic credit to the private sector and its coefficient is also positive but not significant. There is no change in the FDI effect on entrepreneurship, and start-up procedures continue to have a significant and negative relationship with entrepreneurship. The previous estimations are repeated with start-up time as the measure of start-up regulation and the results are shown in columns (3) and (4). In both estimations, an increase in FDI has a positive and significant effect on entrepreneurship. Both measures of financial development continue have a positive effect on entrepreneurship, but only the IMF measure is statistically significant. The results also show that entrepreneurship is significantly harmed by an increase in start-up time.

It has been shown that the 2008/09 global financial crisis affected the relationship between the level of financial development and entrepreneurship. More specifically, Klapper and Love (2011) find that the contraction in start-ups due to the credit crunch caused by the financial crisis was larger in countries with higher levels of financial development, where start-ups are more reliant on access to external finance. To explore whether the financial crisis had a similar effect in the sample of African countries used in this study, a financial crisis dummy is added to the previous estimations and interacted with the financial development variables. The results are presented in columns (5) to (8) of Table 4. Interestingly, the financial crisis dummy is uniformly positive and significant in the last three columns, implying that entrepreneurship picked up during the recession time, despite the decreased access to finance. This result is consistent with the view that higher unemployment and lower income during recessions lead some people to start their own businesses out of necessity and lower opportunity costs (see for example Parker, 2009, Thurik et.al., 2008).

Similar to Klapper and Love (2011), when the financial crisis dummy is interacted with the two measures of financial development, the estimated coefficients for the interaction terms are negative and statistically significant in all estimations, implying that entrepreneurship was more adversely affected by the financial crisis in African countries with more developed financial systems where entrepreneurs are more accustomed to and dependent on borrowing from banks and other financial institutions. Although FDI has a positive effect on entrepreneurship, its coefficient is only significant in the estimation where domestic credit is interacted with the financial crisis dummy. This could be due to the fact that the relation between FDI and entrepreneurship is contingent on intervening factors. The results demonstrate the important role played by financial development in promoting entrepreneurship-- the IMF

measure of financial development has a positive and statistically significant effect on entrepreneurship in all estimations. Both measures of start-up regulations remain significant and reducing them positively affects entrepreneurship. Not surprisingly, the estimated coefficient on a country's GDP growth is positive, however the increase in economic growth did not significantly translate into greater opportunities for new business start-ups. One possible explanation is that although Sub-Saharan Africa (SSA) has experienced impressive growth in recent years, it is well known that this high growth has not been inclusive (see for example the IMF May 2015 Regional Economic Outlook Report for Africa). In other words, the growth has not provided employment opportunities for many people by stimulating new business formation and other job creating initiatives.

3.2. System GMM Results

Previous studies point out that a country's ability to benefit from potential FDI spillovers depends on its absorptive capacity, and they find that financial development is a critical determinant of absorptive capacity. This paper therefore examines whether country-level differences in financial development influence the relationship between FDI and entrepreneurship. For this purpose, financial development is defined as a country-level time invariant characteristic by taking the average of domestic credit to the private sector and the average of the IMF financial development index over the sample time period (2002-2014). The results of the two-step system GMM estimation with robust standard errors (in parentheses) are shown in Table 5. Because country fixed effects are included, the time invariant average financial development measures are not included separately in the estimations. Implementing the collapsing technique reduces the instrument count from 62 to 8 in columns (1) and (2), and both the Sargan and Hansen tests support the null hypothesis that the over-identifying restrictions are

valid after reducing the instrument count. With collapsed instruments, the interaction term is positive and statistically significant in all the estimations. These results therefore support the hypothesis that FDI enhances entrepreneurship in countries with more developed financial institutions and markets --they have a greater absorptive capacity.

4. Summary and Conclusion

This study uses longitudinal data for a sample of 28 African countries to investigate the impact of FDI and financial development on new business density, a critical measure of entrepreneurship. Panel fixed effects and dynamic panel regressions were estimated while controlling for other important factors that influence entrepreneurship. The paper finds that although the direct effect of FDI on entrepreneurship is positive, it is not always statistically significant across different estimations. This is not too surprising in light of the evidence which demonstrates that a country's ability to benefit from FDI spillovers depends on local conditions which affect its absorptive capacity. The level of financial development is considered to be an important local condition. Therefore, the paper also analyzes how country level-differences in financial development interact with FDI. The results support the hypothesis that FDI enhances entrepreneurship in countries with a higher absorptive capacity, as measured by more developed financial institutions and markets. In addition, the results also show that improving all the dimensions of financial development (depth, access, and efficiency) is much more important for supporting entrepreneurship than focusing on a single dimension such as financial depth.

The policy implications are clear: If a nation wishes to promote higher levels of domestic entrepreneurship, top priority should be given to raising the quality of financial development to a level that is sufficient to stimulate entrepreneurship by enhancing the crowding-in effect of FDI, thereby creating jobs and generating increased economic growth. This will also stimulate

entrepreneurship by relaxing the constraint on access to finance facing small and medium enterprises. Empirically, it is difficult to find a measure that covers all of the different dimensions of entrepreneurship. New business density is used in this study because it captures a key aspect of entrepreneurship (new business formation) and it is not static or dependent on the level of development like other measures of entrepreneurship based on self-employment. In addition, it overcomes the potential problem of overstating the rate of entrepreneurship that is associated with GEM measures of entrepreneurship. However, a major drawback of using new business density is that coverage is limited to only the formal sector. The informal sector, which is an important component of entrepreneurship in some developing countries, is excluded due to the lack of data on the number of firms operating within that sector.

References

- Aghion, P. 2017. "Entrepreneurship and Growth: Lessons from an Intellectual Journey." *Small Business Economics* 48: 9–24.
- Aghion, P., R. Blundell, R. Griffith, P. Howitt, and S. Prantl. 2009. "The Effects of Entry on Incumbent Innovation and Productivity." *Review of Economics and Statistics* 91: 20–32.
- Alfaro, L., Chanda, A., Kalemli-Ozcan., and Sayek, S. 2004. "FDI and economic growth: the role of local financial markets." *Journal of International Economics*, 64, 89-112.
- Avnimelech, G., Y. Zelekha, and E. Sharabi. 2014. "The Effect of Corruption on Entrepreneurship in Developed vs. Non-Developed Countries." *International Journal of Entrepreneurial Behavior & Research* 20: 237–62.
- Ayyagari, M., Demirguc-Kunt, A., and Vojislav M. 2011. "Small vs. young firms across the world: contribution to employment, job creation, and growth," Policy Research Working Paper Series 5631, World Bank.
- Ayyagari, M., and Kosova, R. 2010. "Does FDI facilitate Domestic Entry? Evidence from the Czech Republic." *Review of International Economics*, 18, 14-29.
- Beck, T., and Demirguc-Kunt, A. 2006. "Small and medium-size enterprises: Access to finance as a growth constraint." *Journal of Banking & Finance*, 30, 2931-2943.
- Black, S and P Strahan (2002). "Entrepreneurship and bank credit availability." *Journal of Finance*, 57, 2807-33.
- Bjørnskov, C., and N. Foss. 2013. "How Strategic Entrepreneurship and the Institutional Context Drive Economic Growth." *Strategic Entrepreneurship Journal* 7: 50–69.
- Bjørnskov, C., and N. Foss. 2008. "Economic Freedom and Entrepreneurial Activity: Some Cross-Country Evidence." *Public Choice* 134: 307–28.
- Bowen, H., and D. De Clercq. 2008. "Institutional Context and the Allocation of Entrepreneurial Effort." *Journal of International Business Studies* 39: 747–67.
- Danakol, S., Estrin, S., Reynolds, P., and Weitzel, U. 2013. "Foreign Direct investment and Domestic Entrepreneurship: Blessing or Curse?" *IZA Discussion Paper NO. 7796*.
- Dau, L., and A. Cuervo-Cazurra. 2014. "To Formalize or Not to Formalize: Entrepreneurship and Pro-Market Institutions." *Journal of Business Venturing* 29: 668–86.
- Demirguc-Kunt, A., and R. Levine. 1996. "Stock Market Development and Financial Intermediaries: Stylized Facts." *World Bank Economic Review* 10: 291–321.

- Desai, S. 2009. "Measuring Entrepreneurship in Developing Countries." UNU-WIDER Research Paper No. 2009/10, United Nations University World Institute for Development Economics Research.
- Djankov, S., T. Ganser, C. McLiesh, R. Ramalho, and A. Shleifer. 2010. "The Effect of Corporate Taxes on Investment and Entrepreneurship." *American Economic Journal: Macroeconomics* 2: 31–64.
- Djankov, S., La Porta, R., Lopez-De-Silanes, F., and Shleifer, A. 2002. "The regulation of entry." *Quarterly Journal of Economics*, CXVII, 1-37.
- Dreher, A., and M. Gassebner. 2013. "Greasing the Wheels? The Impact of Regulations and Corruption on Firm Entry." *Public Choice* 155: 413–32.
- Durham, B. 2004. "Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth." *European Economic Review*, 48, 285-306.
- Haltiwanger, J., Jarmin, R., and Miranda, J. 2010. "Who Create Jobs? Small vs. Large vs. Young." CES Research Paper 10-7. US Census Bureau, Center for Economic Studies.
- Hause, J and G du Rietz (1984). "Entry, industry growth, and the micro dynamics of industry supply." *Journal of Political Economy*, 92, 733-57.
- Hermes, N., and Lensink, R. 2003. "Foreign Direct Investment, Financial Development and Economic Growth." *Journal of Development Studies*, 40, 142-63.
- IMF. 2015. Sub-Saharan Africa: Regional Economic Outlook-Navigating Headwinds.
- Klapper, L., Love, I., and Randall, D. 2015. "New Firm Registration and the Business Cycle." *International Entrepreneurship and Management Journal*, 11, 287-306.
- Klapper, L., and I. Love. 2011. "The Impact of the Financial Crisis on New Firm Registration." *Economics Letters* 113: 1–4.
- Klapper, L., Laeven, L., and Rajan, R. 2006. "Entry regulation as a barrier to entrepreneurship." *Journal of Financial Economics*, 82, 591-629.
- Keller, W. 2004. "International Technology Diffusion." *Journal of Economic Literature* XLII: 752-782.
- Naudé, W. 2010. "Promoting Entrepreneurship in Developing Countries: Policy Challenges." UNU-WIDER Policy Brief No. 4, United Nations University World Institute for Development Economics Research.
- Nyström, K. 2008. "The Institutions of Economic Freedom and Entrepreneurship: Evidence from Panel Data." *Public Choice* 136: 269–82.
- Parker, S. 2009. *The Economics of Entrepreneurship*. Cambridge: Cambridge University Press.

- Roodman, D. 2009a. "How to do xtabond2: An introduction to difference and system GMM in Stata." *The Stata Journal*, 9, 86-136.
- Roodman, D. 2009b. "A note on the theme of too many instruments." *Oxford Bulletin of Economics and Statistics*, 71, 135-158.
- Svirydzenka, K. 2016. "Introducing a New Broad-Based Index of Financial Development." IMF Working Paper WP/16/5.
- Thurik, A., Carree, M., van Stel, A., and Audretsch, D. 2008. Does Self Employment Reduce Unemployment? *Journal of Business Venturing*, 23, 673-686.
- Wennekers, S., and R. Thurik. 1999. "Linking Entrepreneurship and Economic Growth." *Small Business Economics* 13: 27-55.
- World Bank. 2004. *Doing Business in 2004: Understanding Regulation*. Washington, DC: World Bank and Oxford University Press.

Table 1: List of 28 African Countries in the Sample with Data on New Business Density

Country	Code	Income Group
Algeria	DZA	Upper middle income
Botswana	BWA	Upper middle income
Burkina Faso	BFA	Low income
Congo, Dem. Rep.	ZAR	Low income
Egypt, Arab Rep.	EGY	Lower middle income
Ethiopia	ETH	Low income
Gabon	GAB	Upper middle income
Ghana	GHA	Lower middle income
Guinea	GIN	Low income
Kenya	KEN	Lower middle income
Lesotho	LSO	Lower middle income
Madagascar	MDG	Low income
Malawi	MWI	Low income
Mauritius	MUS	Upper middle income
Morocco	MAR	Lower middle income
Namibia	NAM	Upper middle income
Niger	NER	Low income
Nigeria	NGA	Lower middle income
Rwanda	RWA	Low income
Sao Tome and Principe	STP	Lower middle income
Senegal	SEN	Low income
Sierra Leone	SLE	Low income
South Africa	ZAF	Upper middle income
South Sudan	SSD	Low income
Togo	TGO	Low income
Tunisia	TUN	Lower middle income
Uganda	UGA	Low income
Zambia	ZMB	Lower middle income

Table 2: Definitions and Summary Statistics

Variable	Obs.	Description	Mean	Standard Deviation	Min	Max
New business density	271	Number of newly registered companies per 1,000 people ages 15-64)	1.38	2.33	0.00	13.11
FDI	758	Foreign direct investment, net inflows (% of GDP)	5.13	8.32	-5.98	89.48
Financial development index	780	A relative ranking of countries on the depth, access, and efficiency of their financial institutions and financial markets. It is an aggregate of the financial institutions development index and financial markets development index.	0.13	0.10	0.00	0.64
Financial markets depth index	780	Financial market development indicator which compiles data on stock market capitalization to GDP, stocks traded to GDP, international debt securities of government to GDP, and total debt securities of financial and nonfinancial corporations to GDP.	0.06	0.11	0.00	0.76
Domestic credit to private sector	749	Financial resources provided to the private sector (% of GDP) by financial corporations that establish a claim for repayment	21.20	23.87	0.20	160.12
Start-up procedures	581	Start-up procedures to register a business (number)	9.78	2.98	3.00	18.00
Start-up time	581	Time required to start a business (days)	43.16	40.57	4.50	260.50
GDP growth	764	Annual percentage growth rate of GDP	4.71	6.12	-62.08	63.38
Financial crisis	780	Dummy for the 2008/09 financial crisis	0.07	0.25	0.00	1.00

Table 3: Correlation Matrix

	New business density	FDI	Financial development index	Financial markets depth index	Domestic credit to private sector	Start-up procedures	Start-up time	GDP growth	Financial crisis
New business density	1.00								
FDI	-0.02	1.00							
Financial development index	0.35	-0.11	1.00						
Financial markets depth index	0.21	-0.10	0.87	1.00					
Domestic credit to private sector	0.29	-0.10	0.93	0.83	1.00				
Start-up procedures	-0.15	-0.10	-0.24	-0.17	-0.28	1.00			
Start-up time	0.12	0.12	0.03	0.01	-0.04	0.33	1.00		
GDP growth	-0.07	0.08	-0.10	-0.06	-0.11	-0.01	-0.03	1.00	
Financial crisis	0.00	-0.02	0.03	0.03	0.01	-0.07	-0.02	-0.14	1.00

Table 4: Fixed Effects Panel Regression Results

(Dependent variable: log of New Business Density)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FDI	0.008 (0.014)	0.008 (0.014)	0.019* (0.011)	0.020* (0.011)	0.009 (0.014)	0.008 (0.014)	0.020* (0.011)	0.020 (0.012)
Domestic credit to private sector	0.016* (0.009)		0.018 (0.011)		0.016* (0.009)		0.018 (0.011)	
Financial development index		3.366 (2.004)		3.809** (1.810)		4.366** (2.003)		4.761** (1.964)
Start-up procedures	-0.152*** (0.054)	-0.157** (0.059)			-0.153*** (0.055)	-0.154** (0.059)		
Start-up time			-0.009*** (0.002)	-0.009*** (0.002)			-0.009*** (0.002)	-0.009*** (0.002)
GDP growth lagged	0.009 (0.006)	0.010 (0.006)	0.008 (0.005)	0.008 (0.005)	0.009 (0.006)	0.010 (0.006)	0.008 (0.005)	0.008 (0.005)
Financial crisis					0.157 (0.109)	0.269** (0.121)	0.245* (0.129)	0.371** (0.145)
Domestic credit to private sector *Financial crisis					-0.005** (0.002)		-0.005** (0.002)	
Financial development index*Financial crisis						-1.578*** (0.538)		-1.716*** (0.535)
Constant	0.020 (0.581)	-0.034 (0.742)	-1.132*** (0.382)	-1.235*** (0.327)	0.023 (0.590)	-0.232 (0.740)	-1.133*** (0.386)	-1.410*** (0.350)
Observations	242	243	242	243	242	243	242	243
R-squared	0.301	0.285	0.224	0.204	0.310	0.302	0.236	0.226
Number of countries	28	28	28	28	28	28	28	28

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Dynamic Panel Data Estimation, Two-Step GMM

VARIABLES	(1) Collapsed fourth-lag instruments	(2) Collapsed fourth-lag instruments
FDI	-0.028 (0.057)	-0.012 (0.058)
Domestic credit to private sector (mean) *FDI	0.003** (0.001)	
Financial development index (mean)*FDI		0.863** (0.354)
Start-up procedures	-0.013 (0.021)	-0.011 (0.021)
GDP growth lagged	0.002 (0.004)	0.004 (0.005)
New business density lagged	0.923*** (0.315)	0.970*** (0.239)
Number of instruments	8	8
Arellano-Bond test for AR (2) in first differences	1.080	0.570
<i>P value</i>	0.281	0.568
Sargan test of overid. restrictions	2.560	3.100
<i>P value</i>	0.465	0.376
Hansen test of overid. restrictions	1.490	1.090
<i>P value</i>	0.684	0.780
Observations	231	231
Number of countries	28	28

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 1: New Business Density vs. FDI

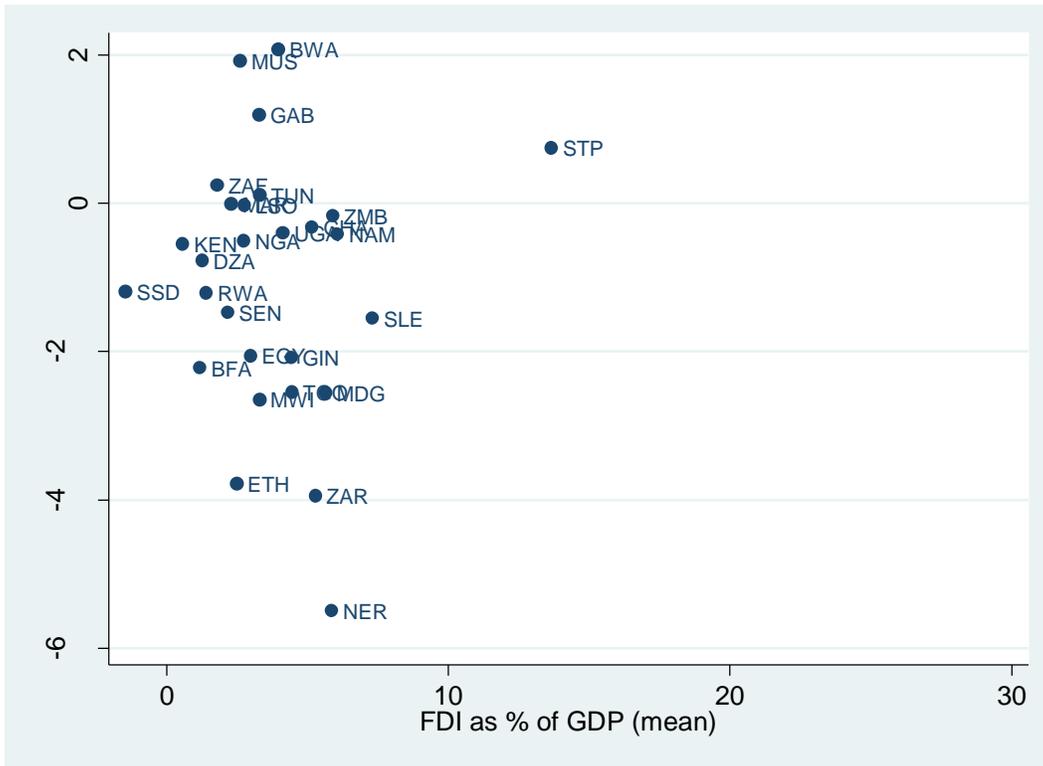


Figure 2: New Business Density vs. Domestic Credit

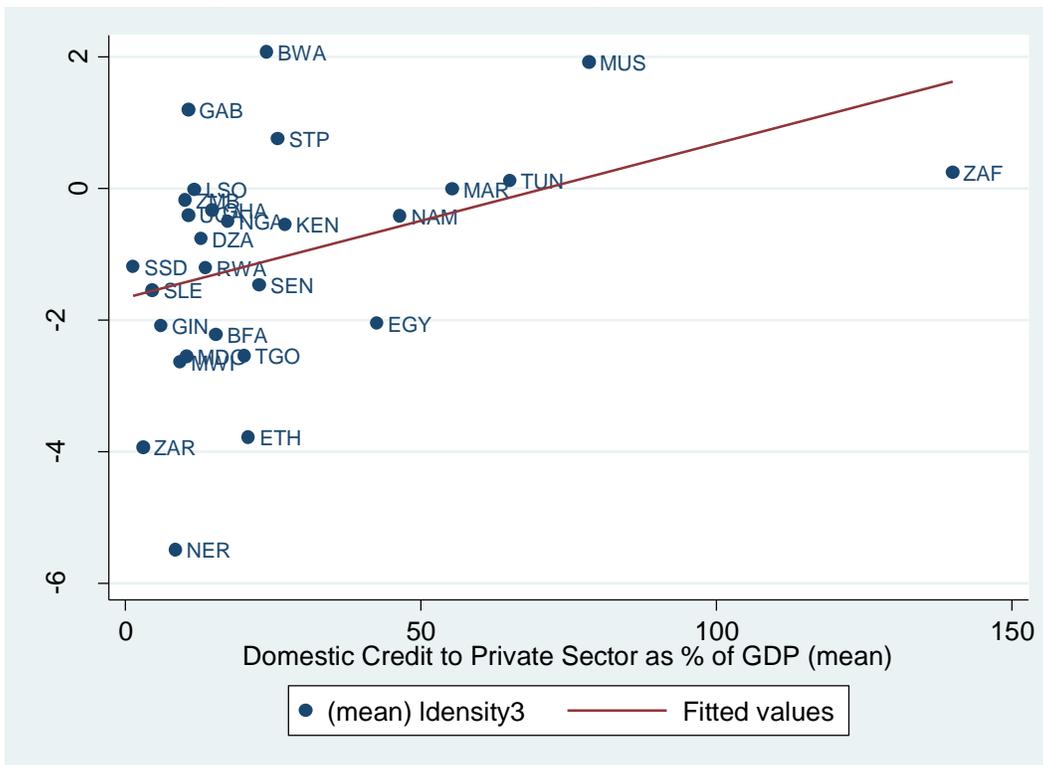


Figure 3: New Business Density vs. Financial Development Index

