Growth Performance of Manufacturing Firms in Sub-Saharan Africa

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神戸大学大学院経済学研究科

経済学専攻

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in Sub-Saharan Africa

(サブサハラアフリカにおける製造業企業の

成長パフォーマンス)

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Abstract

This thesis attempts to assess the effects of firm size and age, among other characteristics, on the growth performance of manufacturing industries in 25 Sub-Saharan African countries. The growth function of firms was estimated by departing from the widely used method, which assumes a standard function across different industries to evaluate their performance. Instead, this study estimates separate growth functions for various industries using the World Bank Enterprise Survey data of 4500 firms. The purpose is to investigate the importance of innovation and imitation in the growth of manufacturing firms. We assumed that innovation was led by medium and large enterprises, whereas imitation was active among firms of smaller size. After controlling for country fixed effects, the results show that micro, small, and young firms grow faster than medium, large-sized, and older firms. The result remains consistent, accounting for the fast, slow, and stagnant industrial growth. Moreover, we find that firms partially owned by foreigners grow in a few cases, but those owned by nationals grow in most cases. The firm size and age results remain robust after estimating the growth function using the institutional data, namely, the legal system's strength, the investment profile, the level of corruption, government stability, and internal conflict risks. The results of the growth estimation with institutional data show that lower corruption risks are positively associated with annual employment and sales growth. We also estimated the determinants of firms' innovation using the probit marginal effect. For this purpose, we used firm-level data on innovation and other characteristics of 2071 firms in diverse industries from the World Bank Enterprise Survey of 2006, 2013, and 2016. To obtain unbiased estimates, we once again controlled for country-specific effects. We first included country dummies in the probit model, and in the other specification, we substituted them with institutional data. The findings show that smaller firms are less likely to innovate. In most estimations, a sound judicial system lowers corruption and internal conflict risks and sets an environment that increases the likelihood of being an innovative firm. We find that firms that train workers are more likely to innovate. The impact of the management experience of top managers on the growth of manufacturing firms has been negative. Because of this, we recommend that policymakers in Sub-Saharan Africa provide promising entrepreneurs with the management training necessary to improve their skills, which is conducive to innovation and the sustained growth of firms.

Keywords: Growth performance, Firm age, Firm size, Management training, Institutions, Sub-Saharan Africa, Innovation, Imitation.

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Chapter 1: Introduction

Innovation has been the engine of the sustained growth of manufacturing firms in many parts of the world. As a result, innovative manufacturing industries substantially contribute to job creation (Collier and Gunning, 1999; Wells and Thirlwall, 2003; Haltiwanger et al., 2013; Newman et al., 2016). However, in Sub-Saharan Africa (SSA), one of the main characteristics of manufacturing firms for decades has been stagnant productivity (Ramachandran and Shah, 1999; Noorbakhsh and Paloni, 1999; Lawrence, 2005), possibly explained by the absence of innovation. When innovations occur, manufacturing firms become more efficient and produce higher-quality goods for the domestic market and exports (Lages et al., 2009). Data from the World Development Indicators (WDI) show that from 2001 to 2020, manufacturing exports as a percentage of merchandise exports were 25 percent in SSA. In contrast, in South Asia, it has been 70 percent. These data suggest that innovations led to a larger manufacturing export share in Asia. Therefore, it seems necessary to reinvigorate the manufacturing sector through innovations to boost productivity and create more jobs in SSA (Bigsten and Söderbom, 2006; Haltiwanger et al., 2013).

The quality of political institutions influences the incentives of firms to invest in innovative activities for growth. Good political institutions positively affect the growth performance of firms by minimizing the risk entrepreneurs face in the course of firm management (North, 1991; Acemoglu et al., 2005). For example, expropriation, corruption, and the absence of a well-functioning judicial system to enforce property rights are, among others, risks that face entrepreneurs in SSA, where the quality of institutions is poor (Alence, 2004; Cliff et al., 2006; Robson et al., 2009; Ferreira et al., 2014). In advanced countries where institutions are generally designed to stimulate innovation, large firms substantially contribute to industrial growth and job creation (Audretsch, 2002; Hijzen et al., 2010; Haltiwanger et al., 2013). However, in countries in SSA with a poor institutional environment, small and medium-

sized enterprises (SMEs) tend to contribute to growth and employment through imitation (Mina et al., 2013; Coad et al., 2016; Barasa et al., 2019).

Many case studies in Asia have well documented the nexus between innovation and the growth of manufacturing industries (Sonobe and Otsuka, 2011; Sonobe, Otsuka, and Hashino, 2016; Otsuka and Sonobe, 2018). From the empirical literature on firm growth, two tendencies emerge. First, medium and large firms grow remarkably fast because of innovation. The specific examples of such a fast growth were the electric appliances industry in Wenzhou (Sonobe et al., 2004) and the garment industry in Bangladesh (Mottaleb and Sonobe, 2011). In the case of Bangladesh, the exceptionally fast-growing garment industry took off because training in production, management, and marketing in South Korea helped innovative entrepreneurs to ensure firm growth. Second, when innovation is inactive and imitation rampant, the growth of small firms tends to be faster. For example, the case of the motorcycle industry in Chongqing in China shows that because of the inferior quality of products, imitation allowed small firms to produce cheaper motorcycles and grow faster (Sonobe et al., 2006). Thus, imitation plays an essential role in the early stage of industrial development in most developing countries, when young and small firms dominate (e.g., Sonobe, Kawakami, and Otsuka, 2003).

It is worth noting that, in the early stage of economic development, the level of innovation that requires property rights protection to secure the profitability of a firm against rivals is not *sine qua non* for the growth of firms. On the contrary, before innovation occurs, the literature shows that small firms first grow because of imitation (Sonobe et al., 2003). Studies in Ethiopia and Kenya have shown that small and younger firms rapidly grow compared to large and older firms (Bigsten and Gebreyeesus, 2007; Edjigu, 2016; Brixiová et al., 2020). However, when institutional variables are added to the estimation model, the growth of small firms appears to be constrained by the poor quality of the legal system (Beck et al.,

2005) and widespread corruption (Kimuyu, 2007; Eifert et al., 2008; Williams et al., 2016; Martins et al., 2020). Therefore, the prospect of innovation that spurs growth for small businesses vanishes.

Widespread corruption undermines trust in the quality of institutions, which, in turn, discourages entrepreneurial initiative (Baumol, 1996). In addition, corruption hurts innovations and growth (Shumetie and Watabaji, 2019; Lee et al., 2020). For example, a study conducted in Uganda shows that when the share of bribes to total sales increases by one percentage point, sales growth decreases by three percentage points (Fisman and Svensson, 2007). Another study in Kenya shows that corruption harms firm growth and the propensity to export (Kimuyu, 2007). Corruption, in some cases, sands the wheels of business and reduces firm-level productivity (Bbaale and Okumu, 2018, Martins et al., 2020). On the other hand, corruption seems to ameliorate annual sales, employment, and productivity growth rates in other studies. This growth improvement occurs because firms use bribery to facilitate the fast acquisition of different permits needed for business. Moreover, corruption allows firms to circumvent bureaucratic obstacles (Williams et al., 2016; Goedhuys et al., 2016; Barasa, 2018).

Whether innovation or imitation is conducive to the fast growth of manufacturing firms in SSA is an empirical question. In the current empirical literature on firm growth, results are mixed. For example, in studies conducted in Ghana (Robson et al., 2009) and Ethiopia (Edjigu, 2016), a slower growth rate is associated with the dominance of larger firms. In other words, large firms slowly grow since they can no longer carry out innovative management methods and adopt new and relevant technology (Sleuwaegen and Goedhuys, 2002; Coad et al., 2016). These findings show that innovation is an arduous task without the absorptive capacity of competent entrepreneurs (Blalock and Simon, 2009; Gerschewski, 2013; Barasa et al., 2019). In contrast, studies conducted in Kenya (Lundvall and Battese, 2000) and South Africa (Kerr et al., 2014; Kreuser and Newman, 2018) found that large firms grow faster than smaller firms,

presumably by innovations. These studies also show that since small firms in their early stage can imitate how to manage firms and what technology to adopt from other firms by learning and doing, their growth might be high (Jovanovic, 1982; McPherson 1996, Gunning and Mengistae 2001, Nichter and Goldmark, 2009).

This thesis aims to investigate the importance of innovation and imitation in the growth of small firms in SSA. The key empirical question this study proposes to answer is whether manufacturing firms have stimulated industrial development through innovation or imitation in SSA in the last two decades. The thesis examines this central question by rigorously estimating growth functions separately for various industries to control for different demand factors and the different input growth specific to each industry. Such estimation is essential to properly assess the impact of firm-specific characteristics that affect innovation and imitation. Needless to say, the production function parameters from which growth functions are derived can be assumed to be similar in our case. This thesis explores the general conditions under which manufacturing firms in SSA grow fast in the manufacturing industry. Also, considering possibly the critical role of institutions in firm growth, we propose to investigate the effect of institutional quality on the development of small and medium-sized firms.

Previous studies have well established that a negative association exists between firm size and firm growth (Biggs and Srivastava, 1996; Gunning and Mengistae, 2001; Goddard et al., 2002; Calvo, 2006) and between firm age and firm growth (Jovanovic, 1982; McPherson 1996; Yasuda, 2005; Calvo, 2006). However, to the best of our knowledge, no paper has investigated the drivers of the growth of firms in SSA by examining the difference in the effects of firm size and age on firm growth in the same industry at different growth stages. We propose to answer whether innovation or imitation drives the growth of small firms in the various industrial growth strengths. Therefore, we propose to fill the gap in the literature and examine

the difference in the effects of firm size and firm age on the growth performance of enterprises separately in fast-growing, slowly growing, and stagnant industries.

Notwithstanding the role of good institutions in creating conditions that support entrepreneurs for growth, as shown in the literature (Bowen and Clercq, 2008; Hoskisson et al., 2013), little remains known about how small firms grow in countries where institutions are weak. The empirical literature argues that weak institutions reduce entrepreneurial initiative and the performance of firms (Williams and Kedir, 2016; Martins et al., 2020). Therefore, this paper aims to understand how small and medium-sized firms in SSA grow despite weak institutions that discourage innovations. This paper sheds light on the dynamics of firm growth in SSA to fill the gap in the literature by using data from the International Country Risk Guide.

The rest of this study is structured as follows. First, chapter 2 reviews the empirical literature on firm growth and the quality of institutions in SSA and further discusses testable hypotheses. Next, in chapter 3, we explain the economic determinants of firm size growth. In estimating the growth function in this chapter, we control for the country-fixed effects using dummy variables. Next, chapter 4 discusses the economic and institutional determinants of firm size growth. At this stage, we remove and replace country dummies with institutional variables since they both capture country-specific factors. For that aim, we recourse to the institutional data constructed by the International Country Risk Guide instead of the self-reported firm-level survey used in previous studies. Then, in chapter 5, we estimate the determinants of firms' innovation in SSA. Finally, in chapter 6, we conclude the study and draw some policy implications.

Chapter 2: Literature Review and Hypotheses

This chapter reviews the empirical literature on the growth performance of manufacturing firms in SSA. Then, it reviews the institutional quality and firms' growth nexus and finally proposes testable hypotheses.

Section 2.1: The growth performance of manufacturing firms in Sub-Saharan Africa

Empirical studies investigating the relationship between the characteristics of manufacturing firms, such as size and age, and firm growth in SSA provide mixed results. Studies on the relationship between a firm's age and growth find a negative association (McPherson, 1996; Gunning and Mengistae, 2001; Bigsten and Gebreyeesus, 2007). These results suggest that firms in their early stage can imitate how to manage their firms and what technology to adopt from other firms. By learning and doing, the growth of younger firms might be higher (Biggs and Srivastava, 1996; Jovanovic, 1982; McPherson, 1996; Gunning and Mengistae, 2001). A recent study conducted in Kenya that uses cross-sectional data in various industries indicates that younger firms grow faster than older ones (Esaku, 2021), implying that a slower growth rate is associated with older firms. In other words, older firms did not innovate or find improved management methods and the technology to imitate for fast growth (Sleuwaegen and Goedhuys 2002; Coad, Segarra, and Teruel, 2013).

Extensive studies show that innovative entrepreneurs play a crucial role in the growth of manufacturing firms (Bonaccorsi and Giannangeli, 2010; Nichter and Goldmark, 2009; Pfeifer, 2015). Needless to say, competent top managers can translate theoretical knowledge into practical ideas. If implemented accordingly, these ideas are conducive to the fast growth of firms. In the same line, with their management experience and education, they can identify the most relevant technology to achieve the rapid growth of their firms (Covin and Slevin, 1997; Wiklund and Shepherd, 2003). In other words, the expertise of entrepreneurs is needed to identify, mobilize and direct the resources of the firm toward profitable innovations (Covin

and Slevin, 1997; Jennings and Beaver, 1997). Therefore, without the absorptive capacity and foresight of experienced entrepreneurs, it is evident that achieving innovations that sustain the growth of firms is arduous for young firms, which are generally small (Blalock and Simon, 2009; Gerschewski, 2013; Barasa et al., 2019).

Whether the fast growth of firms depends on the size of the firm is well documented in the empirical literature (Sleuwaegen and Goedhuys, 2002; Kerr et al., 2014; Okumu et al., 2019). Some studies find evidence that large firms grow faster and are more efficient than smaller ones. This has been the case in Kenya (Lundvall and Battese, 2000), Cote d'Ivoire (Sleuwaegen and Goedhuys, 2002), South Africa (Kerr et al., 2014; Kreuser and Newman, 2018), Mauritius (Wignaraja, 2002), and several other SSA countries (Biesebroeck, 2005; Okumu et al., 2019). However, it is worth noting that innovative SMEs grow and become large firms. In other words, firms tend to be large due to innovations. Large firms, compared to small ones, grow faster for several reasons. They achieve economies of scale, exploit new technology and use efficient managerial methods (Schumpeter, 1942; Wignaraja, 2002; Frazer, 2005). They also benefit from the reputation built in the market, especially when transaction cost is high (Sleuwaegen and Goedhuys, 2002). Since innovative ideas are similar to public goods within a firm, the return to innovations tends to be higher for larger firms.

Despite some evidence of large firms growing faster than small firms, various other studies conclude that small and young firms grow faster and create more jobs than larger and older firms (Mead, 1994; Jovanovic, 1982; McPherson, 1996, Gunning and Mengistae, 2001). Substantial job creation among small firms is possible because of their ability to grow fast up to the optimum size through imitation (Singh and Whittington, 1975; Robson et al., 2009; Booyens, 2011). For example, empirical findings in Ethiopia that use stochastic frontier analysis show that small and young firms experience faster growth than large and older firms (Edjigu, 2016). The ordinary least squares estimation (OLS) also confirms that small firms are

growing faster in Ethiopia (Bigsten and Gebreyeesus, 2007). Other studies using the propensity score matching method suggest that the growth of small and young firms is conditional on access to financial credit (Brixiová et al., 2020). Thus, access to credit to fuel growth may be crucial, especially for firms established in low-income countries (Ayyagari et al., 2014). These findings suggest that if innovations seldom occur in SSA, imitation might be an engine of the fast growth of small firms.

Several factors might explain the growth of small firms that engage in imitative activities. First, in the early stage of industrial development, imitation is the primary source of growth for most firms (Sonobe, Kawakami, and Otsuka, 2003), and they may evolve in a political or economic environment that does not provide incentives for innovations (Mina et al., 2013; Ferreira et al., 2014). Small firms are less likely to innovate and easily opt for imitation as the best alternative for fast growth, particularly in an environment prone to corruption, political instability, and burdensome regulations. Second, innovation is always associated with a certain degree of risk (Cliff et al., 2006; Robson et al., 2009). For this reason, firms might decide to innovate if they are confident that they will achieve some economic return on their investment. Imitation, however, is an effective strategy to avoid or minimize those risks. Finally, innovations have a financial cost associated with them. Without access to credit and in the presence of a flawed financial system, most small firms might forsake the innovation path and focus more on imitation.

Section 2.2: Institutional quality and growth performance of manufacturing firms

Good institutions are designed to regulate the interaction between political, economic, and social factors to weaken uncertainties and reduce market failures in a society. As a result, well-functioning institutions can lower information asymmetry and transaction costs for business growth (North, 1990; 1991). Needless to say, good institutions are strongly related to firm performance and play an essential role in supporting investment decisions (Dollar and

Kraay, 2003). Moreover, they create conditions conducive to entrepreneurial initiatives (Bowen and Clercq, 2008; Hoskisson et al., 2013). For example, good institutions in developed countries guarantee property rights and restrict political interventions in business operations to undermine the likelihood of corruption (Raj and Sen, 2017). The empirical literature shows that it is difficult for firms operating in societies with precarious institutions to innovate and grow (Newman, 2000; Chaney et al., 2011; Martins et al., 2020).

The growth performance of firms depends, among others, on idiosyncratic firm characteristics such as age, size, ownership structure, and the managerial ability of the top manager (Coad et al., 2013; Pfeifer, 2015). The importance of firm size and age on firm performance has been well documented in the empirical literature (Sleuwaegen and Goedhuys, 2002; Kerr et al., 2014; Okumu et al., 2019). Focusing on firm size, studies investigating the impact of institutions on the performance of firms show that better institutions stimulate the growth of medium-sized and large firms (Kumar et al., 2002; Laeven and Woodruff, 2007; Petrescu, 2016). However, small firms are more heavily affected by the poor quality of institutions than larger ones (Beck et al., 2006; Araujo et al., 2012).

It is worth noting that small firms generally have less access to formal finance in a poor institutional environment. As a result, they rely on the informal credit market plagued with information asymmetries. Faced with the inefficiency of the bureaucracy, they usually spend a considerable amount of time obtaining all the required documents for formal credit. They often need to pay more bribes as a percentage of their sales to sustain their business activities. Nevertheless, large firms can still evolve in countries with weak institutions since they resort to political connections and corruption (Faccio, 2010; Petrescu, 2016). It is important to note that imitation and adaptation are key strategies for small firms to grow in unpredictable institutional conditions. Institutions are supposed to create an environment conducive to trust and cooperation for economic activities; otherwise, most small firms,

especially those in SSA, are likely to remain small, unproductive, and may finally leave the industry (Laeren and Woodruff, 2007).

Empirical studies have shown that an effective legal system positively affects firm performance and increases the average firm size (Laever and Woodruff, 2007; Chemin, 2020). The positive change in the firm's size possibly indicates that growing firms innovate and benefit from an economic environment protecting private property rights (Hart and Moore, 1990; Beck et al., 2006). In other words, if the infringement of the law is prevalent within a country, contract enforcement becomes difficult, expected returns on prospective investments decrease, the cost of doing business increases, incentives for innovation tend to disappear, and firm growth becomes illusory (Yasar et al., 2011; Meyer et al., 2009). On the other hand, some studies claim that corruption encourages firms' growth. Bribery appears to ease the acquisition of permits needed for business and circumvent bureaucratic obstacles (Shumetie and Watabaji, 2019; Lee et al., 2020). However, other studies confirm that it reduces entrepreneurial initiative, firms' performance, and the efficiency of industrial policies (Kimuyu, 2007; Martins et al., 2020).

Despite the challenging institutional environment, the quality of human capital matters for navigating firms toward growth. Regarding the nexus between human capital and the quality of institutions, a study in SSA shows that countries with a lower level of human capital create weak institutions (Kanyama, 2014). As the centerpiece of a firm, entrepreneurs, with their management experience and education, can identify the most relevant technology to achieve the rapid growth of their firms (Covin and Slevin, 1997; Wiklund and Shepherd, 2003). They are, in principle, adept at transforming innovative concepts into practical ideas. If implemented accordingly, these ideas are conducive to the fast growth of firms. However, imitation is the best option for them if the institutional environment harms innovations.

Section 2.3: Hypotheses

Firm growth does not occur in a vacuum. It generally happens through three key stages. First, small firms grow fast in the initial stage because technology is simple and easy to imitate (Sonobe, Kawakami, and Otsuka, 2003). This stage allows the entry of many small firms and could drive fast industrial growth. However, relying on imitation alone reduces the competitiveness of small firms in the longer run. Then, in the second stage of their development, small and medium-sized innovative firms grow fast and become large firms (see, for example, Mottaleb and Sonobe, 2011) as a result, many small firms exit the industry. Finally, at the last stage, large firms grew fast because of formal research and development (R&D) activities to stay more productive and maintain their market share.

The inputs for innovations are the prospective innovator's private expenditure and the innovation stock from past innovations. The stock of past innovations is a public good in an enterprise. Therefore, private expenditure can be productive for small firms if the stock from past innovation is considerable. However, if the stock of past innovation is quasi-inexistent and the market is competitive, the cost of insuring private expenditure rises. That is to say, if most small-sized firms engage in imitation more than innovation, the stock of past innovation will be low and the cost of innovation investment prohibitively high. On the other hand, large firms can afford to invest in innovation despite a higher initial development cost. In other words, since the cost of innovation is often high, only large firms can undertake it for sustainable growth (Jewkes et al., 1958). This analysis leads to the first hypothesis.

H1: Larger firms grow faster because of their ability to carry out formal R&D activities for innovation.

Suppose imitation remains the primary strategy for the growth of small firms. In that case, they are more likely to grow when they are young but will hardly become medium-sized firms. As a result, the whole industry might not grow or become stagnant. However, if micro

and small firms are innovative, they are more likely to grow large and outcompete remaining micro and small firms. Needless to say, in countries where institutions work well, innovations are incentivized and active for firm growth (Tebaldi and Elmslie, 2013). However, in the absence of well-functioning institutions, innovation incentives are weak. Therefore, we envisage that imitation will remain the primary strategy for SME growth because of the poor institutions that impede the growth of small and medium-sized firms. As a result, the entire industry may not grow and stagnate. However, when small and medium-sized firms innovate because of incentives guaranteed by better institutional quality, they are more likely to become large and outperform the remaining firms. This exposition leads to the second hypothesis.

H2: Growth in the industry might be fast if innovation is the primary growth strategy of firms, particularly medium to large firms.

For the identification of the growth of the industry, this study uses the Birch index, which combines the relative and absolute measurements of firm growth (Birch, 1987). Identifying the growth strength is essential to evaluate the possible role of innovation and imitation that influences the growth strength in the industry and the growth dynamism of firms in SSA. For example, if there is no innovation in the industry, growth might be slow. Then, the presence of small active imitative firms can contribute to slower growth in the industry. However, if the growth in the industry is fast, we presume that innovation is active. That is to say, large innovative firms in such an innovative environment grow fast. Nevertheless, if small firms can effectively and actively imitate innovative technology, they might also grow fast. This explanation finally leads to the third hypothesis.

H3: Growth in the industry might be slow or not fast if active imitation occurs among micro and small-sized firms.

Previous studies show that young firms, in most cases, are deprived of the sufficient experience needed to sustain their survival in the industry. As a result, they need some time for

business operations to mature. The maturity process will allow them to accumulate resources, managerial knowledge, and the capacity to deal with uncertainties and risks (Levitt and March 1988). First, younger firms enter the industry as imitators. Then, after surviving despite market competition, they may be innovative, grow and acquire a good reputation (Criscuolo et al., 2012; Coad et al., 2013). However, before becoming innovative, the entry of younger imitative firms might lead to slower growth in the industry. It is an exceptional case for younger firms to enter the industry directly as innovators since they are more exposed to the risk of exiting the industry early (see, for example, Cefis and Marsili, 2006). This situation reflects the case of many firms in developing countries where the business environment is plagued with risks and uncertainties due to poor institutional quality. Therefore, this analysis leads to the ultimate hypothesis.

H4: Young imitative firms might slowly grow and, therefore, drive the slow growth of the entire industry.

Finally, good institutions reduce transaction uncertainties in society by lowering information asymmetry and transaction costs for business growth. Therefore, we expect that adequate institutional quality provides an environment conducive to the fast growth of firms. That is, we expect good quality in law and order, government stability, and a stable investment profile to be associated with the fast growth of firms. By the same logic, we also expect lower corruption risks and internal conflicts to stimulate the growth of firms. These institutional data capture the core features of the institutional setting in SSA. Therefore, they are critical to better understanding the institutional environment in which most firms operate. If a poor quality of institutions plagues a country, it exacerbates volatility, which is detrimental to firms' growth (Chong and Gradstein, 2009).

Chapter 3: Determinants of Firm Size Growth: An Economic Approach

This chapter discusses the estimation method of the economic determinants of firm size growth in SSA. First, we describe the data used to estimate the growth function. Then, we introduce the empirical model, and finally, we present and discuss the estimation results based on the formulated hypotheses.

Section 3.1. Data description

This section shows the data used to estimate the firm growth function and examines the possible relationship between firm characteristics and growth performance. We use data from the World Bank Enterprise Survey[1] (WBES) for 2006, 2007, 2009, 2013, and 2016 in selected industries of SSA countries. A unique characteristic of the World Bank survey is the collection of critical variables such as employment and sales in the survey year and three years before the survey. Therefore, we estimate the average growth rate functions for the three years by taking advantage of this. We propose to estimate the sales and employment growth function, not the function explaining the level of sales and employment because the growth is affected by the current and recent characteristics of firms. In contrast, the level is determined by accumulated production and management knowledge over the past years.

The survey has been carried out by the Enterprise Analysis Unit of the World Bank and local partners since 2006. They collect firm-level data from key manufacturing and service sectors in 148 countries. The survey follows a global methodology that uses a standardized questionnaire and sampling methodology to allow a cross-economy analysis. In this study, the sample size contains 4500 manufacturing firms in 25 SSA countries. Needless to say, the WBES collects data on sales and various costs in local currency units. Data on total annual

[1] The WBES collects firm-level recall data between one and three years before the survey for a given survey year. For instance, a survey carried out in 2006 provides recall data from 2003 to 2005. We use these recall data to compute the annual sales and employment growth rate. See section 3.2 for the computation of the annual sales and employment growth.

sales at the time of the survey (Sales $_t$), three years before the survey (Sales $_{t-3}$), and costs of labor, intermediate input, electricity, and fuel were first converted into US dollars using the official exchange rate (period average) provided by the World Development Indicators (WDI). Then, they were deflated from the relevant fiscal year using the purchasing-power-parity deflator calculated by equation (3.1) to account for the differences in cost of living across countries.

$$\text{PPP}_{\text{deflator}} = \frac{\text{Nominal GDP (PPP)}}{\text{Real GDP (PPP)}} \quad , \qquad (3.1)$$

where PPP deflator is the purchasing power parity (PPP) deflator computed using the nominal GDP (PPP) over the purchasing-power-parity adjusted real GDP (PPP). To reduce the sensitivity of the estimation from extreme values, observations that departed from the mean by three standard deviations were turned into missing values.

To estimate the growth performance of manufacturing firms, *Annual Employment Growth* and *Annual Sales Growth* are the dependent variables. Among the explanatory variables, *Experience* shows the management experience of top managers in the type of sector that the enterprise currently operates and is measured in the number of years. *Age* is the firm age measured in the number of years since starting the production process, not the registration time. Therefore, *Young* is a dummy variable for firms aged between 1 and 5 years, *Mature* is a dummy variable for firms aged between 6 and 10 years, and *Old* is a dummy variable for firms aged beyond ten years. In terms of firm size, *Micro* is a dummy variable that shows enterprises with between 1 and 4 permanent workers. *Small* is also a dummy variable that comprises firms with between 5 and 19 permanent workers, whereas *Medium* is a dummy variable indicating between 20 and 99 permanent workers. Finally, *Large* is a dummy variable that shows firms with more than 100 permanent workers.

Along the same line, the variable *Graduate* is binary and takes the value of 1 for managers with a graduate level of education and 0 otherwise. *Primary, Secondary,* and

University education are dummies that take the value of 1 for the proportion of workers with primary, secondary, and university levels of education and 0 otherwise. *Training* captures formal training with a structured and defined curriculum for permanent workers three years before the survey. *Foreign* is a dummy variable for firms with at least ten percent foreign ownership. Finally, *Electricity outages* also take the value of 1 for firms reporting electricity outages as a significant obstacle for business, and 0 otherwise. It is critical to note that power outages are a considerable obstacle because they interrupt the business operations of firms.

Table 1 shows the mean value of the variables used to estimate the growth function by industry. Unfortunately, due to several missing information on key variables in the survey, we only consider for this study industries with a sufficiently large number of firms across the survey waves[1].

By observing the annual employment growth rate across industries and different periods, we find that it does not exceed ten percent in general and on average. For example, in the wood industry, from 2003 to 2005, annual employment growth is nine percent, and in the metal industry, it is eight percent. In the food industry, annual employment growth is eight percent from 2003 to 2005, seven percent from 2004 to 2006, and four percent from 2006 to 2008. In the garment industry, annual employment growth is nine percent from 2003 to 2005, eight percent from 2004 to 2006, and six percent from 2006 to 2008. We shall reckon that these periods correspond to the time before the financial crisis of 2008 and 2009.

Before the global financial crisis (GFC), the employment growth rate exceeded five percent on average. However, after the GFC, the employment growth rate is less than or equal to five percent. We can observe that the annual growth rate in employment in the furniture and fabricated metal industries from 2010 to 2012 was four percent, and it was five percent in the

[1] One of the limitations of the data from the World Bank Enterprise survey is that countries included in the survey of 2006, for example, may not necessarily be present in the survey of 2007. As a result, the number of firms for each industry varies from year to year. Moreover, since we removed missing data to estimate the growth function of firms by industry, we included only those with at least 100 firms.

textile industry from 2013 to 2015. On the other hand, it was three percent from 2010 to 2012 and five percent from 2013 to 2015 in the food industry, and finally, it was two percent from 2010 to 2012 and five percent from 2013 to 2015 in the garment industry.

Again, before the GFC, the annual growth rate was between 10 and 16 percent on average in terms of real sales. However, in the aftermath of the crisis, most industries experienced negative annual sales growth. This situation shows that the negative shock of the global financial crisis heavily affected most industries in SSA.

Turning to firm size, Table 1 shows that micro-enterprises in the garment industry represent 20 percent, the most significant proportion compared to other industries. Nevertheless, we should note that the proportion of micro-sized firms in the garment industry progressively decreased. There are two plausible explanations. In the first case, micro firms grow and become small or medium-sized firms through imitation or innovations. The second case suggests that micro-firms leave the industry because fierce competition or burdensome regulations discourage their business activities. Table 1 further shows that the firm size of the food industry slightly increased over time. This result might suggest that new micro-firms entered the industry. The second-largest proportion of micro-sized firms representing 18 percent, was in the textile industry in 2013.

Second, small-size firms represent 70 percent of the wood industry, the most significant share compared to other industries. In most industries, the share of small-size firms fluctuates between 50 and 60 percent. However, the negative shock of the GFC had a different effect on the food and garment industry. For example, in the food industry, the proportion of small firms consistently decreased after the crisis. This fall in the proportion of small firms in the food industry possibly indicates that many among them are vulnerable to the shock. Nevertheless, in the garment industry, although the pre-financial crisis displays a negative trend that shows a shrinking proportion of small firms, the proportion of small firms started increasing in the

aftermath of the crisis. This result suggests that the past crisis created a favorable environment for innovations and business growth. Therefore, many small firms possibly entered the market, or former micro-firms rapidly grew.

Third, in industries such as metal and textile, medium-sized firms represent almost 30 percent. For other industries, the share is 20 percent. The descriptive statistics in Table 22 show that medium-sized firms range between 26 and 30 percent in the food industry. The overall proportion of medium-sized firms indicates stagnation in the industry over the years. However, it is worth noting that most of these firms were resilient to the negative shock of the GFC. On the other hand, in the garment industry, the proportion of medium-sized firms progressively increased from 7 percent in 2003 to 23 percent in 2006. This result possibly originates from innovation or active imitation in the industry. After the negative shock, the reduction in the proportion of medium-sized firms suggests that some medium-sized firms might have left the industry.

Finally, Table 1 shows that large firms represent less than ten percent on average in most industries. However, the proportion of large firms increased from 11 percent in 2003 to 21 percent in 2013 in the food industry. This result suggests that large firms in the food industry doubled in ten years. That is to say, if it took ten years on average for small and medium-sized firms to become large, then innovation takes place very slowly in the food industry. Instead, we suspect imitation is rampant unless more large firms join the industry, and as a result, their proportion increases over time. On the other hand, in the garment industry, the positive growth of large firms was three percent in 2003 and 11 percent in 2006. However, in the aftermath of the GFC, the proportion of large firms fell from 11 percent in 2006 to four percent in 2013. This result suggests that innovative firms probably remained in the industry after the crisis.

Turning to firm age, first, Table 1 shows that the proportion of young firms decreased over time in most industries. For example, from 2003 to 2005, 42 percent of firms are young

in the food industry, and from 2013 to 2015, just 16 percent are young. This result possibly indicates that new firms rarely enter the industry. In the garment industry, the proportion of young firms is 45 percent from 2003 to 2005, but from 2013 to 2015, only 23 percent remain in the industry. In other industries, young firms represent 40 percent in the wood industry, 29 percent in the metal industry, 25 percent in the furniture industry, 25 percent in the fabricated metal industry, and 12 percent in the textile industry.

The proportion of mature firms in the food industry decreased from 23 percent between 2003 and 2005 to 17 percent between 2013 and 2015. We shall note that the decrease in the proportion of mature firms became more evident after the GFC. This result possibly indicates that some mature firms left the industry after the crisis. On the other hand, in the garment industry, the growth trend of mature firms after the crisis indicates that some firms survived in the industry despite the crisis. It is important to note that we observe 21 percent of mature firms in the industry from 2003 to 2005 and 26 percent of them from 2013 to 2015. In other industries, mature firms represented 25 percent in the wood and metal industry, 29 percent in the furniture industry, 28 percent in the fabricated metal industry, and 30 percent in the textile industry.

Finally, the proportion of old firms increased over time in most industries. This result shows that many firms survived or entered the industry as large-sized firms. For example, the proportion of old firms grew substantially in the food industry after the GFC. Old firms were 46 percent from 2006 to 2008 and 61 percent from 2010 to 2012. The general trend shows that from 2003 to 2005, 35 percent of firms in the food industry were old, and from 2013 to 2015, they represented 67 percent. In the garment industry, 34 percent of firms were old, and from 2013 to 2015, they were 51 percent. Looking at other industries, old firms represented 35 percent in the wood industry, 46 percent in the metal and furniture industry, 47 percent in the fabricated metal industry, and 58 percent in the textile industry.

Focusing on the proportion of firms conducting training, Table 1 shows that less than 50 percent of firms train their workers. To be more specific, in the food industry, the share is 30 percent on average and 43 percent on average in the textile industry. However, in other sectors, they represent less than 30 percent. That is to say, although training for permanent workers is essential for firm growth, only a few provide it.

The ownership structure of firms shows that most firms are domestic. Less than 25 percent of firms are foreign. For example, in the food industry, the proportion of foreign firms from 2003 to 2005 was 22 percent, but from 2013 to 2015, they were 17 percent. On the other hand, in the garment industry, eight percent of firms were foreign from 2003 to 2005, but from 2013 and 2015, 15 percent were foreign, indicating that the proportion of foreign firms has slightly increased over time.

Table 1 also shows that more than 70 percent of firms experience electricity outages. Electricity outages can negatively affect firms' growth, especially if these firms are electricity-dependent.

The management years of experience of the top manager range from 12 to 21 years, as shown in Table 1. This result suggests that with such management experience, ceteris paribus, most firms are experienced in navigating various adverse shocks and growth. On the other hand, the proportion of top managers completing graduate school was 24 percent in the food industry, 11 percent in the wood industry, and 8 percent in the garment industry.

Turning to the workers, the share of those completing secondary schooling available only from 2003 to 2005 is 44 percent in the food industry, 42 percent in the wood industry, and 54 percent in the garment industry. In contrast, the proportion of those completing university education is only eight percent in the food industry, nine percent in the wood industry, and four percent in the garment industry. These results indicate that, on average, most workers have a secondary schooling education level.

Section 3.2. Empirical estimation

To estimate the relationship between explanatory variables related to the characteristics of the entrepreneur, the abilities of the workers and other characteristics of the firm, and dependent variables (i.e. sales and employment growth), we used the following function:

$$\text{Growth}_{\text{ikj(t,t-3)}} = \beta_0 + \beta_1 X_{\text{i,k,j(t)}} + \beta_2 W_{\text{i,k,j(t)}} + \beta_3 Z_{\text{i,k,j(t-3)}} + \delta C_j + \varepsilon_{\text{i,k,j(t)}}, \quad (3.2)$$

where $G_{\text{ikj(t,t-3)}}$ is the average annual growth rate (sales and employment) of a firm *i* in industry *k*, and country *j*; the subscript (t, t-3) represents the annual growth rate computed from equations (3.3) and (3.4) to be shown shortly; β_0 is the intercept; β_1 is the coefficient of the set of the entrepreneur characteristics; β_2 is the coefficient of the set of the workers' characteristics; β_3 is the coefficient of the set of other firm characteristics; δ captures the country-specific effects with a dummy variable, and $\varepsilon_{\text{i,k,j(t)}}$ is the error term component.

Equations (3.3) and (3.4) follow Tornqvist et al. (1985) for the computation of the annual sales growth (ASG) and employment growth (AEG):

$$\text{ASG} = \text{Annual sales growth} = \frac{\ln\left(\text{Sales}_{\text{ikj(t)}}\right) - \ln\left(\text{Sales}_{\text{ikj(t-3)}}\right)}{3}, \quad (3.3)$$

$$\text{AEG} = \text{Annual employment growth} = \frac{\ln\left(\text{Employment}_{\text{ikj(t)}}\right) - \ln\left(\text{Employment}_{\text{ikj(t-3)}}\right)}{3}, \quad (3.4)$$

where, ln (Sales $_t$) and ln (Sales $_{t-3}$) are the natural logarithm of total sales revenue of a firm *i* in industry *k,* and in country *j* at year *t,* of the survey, and *t-3,* three years before the survey. ln (Employment$_t$) and ln (Employment$_{t-3}$) represent respectively the natural logarithm of employment size of a firm *i* in industry *k,* and in country *j* at year *t,* of the survey, and *t-3,* three years prior to the survey.

For identifying the growth strength of the industry, we used the Birch index, which combines the relative and absolute measurement of firm growth (Birch, 1987), as shown in equation (3.5).

$$\text{BI} = \left(E_{\text{ikj(t)}} - E_{\text{ikj(t-3)}}\right)\left(\frac{E_{\text{ikj(t)}}}{E_{\text{ikj(t-3)}}}\right), \quad (3.5)$$

where BI denotes the Birch index, $E_{ikj(t)}$ is the number of permanent workers of firm *i* in industry *k,* and in country *j* at year *t,* of the survey, whereas $E_{ikj(t-3)}$ is the number of permanent workers of firm *i* in industry *k,* and in country *j* at year *t-3,* three years prior to the survey. Following the Birch index, we propose that fast-growing industries are those where employment growth is above 20 percent. Slow-growing industries are enterprises with less than 20 percent but more than ten percent of employment growth, and stagnant industries are those with less than ten percent of employment growth.

We should remember that firm size, age, and other explanatory variables are dummy variables in the growth estimation function. Since the dependent variables are in logarithmic form, using dummy explanatory variables requires a semilogarithmic interpretation of the coefficient.

For a correct interpretation of the semilogarithmic functions involving dummy variables, we compute the relative effect on the explanatory variables, as shown in equation (3.6). To obtain the percentage effect of the dummy variable, we multiply both sides of equation (3.6) by 100, which leads us to equation (3.7). The computation of equations (3.6) and (3.7) follows Halvorsen and Palmquist (1980):

$$g = \exp(c_{ikj}) - 1, \qquad (3.6)$$

$$100*g = 100*\{\exp(c_{ikj}) - 1\}, \qquad (3.7)$$

where g is the relative effect, $\exp(c_{ikj})$ is the exponential of the coefficient of dummy variables of firm size, age, and other dichotomous explanatory variables of a firm *i* in industry *k* and country *j*.

Section 3.3. Estimation results and discussion

In this section, we present the results of idiosyncratic characteristics and the growth performance of firms. Using the Birch index, Table 2 shows that firms in the food industry are fast-growing from 2003 to 2005, 2004 to 2006, and 2006 to 2008. However, in the garment

industry, they grow fast only from 2006 to 2008. Slower industrial growth occurred in the wood industry from 2003 to 2005. In the metal and garment industry, it occurred from 2004 to 2006. From 2010 to 2012, slower growth occurred in the food industry. We can observe in Table 2 that growth in the garment industry was stagnant from 2003 to 2005 and from 2013 to 2015. In the fabricated metal and furniture, from 2010 to 2012, industrial growth was stagnant. From 2010 to 2012 and 2013 to 2015, growth stagnation occurred in the food industry. Likewise, from 2013 to 2015, industrial growth was stagnant in the textile industry.

Beginning with the food industry from 2003 to 2005, the results on firm size in Table 3 show that micro firms grew in employment faster than large firms by 22.2 percent on average. During the next growth period, from 2004 to 2006, Table 4 shows that the annual employment growth of micro firms increased by 28.4 percent more than that of larger firms, whereas small-sized firms grew by 3.3 percent. Again, micro firms in the food industry from 2006 to 2008 experienced annual employment growth of 21.4 percent more than large firms, as shown in Table 5. We shall note that before the global financial crisis (GFC) of 2008-2009, growth in the food industry was fast-growing when we computed the Birch index. However, after 2008 and 2009, the growth trend in the food industry slowed. As a result, from 2010 to 2012, the annual employment growth of micro firms is 15.6 percent more than that of large firms, as shown in Table 6. Finally, Table 7 shows that the annual employment growth of micro firms increased by 18.8 percent more than larger firms, whereas small-sized firms grew by 3.5 percent.

Next, in the garment industry, when industrial growth was stagnant from 2003 to 2005, as shown in Table 8, the annual employment growth of micro firms increased by 31.2 percent, and that of medium-sized firms increased by 30.2 percent. However, small firms grew faster than large firms by only 14.4 percent. Table 9 shows that growth in the garment industry was slow from 2004 to 2006, the annual employment growth of micro-enterprises was 4 percent

more than that of large firms, and small-sized firms grew by 4 percent more than large firms. During the next growth period, from 2006 to 2008, although growth in the garment industry was fast, annual employment growth increased among micro firms by 13.7 percent on average and annual sales growth by 15.9 percent, as shown in Table 10.

Employment growth in the garment industry stagnated after the GFC. As a result, from 2010 to 2012, micro firms experienced a negative annual sales growth of minus 34.5 percent more than large firms. Likewise, small-sized firms experienced negative annual sales growth of 39 percent, as shown in Table 11. Finally, from 2013 to 2015, Table 12 shows that the annual sales growth of medium-sized firms increased by 120percent compared to large firms, and micro firms grew in employment by 8.1percent more than large firms.

Focusing on the wood industry from 2003 to 2005, Table 13 shows that when growth in the industry was slow, the result shows that annual employment growth among micro firms increased by 30.9 percent faster than among large firms. In the metal industry from 2004 to 2006, micro firms experienced annual employment growth of 22.1 percent more than large firms and an annual sales growth of 17.9 percent, as shown in Table 14. The coefficient of small enterprises was 7.5 percent more than that of large firms. This finding is consistent with our hypothesis that imitation alone might lead to slower industrial growth. There is no significant effect of firm size on annual employment and sales growth in the furniture industry, as shown in Table 15.

The only case where large firms grew faster than firms of a smaller size are in the fabricated metal industry from 2010 to 2012, as shown in Table 16. Therefore, we expected the growth of large firms to drive rapid industrial growth, but the findings show that despite the fast growth of large firms in the fabricated metal industry, industrial growth was stagnant.

Finally, Table 17 shows that in the textile industry from 2013 to 2015, the annual employment growth of micro firms increased by 9.3 percent and by 68.2 percent in annual

sales growth. In all these growth estimations, we controlled for the country-specific effect. As a result, as we expected, stagnation in the industry comes from the stagnant growth of small-size firms whose primary strategy for growth is imitation. This strategy can work in the short run but not for long-term development.

These findings are consistent with the empirical literature supporting evidence that small and medium-sized firms grow faster than large firms (Robson et al., 2009; Ayyagari et al., 2014). However, our study shows that the coefficient of micro firms is large and more significant than that of small and medium-sized firms. It is important to note that we expected that if micro, small and medium-sized firms grew faster in the industry than large firms, active imitation and some innovations might have been the building blocks of such growth. If micro firms informally conduct their businesses, they might be less constrained by various legal requirements or tax payments and grow. If, on the other hand, medium and large firms are legally registered and are affected by regulations, they might experience a lower growth rate than micro firms. In the short run, imitation can stimulate growth, but innovation should be introduced in the long run to stimulate sustained industrial growth.

Turning to the age of firms, we present the results showing that age is inversely related to firm growth. For instance, Table 3 shows that in the food industry from 2003 to 2005, young firms grew by 7.4 percent in annual employment and 7.2 percent in annual sales compared to old firms. However, although growth in the food industry was slow from 2010 to 2012, Table 6 shows that young firms grew in employment three percent faster than old firms. Finally, in the period of growth stagnation, young firms in the food industry grew in annual employment by four percentage points faster than older firms from 2013 to 2015, as shown in Table 7. The fast growth of young firms indicates that imitation possibly induces them to grow fast.

Table 9 shows that in the garment industry, when the growth strength in the industry was slow from 2004 to 2006, young firms grew in annual employment by three percent, and

mature firms also grew in annual employment by two percent faster than older firms. On the other hand, when the garment industry was fast-growing, Table 10 shows that from 2006 to 2008, younger firms grew four percentage points faster than older firms.

It is essential to say that growth was slow in the wood industry from 2003 to 2005 and the metal industry from 2004 to 2006. As a result, in the wood industry, Table 13 shows that younger firms grew in annual employment by 4.9 percent and annual sales by 10 percent. In the metal industry from 2004 to 2006, Table 14 shows that annual employment growth among young firms was 4.3 percent, and among mature firms, it was 6 percent faster than that of older firms. Table 16 shows that younger firms in the fabricated metal industry from 2010 to 2012 grew 3.8 percent faster than old firms in annual sales. Finally, from 2013 to 2015, the annual employment growth of younger firms increased by 5.1 percent in the textile industry compared to older firms, as shown in Table 17.

These results on firm age show that young firms grew more rapidly than older firms. They are consistent with our hypothesis and a strand of the empirical literature that proves that younger firms grow faster than old firms (Sleuwaegen and Goedhuys, 2002; Kerr et al., 2014). The result implies that young firms possibly imitate innovative technology and stimulate growth in the industry.

The effect of training on growth performance, as reported in Table 4, shows that firms in the food industry that trained permanent workers from 2004 to 2006, when growth in the industry was fast, had annual sales growth of 2.8 percent on average. However, Table 6 shows that when growth in the food industry slowed from 2010 to 2012, firms that provided training had annual employment growth of three percentage points on average than firms without such training. Finally, Table 7 shows that firms in the food industry that trained permanent workers had annual sales growth of 29 percent from 2013 to 2015.

On the other hand, in the garment industry from 2004 to 2006, when growth in the industry was slow, Table 9 shows that the annual sales growth of firms that provided training decreased by 2.3 percent. That is, firms that did not provide training grew faster in the garment industry. However, firms in the metal industry that offered training to their permanent workers from 2004 to 2006 experienced 4.6 percent annual employment growth, as shown in Table 14. Finally, the training of permanent workers contributed to increasing annual sales growth by 21.1 percent in the fabricated metal industry, as shown in Table 16.

Focusing on management experience, we show from Table 6 the results indicating that firms run by qualified top managers in the food industry from 2010 to 2012 grew in annual sales by 0.07 percentage points while experience increased by 1 percent. On the other hand, in the garment industry, Table 11 shows that from 2010 to 2012, firms managed by top managers with more management experience had a negative annual sales growth of 0.045 percentage points when the management years of experience increased by 1 percent. Finally, the effect of management experience of top managers on employment growth was minimal in the textile industry from 2013 to 2015. Employment growth increased only by 0.032 percentage points on average, but annual sales growth increased by 0.25 percentage points when the management experience of the top managers increased by 1 percent, as shown in Table 17.

Finally, the results on the ownership structure in the food industry from 2010 to 2012, as shown in Table 11 indicate that foreign firms experienced annual sales growth of 15.7 percent more than domestic firms. On the other hand, Table 9 show that foreign firms in the garment industry from 2004 to 2006 experienced annual employment growth of 3.2 percent. However, from 2006 to 2008, when growth in the garment industry was fast, Table 10 shows that foreign firms in the garment industry experienced negative annual employment growth of minus 3.9 percent. In other words, domestic firms grew faster than foreign firms in this period.

Finally, in the garment industry from 2013 to 2015, foreign firms experienced a negative annual sales growth decline of 43.3 percent less than domestic firms, as shown in Table 12.

Section 3.4. Concluding remarks

This chapter estimated the growth function of seven different industries in SSA and controlled for the country fixed effects to avoid biased estimates. We found that in most cases, smaller and younger firms grew faster than older and larger ones, presumably because of some imitations. Although few firms reported introducing some innovations in their product or process, we suspect nominal innovations rather than real ones. Innovations that bring industrial growth are lacking in most SSA countries. Therefore, policymakers in SSA should focus on setting an environment capable of inducing firms to innovate for sustained growth. Since younger firms hardly innovate at entry because of various costs and risks associated with innovation, policymakers in SSA should start building a stock of innovation by actively encouraging large and small promising firms to innovate through various incentives. Management training for entrepreneurs can help reduce their risk aversion and encourage them to introduce new technology. Learning from abroad was one strategy that propelled the garment industry in Bangladesh to be a lead country in the sector (Mottaleb and Sonobe, 2011). This strategy should be taken more seriously by policymakers and entrepreneurs in SSA.

Chapter 4: Determinants of Firms Size Growth: An Economic and Institutional Approach.

This chapter discusses the economic and institutional determinants of firm size growth in SSA. First, we introduce the data used to estimate the growth function. Then, we present the empirical model, and finally, we examine and discuss the estimation results in the light of the formulated hypotheses.

Section 4.1. Data description

This section introduces the data used to estimate the relationship between firm characteristics, institutional variables, and the growth performance of manufacturing firms. To examine the possible effect of institutional quality on firm growth, we used policy data constructed by the International Country Risk Guide (ICRG).

This study uses employment growth and sales growth as dependent variables to estimate the growth function. On the idiosyncratic descriptive statistics of firms used to estimate the relationship between firm characteristics, institutional variables, and the growth performance of manufacturing firms, Section 3.1 of Chapter 3 provides the mean value of all variables in detail. The institutional variables used in this chapter include law and order, risks of internal conflicts, the investment profile, risks of corruption, government stability. *Law and Order*, assesses both the legal system's strength and impartiality and the widespread observance of the law. A maximum of six points is assigned to countries with very low risks, and a minimum of zero points to countries with very high stakes. *Internal Conflict* assesses political violence in the country and its actual or potential impact on governance. The highest rating of 12 points reflects a low risk of political violence. In this case, the government refrains from indulging in direct or indirect arbitrary violence against its people. The lowest rating of zero points reflects a high risk to countries embroiled in an ongoing civil war. The three

subcomponents for which a maximum of 4 points are given include civil war and coup threat, terrorism and political violence, and civil disorder.

Investment Profile evaluates factors affecting the risk of investing in a country. It involves a risk that is not covered by other political, economic, and financial components. A maximum of 12 points indicates a shallow risk and zero points, a very high risk. It also includes three subcomponents such as contract viability or expropriation, profits repatriation, and payment delays. Each subcomponent has a maximum score of four points. *Corruption* measures the demands for special payments and bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans. A maximum of six points is assigned to countries with low risk and zero to those with high corruption risks. Finally, *Government Stability* assesses the ability of the government to carry out its declared programs and stay in office. A maximum score of 12 points shows a lower risk of government instability, and zero points show a very high risk. Government stability is composed of three subcomponents such as government unity, legislative strength, and popular support. Each subcomponent has a maximum of four points.

Table 18 shows that the average points associated with government stability range between 7.14 and 9.00. The average of six points shows an acceptable level of government stability in most SSA countries. However, these points declined from nine to seven points in the food and garment industry. This negative trend shows a progressive deterioration of the ability of the government in SSA to carry out its declared program and stay in office. Consequently, we expect government instability to be associated with negative firm growth.

Table 18 further shows that the average value of the level of corruption ranges between 1.7 and 2.6 points. These points below the average of three points show a high risk of corruption in most SSA countries. Looking at the food and garment industry, we have a sufficiently large number of observations for all the survey's waves. There was no substantial reduction in the

risk of corruption from 2003 to 2005 and from 2013 to 2015. Therefore, we expect that a high risk of corruption undermines the ability of firms to grow. In other words, corruption slows the growth performance of the industry.

The quality of law and order was, on average, between 2.3 and 3.6 points. This trend shows that the reliability of the judicial system in most SSA countries is questionable. By looking closely at the tendency, the strength and impartiality of the legal system decreased from 3.51 to 2.9 points in the food industry. Likewise, the quality of law and order in the garment industry decreased from 3.47 to 2.43 points. Therefore, we expect a lower judicial system quality to harm firm growth.

For the investment profile, the point ranges between 7.11 and 9.00. This range above the mean of 6 points shows that the overall investment climate is good and stable. In addition, most SSA countries seem to ameliorate their business climate to reduce market inefficiencies and attract foreign investors. Therefore, we expect a better investment profile to stimulate firms' growth.

Finally, the internal conflict is between 7.4 and 9.5 points on average. This result suggests that the risks of internal conflict are lower in most SSA countries. Moreover, once plagued with internal conflicts, countries in SSA have probably learned from the negative impact of internal conflicts on economic development and the destruction of the manufacturing base. Therefore, most governments might have improved the security climate to attract more foreign investments. As a result, we expect a lower risk of internal conflicts to impact firms' growth positively.

In summary, the quality of the investment profile and the minimization of risks associated with internal conflicts improved over time in SSA. However, corruption risks, government instability, and the judicial system's quality worsened over time. These results

reveal an absence of a coordinated effort to keep all the aspects of the quality of institutions high enough to stimulate the growth of small firms in SSA.

Section 4.2. Empirical estimation

The following model estimates the impact of institution variables on firm growth in Sub-Saharan Africa:

$$\text{Growth}_{\text{ikj(t,t-3)}} = \beta_0 + \beta_1 X_{\text{i,k,j(t)}} + \beta_2 W_{\text{i,k,j(t)}} + \beta_3 Z_{\text{i,k,j(t-3)}} + \lambda I_j + \varepsilon_{\text{i,k,j(t)}}, \quad (4.1)$$

where $G_{\text{ikj(t,t-3)}}$ is the average annual growth rate (sales and employment) of a firm *i* in industry *k*, and country *j*; the subscript (t, t-3) represents the annual growth rate computed from equations (3) and (4) to be shown shortly; β_0 is the intercept; β_1 is the coefficient of the set of the entrepreneur characteristics; β_2 is the coefficient of the set of the workers' characteristics; β_3 is the coefficient of the set of other firm characteristics; λ captures the country-specific effects using institutional variables, and $\varepsilon_{\text{i,k,j(t)}}$ is the error term component.

One of the limitations of this study is that, since institutional variables are country-specific, we cannot use country dummies in addition to institutional variables. A failure to control for the country-specific factors by country dummy might ultimately lead to biased estimates.

Section 4.3. Estimation results and discussion

This section presents the results of the effect of institutional quality on the growth performance of manufacturing firms. First, the regression results of fast-growing industries are shown in Tables 19, 20, 21, and 26. Next, the results of slowly growing industries are reported in Tables 22, 25, 29, and 30. Finally, Tables 23, 24, 27, 28, 31, 32, and 33 show the results for stagnant firms.

4.3.1 Estimation results of the idiosyncratic characteristics of firms.

Starting with firm size, we show from the results in Table 19 that in the food industry from 2003 to 2005, micro-sized firms grew in employment faster than large firms by 20.9

percent on average. The result is robust using either country-specific effects or institutional variables. Table 20 shows that from 2004 to 2006, even after controlling for country-specific effects, micro firms grew by 27.1 percent on average in employment growth compared to larger firms. Table 22 also shows that micro-sized firms in the food industry from 2006 to 2008 experienced annual employment growth of 22.1 percent more than large firms. After 2008 and 2009, the global financial crisis period, growth in the food industry slowed. As a result, Table 22 shows that from 2010 to 2012, the annual employment growth of micro-sized enterprises increased by 15.6 percent more than that of large firms. Again, the coefficients are robust and similar to those using the country fixed effects. Finally, Table 23 shows that micro-sized firms in the food industry from 2013 to 2015 experienced annual employment growth of 18.8 percent more than large firms.

Table 24 shows that in the garment industry when growth was stagnant from 2003 to 2005, micro-sized enterprises experienced an annual sales growth of 32.3 percent more than large firms. In contrast, medium sized-firms grew by 29.6 percent on average. On the other hand, small firms in the garment industry from 2003 to 2005 grew faster than large firms by only 13.8 percent. In the subsequent growth period from 2004 to 2006, Table 25 shows that the annual employment growth of micro-sized firms increased by 0.16 percentage points more than large firms and by ten percent in annual sales growth. On the other hand, small-sized firms grew by four percent in annual employment growth and six percent in annual sales growth compared to large firms. Next, from 2006 to 2008, although growth in the garment industry was fast, micro-sized firms grew only by 11.6 percent on average, as shown in Table 26.

Employment growth in the garment industry stagnated after the GFC. As a result, Table 27 shows that from 2010 to 2012, micro-sized firms experienced a negative annual sales growth of minus 36.3 percent, which is less than large firms, whereas small-sized firms grew negatively by minus 39 percent, which is less than large firms. Finally, Table 28 shows that

from 2013 to 2015, the annual sales growth of medium-sized firms increased by 121 percent, whereas micro-firms grew in annual employment 8.1 percent faster than large firms.

Considering the wood industry from 2003 to 2005, when growth in the industry was slow, Table 29 shows that micro-sized firms grew faster than large firms by 0.27 percentage points on average. On the other hand, Table 30 shows that in the metal industry from 2004 to 2006, the annual employment growth among micro-sized firms increased by 30.9 percent and annual sales growth by 17.3 percent more than large firms. For small-sized firms in the metal industry, their annual employment growth increased by 7.6 percent more than that of large firms. There is no significant effect on firm size in the furniture industry, as shown in Table 31. Table 32 shows that in the fabricated metal industry from 2010 to 2012, small firms experienced negative annual employment growth of minus 9.4 percent, which is less than large firms. On the other hand, medium-sized firms also experienced negative annual employment growth minus 9.4 percent less than medium-sized firms. Finally, in the textile industry from 2013 to 2015, Table 33 shows that micro-sized firms experienced annual employment growth of 9.3 percent and annual sales growth of 68.2 percent, more than that of large firms.

Turning to the firm age and growth performance nexus, we present the overall results showing that firm age is inversely related to a firm's growth. For example, in the food industry from 2003 to 2005, Table 19 shows that younger firms grew in annual employment by 8.2 percent faster than older firms. In terms of annual sales, younger firms grew 6.1 percent faster than older ones. Although growth in the food industry was slow from 2010 to 2012, Table 22 shows that younger firms grew in annual sales 16.1 percent faster than older firms. Finally, in the food industry from 2013 to 2015, when growth in the industry was stagnant, younger firms grew in annual employment four percentage points faster than older firms, as shown in Table 23.

Table 25 shows that in the garment industry, when the overall growth was slow from 2004 to 2006, younger firms grew by 3 percent, whereas mature firms grew by two percentage points faster than older firms. Table 26 does not show any significant effect of firm age on employment or sales growth. However, Table 27 shows that younger firms from 2010 to 2012 had negative annual employment growth of minus 5.2 percent compared to older firms, and mature firms also had negative annual employment growth of minus 4.7 percent compared to older firms. Finally, Table 28 shows that from 2013 to 2015, younger firms grew in annual employment by four percentage points compared to older firms.

In the wood industry from 2003 to 2005, Table 29 shows that younger firms grew in annual employment faster than older firms by 4.7 percent. In the metal industry from 2004 to 2006, Table 30 shows that younger firms grew in annual employment by 4.4 percent faster than older firms, whereas mature firms grew in annual employment by 5.9 percent. Finally, from 2013 to 2015, younger firms grew in annual employment by 5.1 percent in the textile industry, as shown in Table 33.

Regarding the effect of training on firms' growth, Table 20 shows that firms in the food industry that trained permanent workers from 2004 to 2006, when growth in the industry was fast, grew in annual sales by 2.8 percent on average. Growth in the food industry slowed from 2010 to 2012; therefore, firms that provided training in the food industry grew in annual employment by 2.8 percent, as shown in Table 22. Although stagnation occurred in the food industry from 2013 to 2015, Table 23 shows that firms that provided training to permanent workers grew in annual sales by 29.6 percent.

In the garment industry, Table 25 shows that from 2004 to 2006, when growth was slow, firms that provided training to permanent workers experienced negative annual sales growth of minus 2.3 percent. However, when the growth in the garment industry was fast, Table 26 shows that from 2006 to 2008, firms that provided formal training benefited from annual sales

growth of 16.1 percent on average. After the GFC, growth in the garment industry became stagnant, but firms that provided training to permanent workers grew in annual sales by 9 percent.

On the other hand, Table 30 shows that firms in the metal industry that offered training to their permanent workers from 2004 to 2006 experienced annual employment growth of 4.7 percent. Unfortunately, Table 31 shows no significant training effect on employment or sales growth in the furniture industry. Finally, in Table 32, the training of permanent workers contributed to increasing annual sales growth by 21.5 percent in the fabricated metal industry.

Moving to the management experience of top managers, Table 22 shows that from 2010 to 2012, firms managed by top managers with more management experience in the food industry experienced annual sales growth of only 0.075 percentage points higher. On the other hand, in the garment industry, from 2010 to 2012, firms managed by experienced top managers had annual sales growth of minus 0.045 percentage points, as shown in Table 27. The management experience of top managers in the textile industry from 2013 to 2015 contributed to an increase in annual employment growth of just 0.032 percentage points on average, and annual sales growth was 0.254 percentage points, as shown in Table 33.

Table 25 shows that foreign firms in the garment industry from 2004 to 2006 grew in annual employment by three percent more than domestic firms. Nevertheless, from 2010 to 2012, foreign firms experienced annual sales growth of 14.5 percent in the food industry, as reported in Table 27. Finally, in the garment industry, Table 26 shows that from 2006 to 2008, foreign firms grew negatively in annual employment, i.e., by minus 3.8 percent.

4.3.2. Estimation results of institutional effects on firms' growth.

1. Law and order, and the growth performance of manufacturing firms

The results of the legal system quality on the growth performance of firms in the food industry from 2003 to 2005 show that when the quality of the judicial system improved by a

point, annual sales growth rose by eight percentage points, as shown in Table 19. However, Table 20 shows that from 2004 to 2006, annual sales growth was minus ten percentage points when the judicial system improved by a point. However, from 2006 to 2008, Table 21 shows that annual sales growth in the food industry increased by seventeen percentage points. Moreover, when growth in the food industry became stagnant from 2010 to 2012, Table 22 indicates that the amelioration of the judicial system led annual sales growth to fall by minus fourteen percentage points.

Table 24 shows that in the garment industry from 2003 to 2005, the increase in the quality of the legal system of a point stimulated annual sales growth by five percentage points. From 2004 to 2006, Table 25 shows that annual employment growth decreased by minus eight percentage points, and annual sales growth fell by minus nine percentage points. However, from 2010 to 2012, annual sales growth decreased by twelve percentage points, as reported in Table 27.

From 2003 to 2005, in the wood industry, Table 29 shows that annual sales growth increased by five percentage points when the quality of law and order increased by 1 point. Table 31 shows that in the furniture industry from 2010 to 2013, annual sales growth decreased by minus eight percentage points. Finally, in the fabricated metal industry from 2010 to 2013, annual sales growth fell by minus nine percentage points, as shown in Table 32.

Supportive of our hypothesis, the overall results show that the amelioration of the legal system had a positive impact on the growth performance in most industries. In the food industry, a better legal system positively affected annual sales growth only from 2003 to 2005 and from 2006 to 2008 when the food industry was fast-growing. These two periods were prior to the global financial crisis (GFC) of 2008 and 2009. However, from 2004 to 2007 and from 2010 to 2012, a better legal system harmed annual sales growth. We notice that after the GFC, the

trend in annual sales growth of most enterprises has been negative. That is to say, if the GFC did not hit most countries, annual sales growth might likely have been positive.

2. Internal conflicts and the growth performance of manufacturing firms

The results in Table 20 show that in the food industry from 2004 to 2006 when risks of internal conflicts fell by a point, annual sales growth increased by four percentage points. However, from 2010 to 2012, annual sales growth decreased by ten percentage points, as shown in Table 22.

On the other hand, reducing the risks of internal conflicts in the garment industry from 2003 to 2005 decreased annual employment growth by 3.2 percentage points and annual sales growth by ten percentage points, as shown in Table 24. However, from 2004 to 2006, Table 25 shows that annual sales growth increased by two percentage points. Finally, from 2006 to 2008, Table 26 shows that reducing the risks of internal conflicts by a point was associated with a reduction in annual employment growth of 5.1 percent and annual sales growth of nine percentage points.

In other industries, such as the metal industry from 2004 to 2006, Table 30 shows that reducing the risk of internal conflicts by 1 point is associated with annual sales growth by four percentage points.

Consistent with our hypothesis, the overall results support the argument that reducing the risks of internal conflicts within a country stimulates employment and sales growth in most industries.

3. Investment profile and the growth performance of manufacturing firms

Table 20 shows that an increase of a point in the quality of the investment profile in the food industry from 2004 to 2006 led to a decrease in annual sales growth by six percentage points. However, from 2010 to 2012, Table 22 shows that annual employment growth increased by 13.7 percentage points.

In the garment industry from 2003 to 2005, annual employment growth fell by 2.7 percentage points, and annual sales growth decreased by five percentage points, as reported in Table 24, when the quality of the investment profile increased by 1 point. However, Table 25 shows that from 2004 to 2006, when growth in the garment industry was slow, annual employment increased by 1.3 percentage points, but annual sales growth decreased by 1.3 percentage points. Likewise, from 2006 to 2008 annual employment grew by 1.4 percentage points, but annual sales decreased by seven percentage points, as shown in Table 26. Finally, from 2010 to 2012, Table 27 shows that annual employment growth dropped by four percentage points when the investment profile improved by 1 point.

On the other hand, in the wood industry from 2003 to 2005, annual sales increased by four percentage points, as shown in Table 29. In the metal industry from 2004 to 2006, a good investment profile impacted employment and sales growth differently. That is to say, annual employment grew by 1.1 percentage points, but annual sales decreased by 2.1 percentage points, as reported in Table 30. Finally, in the fabricated metal industry from 2010 to 2012, Table 32 shows that annual employment decreased by four percentage points and annual sales by twelve percentage points.

According to our hypothesis, the improvement in the investment profile can stimulate the growth performance of all industries. However, the results show that employment and sales growth decreased when the investment profile improved by 1 point in some cases. The plausible explanation is that when the investment profile improves, it incentivizes foreign and other domestic firms to enter the market. As a result, competition increases, and sales revenue is shared among several competitors, forcing existing firms to refrain from hiring new workers and lay off a few to reduce the cost of operating their business sustainably.

4. Corruption and the growth performance of manufacturing firms

The results in Table 19 show that reducing the risks of corruption in the food industry from 2003 to 2005 decreased annual sales growth by eleven percentage points. However, Table 20 shows that in the food industry from 2004 to 2006, when corruption risks fell by a point, annual employment growth increased by three percentage points, and annual sales growth increased by five percentage points. Table 21 shows that from 2006 to 2008, annual employment growth decreased by 2.4 percentage points. Finally, from 2010 to 2012, annual sales growth increased by 72.6 percentage points, as shown in Table 22.

On the other hand, reducing the risks of corruption in the garment industry from 2003 to 2005 decreased annual sales growth by sixteen percentage points, as shown in Table 24. However, from 2004 to 2006, Table 25 shows that reducing corruption risks by one point was associated with an increase in employment growth by five percentage points and annual sales growth by five percentage points. From 2006 to 2008, Table 26 shows that reducing corruption risks by one point was associated with a six percentage points reduction in annual sales growth. Likewise, from 2010 to 2012, Table 27 shows that annual sales growth increased by forty-eight percentage points when the corruption risks decreased by a point in the garment industry. Finally, in the garment industry from 2013 to 2015, annual sales growth increased by 350 percentage points when corruption risks decreased, as shown in Table 28.

Table 29 shows that in the wood industry from 2003 to 2005, annual sales growth decreased by eight percentage points when the reduction in corruption risks decreased by 1 point. However, in the metal industry from 2004 to 2006, Table 30 shows that reducing the risk of corruption by 1 point was followed by an annual sales growth increase of four percentage points.

We expected the reduction of corruption risks to be positively associated with growth stimulation. However, the result shows that corruption can grease in a few cases and sand the

wheel of business activities in most cases. It greases the wheel if an increased risk of corruption stimulates the growth of firms, as shown in some studies (Shumetie and Watabaji, 2019; Lee et al., 2020). And, it sands the wheel of business when resorting to corruption harms annual employment and sales growth, as found in the other strand of the literature (Kimuyu, 2007; Martins et al., 2020).

5. Government stability and the growth performance of manufacturing firms

Table 19 shows that an increase of one point in government stability stimulated annual employment growth by three percentage points and annual sales growth by seven percentage points in the food industry from 2003 to 2005. However, Table 20 shows that from 2004 to 2006, annual sales growth decreased by four percentage points when government stability improved by 1 point. The subsequent growth period of 2006 to 2008 shows that annual sales growth decreased by seven percentage points, as shown in Table 21. Although annual employment grew by two percentage points from 2010 to 2012, Table 22 shows that annual sales growth decreased by seven percentage points.

In the garment industry, the improvement of government stability of 1 point from 2004 to 2006 contributed to a decrease in annual sales growth by four percentage points, as shown in Table 25. However, from 2006 to 2008, Table 26 shows that annual sales growth in the garment industry increased by six percentage points. Unfortunately, from 2010 to 2012, after the GFC, annual sales growth decreased by six percentage points, as shown in Table 27.

From 2003 to 2005, when the quality of government stability increased by 1 point, in the wood industry, Table 29 shows that annual employment growth rose by two percentage points. However, Table 30 shows that annual employment growth decreased by two percentage points in the metal industry from 2004 to 2006 and annual sales growth by four percentage points. Finally, Table 31 shows that in the furniture industry from 2010 to 2012, annual sales growth decreased by four percentage points.

We expected government stability to be associated with the positive growth of firms. However, the results vary. The overall trend suggests that government stability stimulated annual employment growth, but annual sales growth was volatile most of the time when government stability improved.

Regarding the role of institutional variables, we showed in this chapter that the findings on the effect of law and order on the growth performance of firms are consistent with our expectations and the conclusion of previous studies. In other words, there is a positive relationship between an effective legal system and firm growth (Laever and Woodruff, 2007; Chemin, 2020). Concretely, improving the legal system is positively associated with annual sales growth. However, unfortunately, we did not find significant results with annual employment growth in most industries. Second, the findings of this paper adhere to our expectation that risks of internal conflicts harm firm growth. Decreasing the risks of internal conflict positively affects annual employment in the garment and food industries. The magnitude of annual employment growth was larger by 0.7 percentage points among firms in the garment industry than among those in the food industry. However, it hurts employment growth in the furniture industry. Finally, we find that reducing internal conflict positively affects annual sales growth in most industries.

This chapter shows that improving the investment profile stimulated annual employment growth in most industries. For example, in the garment industry, annual employment growth sustainably increased from the period when growth in the industry was stagnant to the period when the industry grew fast ceteris paribus. However, in the aftermath of the GFC, employment growth decreased in most industries, and growth stagnation characterized most of them. Also, improving the investment profile stimulated annual sales growth in most industries.

We have also shown that reducing corruption risks is positively associated with firm growth. Our expectations align with the empirical literature (Eifert et al., 2008; Martins et al., 2020). For example, firms in the food and garment industry experienced positive annual sales growth because corruption risks diminished. Annual sales growth occurred primarily after the global financial crisis. On the other hand, reducing corruption risks harmed annual employment growth in the food and garment industry. If corruption risks are low, the requirement of strict enforcement of the contract between workers and firms tends to be high, and therefore, firms in the food and garment industry tend to hire fewer workers. In other words, if the risks of corruption are widespread, firms can hire more workers and not abide by the law and recourse even to abusive layoffs without the possibility of them being liable before courts. However, firms in the metal and furniture industries grew in employment when corruption risks decreased.

Finally, this chapter showed that ameliorating government stability is conducive to firm growth. This finding is consistent with our expectations. For example, firms grew in annual employment in the food, garment, and metal industries when governments were more stable. However, sales growth decreased in most industries under a stable government. If sales growth in those industries decreases because of a stable government, this finding suggests no continuity in policy enforcement from a previous government to the next one. As a result, firms may recourse to shadow means that stimulate their sales growth in the presence of business uncertainties.

Section 4.4. Concluding remarks

This chapter estimated the growth function of selected industries in SSA by replacing the country fixed effects with institutional data. This strategy may have the advantage of providing unbiased estimates due to elimination of country dummies. The results are robust and confirm that in most cases, smaller and younger firms grow faster than older and larger firms, probably because of some imitations. Although the measurement of institutional data

might be questionable and subjective, the overall result supports the argument that a lower risk of corruption is conducive to the employment and sales growth of firms in SSA. Therefore, policymakers should design a well-functioning judicial system to enforce property rights protection and reduce widespread corruption. When corruption is rampant, the big losers are smaller firms (Kimuyu, 2007; Martins et al., 2020). One of the most significant implications of this study is that it is crucial to provide a suitable environment for innovation. That is to say, if corruption risks are prevalent, slower growth in the short run and stagnation in the long run, might characterize manufacturing industries in SSA.

Chapter 5: Determinants of Firms' Innovations in Sub-Saharan Africa

This chapter discusses the determinants of firm innovation in selected SSA industries. First, we describe the data and introduce the empirical estimation model. Then we present and discuss the probit marginal effect result and provide a brief conclusion.

Section 5.1. Data description

This section introduces the data used to estimate the marginal effect of product and process innovation on manufacturing firms in SSA. To obtain unbiased estimates, we controlled for country-specific effects. First, we included country dummies in the probit model, and in the other specification, we substituted them with institutional data. We used firm-level data on innovation and other characteristics of 2071 firms in various industries in SSA from the WBES carried out from 2003 to 2005, 2010 to 2012, and 2013 to 2015. In addition, we used policy data from ICRG to examine the possible effect of institutional quality on the firm's likelihood of innovating. Section 3.1 of chapter 3 and Section 4.1 of chapter 4 show the descriptive statistics of the institutional data and other characteristics of firms.

Dummy variable data on innovation show that the reported innovations were either process or product innovations. Process innovation refers to introducing any firm's new or improved production process. It includes the method of manufacturing, delivering, distributing, and using inputs in producing output. On the other hand, product innovation refers to introducing new or significantly improved products.

Table 46 shows the proportion of innovative firms in the food industry by size. From 2003 to 2005, we can observe that 33 percent of micro-sized firms reported introducing product innovation, whereas 14 percent introduced innovation in the process. Among small firms, 45.9 percent introduced product innovation, and 33.7 percent introduced process innovation. A proportion of 68.2 percent of medium-sized firms reported having introduced product innovation, and 53.6 percent of the process innovation. Table 46 also shows that 76 percent of

large firms reported launching product innovation, whereas 60 percent introduced process innovation. From 2010 to 2012, 80 percent of large firms, 64.5 percent of medium-sized firms, 51.8 percent of small-sized firms, and 54 percent of micro firms introduced product innovation. On the other hand, 68 percent of large firms, 59 percent of medium-sized firms, 44.3 percent of small-sized firms, and 41 percent of micro firms introduced process innovation. We observe that the proportions of firms reporting innovation increase with size. In other words, larger firms tend to be more innovative than smaller firms in the food industry.

Next, Table 47 shows the proportion of innovative firms by size in the garment industry. From 2003 to 2005, 73 percent of micro firms reported the introduction of product innovation, whereas 38.4 percent introduced process innovation. Among small firms, 69 percent introduced product innovation, and 40 percent introduced process innovation. A proportion of 90 percent of medium-sized firms reported having introduced product innovation, and 50 percent of the process innovation. All large firms reported introducing product and process innovation. From 2010 to 2012, 33 percent of large firms, 61 percent of medium-sized firms, 47 percent of small-sized firms, and 39 percent of micro firms introduced product innovation. On the other hand, 66 percent of large firms, 53 percent of medium-sized firms, 18 percent of small-sized firms, and 16 percent of micro firms introduced process innovation. We observe, in general, that the proportions of firms reporting process innovation increase with size. However, in product innovation, medium-sized firms had a more significant proportion of innovative firms than larger ones.

From 2010 to 2012, 71 percent of large firms, 71 percent of medium-sized firms, 40 percent of small-sized firms, and 70 percent of micro firms introduced product innovation in the fabricated metal industry, as shown in Table 48. Among firms that introduced process innovation, 71 percent are large firms, 48 percent are medium-sized firms, 31 percent are small-sized firms, and 35 percent are micro firms. It is important to highlight that the proportion of

innovative micro-sized firms in the product was as large as that of larger firms in the fabricated metal industry. Micro firms reported much more product innovation than small firms. Apart from the exceptional case of micro-sized firms, the tendency is that the proportion of firms reporting innovation increases with size.

Again, from 2010 to 2012, in the furniture industry, Table 48 shows that 100 percent of large firms, 69 percent of medium-sized firms, 51 percent of small-sized firms, and 57 percent of micro firms introduced product innovation. On the other hand, firms that introduced process innovation represent 100 percent of large firms, 50 percent of medium-sized firms, 26 percent of small-sized firms, and 17 percent of micro firms. It is evident that the proportion of firms reporting innovation increases with size.

Turning to the proportion of innovative firms by age, Table 49 shows that from 2003 to 2005, 54 percent of older firms and 57 percent of mature firms introduced product innovation in the food industry. Moreover, 53 percent of younger firms also introduced it. We can observe 40 percent of older firms, 39 percent of mature firms, and 42 percent of younger firms in process innovation. Table 49 shows that mature firms are more innovative. However, micro firms are more innovative than mature and older firms in process innovation. From 2013 to 2015, mature firms keep a higher proportion of innovative firms in the product than younger and older firms. On the other hand, Table 50 shows that in the garment industry from 2013 to 2015, 40 percent of older firms, 38 percent of mature firms, and 35 percent of younger firms introduced product innovation. These proportions show that product innovation increases with a firm's age.

There are no reported data on innovation by age for mature and older firms in other industries. As a result, Table 51 shows that in the wood industry from 2003 to 2005, 59 percent of younger firms introduced product innovation and 41 percent introduced process innovation. From 2010 to 2012, 43 percent of younger firms introduced product innovation, and 29 percent

introduced process innovation in the fabricated metal industry. Finally, 39 percent of younger firms introduced product innovation in the textile industry, whereas 47 percent introduced process innovation.

Section 5.2. Empirical estimation

The empirical estimation model relies on a latent regression following equation (5.1)

$$y^* = X\beta + \varepsilon, \quad and \quad y = 1[y^* > 0] \tag{5.1}$$

where y^* is the latent variable, β is a vector of parameters, X is a vector of explanatory variables that lead to the probability of $y = 1$, given the possible values of x_i, and ε captures the continuous distribution of variables independent of X and symmetric about zero. Based on the latent variable, we used the standard probit model given in equation (5.2)

$$C(z) = \Phi(z) \equiv \int_{-\infty}^{z} \emptyset(v)dv \tag{5.2}$$

where, if C is the CDF of ε and given its symmetry to zero, 1- C(-z)=C(z) for all real numbers z. Φ(z) is the standard normal density because the estimation of the probit model requires the latent variable to have ε that follows a standard normal distribution (Wooldridge, 2015). To consider the different explanatory included in the estimation, this study follows a standard probit model as shown in equations (5.3) and (5.5).

$$p(y_i^*=1) = \Phi(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \cdots + \beta_n X_{in}) \tag{5.3}$$

which can also be written as:

$$\Pr(y_i = 1) = \Pr(y_i^* > 0) = \Phi(x_i^T \beta) \tag{5.4}$$

where, $\Phi(x_i^T \beta)$ is the standard normal density of the index function for *i* observation

and,

$$p(y_i^*=0) = 1-\Phi(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \cdots + \beta_n X_{in}) \tag{5.5}$$

which is equivalent to:

$$\Pr(y_i = 0) = \Pr(y_i^* \leq 0) = 1 - \Phi(x_i^T \beta) \tag{5.6}$$

The binary variable y_i is related to the latent variable y_i^* by the relation:

$y_i = 1$ if $y_i^* > 0$ where $y_i = 1$ if a firm *i* in industry *k* and county *j* introduces product or process innovation.

$y_i = 1$ if $y_i^* \leq 0$ where $y_i = 0$ if a firm *i* in industry *k* and county *j* does not introduce product or process innovation.

We can derive the marginal probability effect of X_n of the estimation function following equation (5.7):

$$\Phi(x_i^T\beta) = \frac{\partial x_i^T\beta}{\partial X_{in}} = \Phi(x_i^T\beta)\beta_n \qquad (5.7)$$

For the purpose of this study and based on equation (5.7), the paper uses the estimation models of equations (5.8) and (5.9):

$$y_{ikj}^* = \Phi(\beta_1 X_{i,k,j(t)} + \beta_2 W_{i,k,j(t)} + \beta_3 Z_{i,k,j(t-3)} + \lambda I_j + \varepsilon_{i,k,j(t)}) \qquad (5.8)$$

$$y_{ikj}^* = \Phi(\beta_1 X_{i,k,j(t)} + \beta_2 W_{i,k,j(t)} + \beta_3 Z_{i,k,j(t-3)} + \delta C_j + \varepsilon_{i,k,j(t)}) \qquad (5.9)$$

where, y_{ikj}^* is the likelihood of firm *i* in industry *k* and country *j* to innovate in the process, or the product, Φ is the standard normal cumulative distribution function (CDF), β_1 is the marginal effect of the vector of the entrepreneur characteristics; β_2 is the marginal effect of the set of the workers' characteristics; β_3 is the marginal effect of the vector of other firm characteristics; δ captures the country-specific effects with a dummy variable, λ captures the country-specific effects using institutional variables, and $\varepsilon_{i,k,j(t)}$ is the error term component.

Section 5.3. Estimation results and discussion

This section presents the results of the marginal effect on the likelihood of firms being innovative in the product or the process. In addition, we controlled for country-specific effects first with dummy variables and then with institutional data. Finally, we estimated the results for all periods and industries. However, the results were not significant in most of them. As a result, we report only the industries and period for which the probit marginal effect yielded significant results.

Starting with the food industry from 2003 to 2005, when industrial growth was fast, Table 52 shows that micro firms were 0.30 percentage points less likely to be innovative in the product and process than larger firms. Then, from 2010 to 2012, when growth in the food industry was slow, Table 53 shows that micro firms are 0.27 percentage points less likely to be innovative in process innovation and 0.24 percentage points less likely to be innovative in product innovation than larger firms. On the other hand, small firms are 0.29 percentage points less likely to be innovative in the process and 0.28 percentage points less likely to be innovative in the product than larger firms. Finally, from 2013 to 2015, although in Table 54, there is no significant marginal effect of firm size on innovation, we observe that firms that provide formal training to their workers are 0.18 percentage points more likely to innovate in the product. The overall results are consistent with our hypothesis that the fast growth of smaller firms did not occur due to innovation. The marginal effect of firm size in the food industry confirms our robust findings.

In the garment industry from 2003 to 2005, when growth in the industry was stagnant, Table 55 shows that micro firms are 0.78 percentage points less likely to be innovative in the process and 0.97 percentage points less likely to be innovative in product innovation. Small firms are 0.93 percentage points less likely to innovate in the process and 0.73 percentage points less likely to innovate in product innovation. Likewise, medium-sized firms are 0.27 percentage points less likely to innovate in the process and 0.86 percentage points less likely to innovate in the product. However, firms that provide formal training to permanent workers in the garment industry are 0.21 percentage points more likely to introduce product innovation.

Table 56 shows that in the garment industry from 2010 to 2012, mature firms are 0.30 percentage points more likely to innovate in the process than older firms. On the other hand, micro firms are 0.47 percentage points, small firms 0.49 percentage points, and medium-sized firms 0.48 percentage points more likely to innovate in their product than large firms. In

addition, firms that train permanent workers are 0.18 percentage points more likely to innovate in the process and 0.40 percentage points more likely to innovate in the product. Finally, from 2013 to 2015, Table 57 shows that firms that provide training to permanent workers are 0.17 percentage points more likely to introduce innovation in their products. Additionally, a lower risk of corruption increases the likelihood of introducing product innovation by 0.40 percentage points. In the garment industry from 2012 to 2015, smaller firms are more likely to innovate than larger firms. We expected innovation among younger firms to stimulate industrial growth. However, unfortunately, growth in the industry was stagnant during this period. We presume that the growth of smaller firms occurred because of active imitation rather than innovation.

In other industries, Table 58 shows that in the wood industry from 2003 to 2005, micro firms are 0.30 percentage points less likely to innovate in the process. Additionally, in countries where the risk of internal conflict is low, firms are 0.08 percentage points more likely to introduce product innovation. Turning to the furniture industry from 2010 to 2012, Table 59 shows that micro firms are 0.57 percentage points less likely to introduce process innovation. Moreover, they are 0.77 percentage points less likely to introduce product innovation than larger firms. In addition, small firms are 0.99 percentage points less likely to innovate in the process and 0.90 percentage points in the product. Likewise, medium-sized firms are 0.67 percentage points less likely to introduce process innovation and 0.83 percentage points less likely to introduce product innovation. On the other hand, firms that provide training to permanent workers are 0.30 percentage points more likely to introduce process innovation and 0.29 percentage points more likely to introduce product innovation.

Finally, in the fabricated metal industry from 2010 to 2012, Table 60 shows that micro firms are 0.36 percentage points more likely to innovate in the product than larger firms. Firms that provide formal training to permanent workers are 0.33 percentage points more likely to introduce process innovation and 0.37 percentage points more likely to introduce product

innovation. Firms that reported electricity outages as one of the main obstacles to business activities are 0.20 percentage points more likely to introduce process innovation. On the other hand, they are 0.32 percentage points more likely to innovate the product. In countries where the legal system is reliable, firms are more likely to innovate in their product.

Section 5.4. Concluding remarks

This chapter estimated the determinants of firms' innovation in SSA. We controlled for country-specific effects using dummy variables and institutional data in separate estimations. As a result, we believe that we obtained fairly unbiased estimates of the marginal effects of firm size and other firms' characteristics on the likelihood of innovating in the process or the product. The main findings support the hypothesis that the growth of smaller firms occurs because of some imitations rather than innovations. Few cases show smaller firms having a higher likelihood of innovating. One of the most significant findings is that providing formal training to permanent workers increases the probability of introducing innovation to the product. In other words, firms that train workers are more likely to be innovative. In addition, a lower risk of corruption, a lower risk of internal conflicts, and a sound judicial system increase the likelihood of firms' innovation. Therefore, policymakers in SSA should offer training programs to top managers in promising industries. Entrepreneurs need to employ good management practices capable of stimulating innovation and sustaining the growth of firms.

Chapter 6: Conclusion and Policy Implications

This thesis studied the growth performance of manufacturing firms in 25 Sub-Saharan countries using the World Bank Enterprise Survey data of 4500 firms. First, we investigated the economic determinants of firm size growth in different industries. The aim was to understand the importance of innovation and imitation in industrial growth. Second, we examined the institutional and economic determinants of firm size growth across different industries. In both cases, the empirical strategy was to estimate separate growth functions for various industries instead of assuming a standard common growth function across different industries. For robustness check, we did not use institutional quality data from the self-report surveys of firms. Instead, we recourse to institutional data constructed by the International Country Risk Guide to control for country fixed effects, and assess their effect on firm growth.

Our findings on the economic determinants of firm growth showed that industrial growth occurred when micro and young firms proliferated. In other words, imitation is likely to drive industrial growth by stimulating the growth of micro and small firms. Although we presumed that active imitation might lead to slower growth in the industry, particularly in the long run, the result shows no supportive evidence. In most cases, active imitation among micro and small-size firms was conducive to industrial growth. Two possible reasons explain the widespread imitation. First, most firms might still be at the initial stage of their industrialization. As Sonobe et al. (2003) point out, imitation of technology is easy to adopt at the early stage of industrial development. The findings further showed that despite the maturity of firms, measured by their presence in the industry for more than five but less than ten years of business operations, most of them relied on imitations to grow. Second, the absence of the stock of past innovation might deter micro, small and young firms from engaging in innovative activities.

We controlled the country-specific effects with dummy variables in the empirical strategy in chapter 3. However, in chapter 4, we replaced those dummy variables with

institutional quality data. We found robust and consistent results from the two model specifications. On institutional quality, we found in most cases that improving the quality of law and order harmed annual sales growth, probably reflecting crude measurement. However, the effect was positive for annual employment growth only in the wood industry.

We also found that reducing conflict risks positively affected annual sales but hurt annual employment growth. For the investment profile, we found that improving the business environment in most cases harmed annual sales growth but had a positive impact on annual employment growth. We found that reducing corruption risks is associated with positive growth in employment and sales in most industries. Finally, we also found that the improvement in government stability has a positive effect on annual employment growth but a negative effect on annual sales growth.

In chapter 5, we estimated the determinants of firms' innovation in SSA using the marginal effect of the probit model. We used firm-level data on innovation and other characteristics of 2071 firms in diverse industries from the WBES survey of 2006, 2013, and 2016. We found that smaller firms are less likely to introduce product or process innovations than larger firms. The findings are consistent with our hypothesis that smaller firms grow fast because of imitation of technology rather than innovations. In addition, the probit marginal effect further supports the argument that lower corruption risks, lower internal conflict risks, and a good legal system stimulate firms' innovations. The findings also show that formal training for permanent workers increases the likelihood of innovation in the product.

The overall results of the management experience of the top managers have been negative. It is plausible that experienced managers are reluctant to change their management practices. As a result, if the expected return on investment in learning is not large enough, they may continue to adopt inefficient practices (Fafchamps and Quinn, 2018). However, whether entrepreneurs adopt inefficient management practices that are detrimental to the growth of their

firms remains an empirical question. The use of detailed data on top managers' training and career history is essential to answer this question. Future studies might address this question when data become available. We also found that enterprises partially managed by foreigners grew fast in a few cases. However, firms fully managed by nationals for the remaining time grew fast.

The foresight of competent top managers is indispensable for innovation. Innovation is a key to sustainable industrial development. Since we found that the management experience of top managers had almost no significant impact on the growth of manufacturing firms, we recommend that policymakers in SSA provide them with management training to improve their skills. Management training stimulates innovation and equips them with the necessary skills for growth. One of the successful programs designed to assist entrepreneurs in Asia and around the world was the introduction of Kaizen (Otsuka, Jin, and Sonobe, 2018; Sonobe and Otsuka, 2014; Higuchi et al., 2015). Such a program is more likely to teach top managers good management practices for firm growth. Therefore, the most important implication is that policymakers in SSA should stimulate small firms to grow large by providing them with various incentives.

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Table 1: Mean of descriptive statistics of variables used in the growth estimations

	Wood	Metal	Furniture	Fabricated metal	Textile	Food					Garment				
	2003-05	2004-06	2010-12	2010-12	2013-15	2003-05	2004-06	2006-08	2010-12	2013-15	2003-05	2004-06	2006-08	2010-12	2013-15
Annual employment growth rate	0.09	0.08	0.04	0.04	0.05	0.08	0.07	0.04	0.03	0.05	0.09	0.08	0.06	0.02	0.05
Annual sales growth rate	0.16	0.16	-0.05	-0.06	-0.21	0.13	0.15	0.20	-0.02	-0.28	0.10	0.17	0.22	-0.07	-0.35
Micro size firms in the base year	0.09	0.16	0.14	0.12	0.18	0.07	0.06	0.06	0.10	0.13	0.20	0.19	0.18	0.19	0.15
Small size firms in the base year	0.70	0.42	0.63	0.59	0.49	0.53	0.53	0.46	0.45	0.40	0.70	0.54	0.48	0.63	0.61
Medium size firms in base year	0.18	0.30	0.22	0.25	0.27	0.29	0.30	0.28	0.30	0.26	0.07	0.21	0.23	0.16	0.20
Large size firms in base year	0.03	0.12	0.01	0.04	0.06	0.11	0.12	0.20	0.15	0.21	0.03	0.06	0.11	0.02	0.04
Young firms in the base year	0.40	0.29	0.25	0.25	0.12	0.42	0.34	0.30	0.21	0.16	0.45	0.32	0.30	0.30	0.23
Mature firms in the base year	0.25	0.25	0.29	0.28	0.30	0.23	0.25	0.24	0.18	0.17	0.21	0.23	0.24	0.29	0.26
Old firms in the base year	0.35	0.46	0.46	0.47	0.58	0.35	0.41	0.46	0.61	0.67	0.34	0.45	0.46	0.41	0.51
Firms conducting training	0.25	0.27	0.27	0.24	0.43	0.31	0.30	0.34	0.41	0.29	0.28	0.23	0.19	0.22	0.32
Proportion of foreign firms	0.11	0.15	0.05	0.10	0.18	0.22	0.14	0.23	0.16	0.17	0.08	0.06	0.21	0.07	0.15
Proportion of firms experiencing electricity outages	0.77	0.57	0.75	0.87	0.82	0.86	0.76	0.87	0.87	0.92	0.82	0.70	0.77	0.78	0.84
Top manager's experience (in years)	12.6	18.17	16.5	17.7	19.6	10.8	14.7	17.8	16.04	21.6	12.3	16.17	16.5	16.00	18.65
Top manager with graduate education	0.11					0.24					0.08				
Workers without schooling	0.20					0.18					0.16				
Workers with primary schooling	0.28					0.30					0.26				
Workers with secondary schooling	0.42					0.44					0.54				
Workers with university education	0.09					0.08					0.04				
Observations	265	255	220	169	196	281	514	236	363	205	134	797	427	161	277

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

Table 2: Identification of fast-growing, slowly growing, and stagnant industries by period in SSA

Growth performance indicators from 2003 to 2005 (in %)			Wood	Food	Garment
Birch Index			10	23.1	6.23
Annual Employment Growth Rate			9.0	8.0	9.0
Annual Sales Growth Rate			16.0	13.0	10
Growth performance indicators from 2004 to 2006 (in %)			Metal	Food	Garment
Birch Index			10.9	20.5	10.8
Annual Employment Growth Rate			8	7	8
Annual Sales Growth Rate			16	15	17
Growth performance indicators from 2006 to 2008 (in %)				Food	Garment
Birch Index				32.	27.4
Annual Employment Growth Rate				4	6
Annual Sales Growth Rate				20	22
Growth performance indicators from 2010 to 2012 (in %)	Fabricated Metal	Furniture	Food	Garment	
Birch Index	6.7	7.3	12.3	3.9	
Annual Employment Growth Rate	4	4	2	4	
Annual Sales Growth Rate	- 6	- 5	- 2	- 6	
Growth performance indicators from 2013 to 2015 (in %)		Textile	Food	Garment	
Birch Index		9.7	9.7	9.1	
Annual Employment Growth Rate		5	5	5	
Annual Sales Growth Rate		21	- 28	- 35	

Source: Author's calculation using data from the World Bank Enterprise Survey.

Table 3: Growth estimation results of the food industry from 2003 to 2005

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	0.011	-0.013
	(0.01)	(0.02)
Graduate	0.013	0.031
	(0.02)	(0.04)
Primary	-0.022	0.022
	(0.02)	(0.04)
Secondary	0.009	0.033
	(0.02)	(0.04)
University	0.007	0.021
	(0.03)	(0.06)
Training	0.008	-0.000
	(0.02)	(0.03)
Foreign firms	0.0002	0.006
	(0.02)	(0.04)
Young Firms (t-3)	0.072	0.070**
	(0.02)	(0.03)
Mature Firms (t-3)	0.024	0.024
	(0.02)	(0.04)
Micro Size Firms (t-3)	0.201***	-0.014
	(0.04)	(0.07)
Small Size Firms (t-3)	0.027	-0.081
	(0.03)	(0.05)
Medium Size Firms (t-3)	0.008	-0.090*
	(0.03)	(0.05)
Electricity outages	0.028	-0.014
	(0.03)	(0.04)
Constant	-0.040	0.145*
	(0.05)	(0.09)
Observations	281	281
Country Fixed-Effects[1]	Yes	Yes
R^2	0.25	0.17
Adjusted R^2	0.19	0.10

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Angola, Botswana, the Democratic Republic of Congo, Gambia, Guinea, Guinea Bissau, Namibia, Tanzania, and Uganda.

Table 4: Growth estimation results of the food industry from 2004 to 2006

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	0.003	0.015
	(0.01)	(0.01)
Training	0.019	0.028*
	(0.01)	(0.02)
Foreign firms	0.002	-0.014
	(0.02)	(0.02)
Young Firms (t-3)	0.017	0.010
	(0.01)	(0.02)
Mature Firms (t-3)	0.014	-0.018
	(0.01)	(0.02)
Micro Size Firms (t-3)	0.251***	0.060*
	(0.03)	(0.04)
Small Size Firms (t-3)	0.033*	0.030
	(0.02)	(0.02)
Medium Size Firms (t-3)	-0.002	-0.006
	(0.02)	(0.02)
Electricity outages	0.014	-0.009
	(0.01)	(0.02)
Constant	0.020	0.111**
	(0.04)	(0.04)
Observations	514	514
Country Fixed-effect[1]	Yes	Yes
R^2	0.19	0.22
Adjusted R^2	0.16	0.20

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal and Zambia.

Table 5: Growth estimation results of the food industry from 2006 to 2008

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	-0.015	-0.007
	(0.01)	(0.03)
Training	0.011	0.008
	(0.02)	(0.06)
Foreign firms	0.017	0.051
	(0.02)	(0.07)
Young Firms (t-3)	0.017	-0.028
	(0.02)	(0.07)
Mature Firms (t-3)	0.034	-0.051
	(0.02)	(0.07)
Micro Size Firms (t-3)	0.194***	0.120
	(0.05)	(0.14)
Small Size Firms (t-3)	0.016	-0.065
	(0.03)	(0.08)
Medium Size Firms (t-3)	0.022	0.007
	(0.03)	(0.08)
Electricity outages	0.003	-0.049
	(0.03)	(0.09)
Constant	0.042	0.675***
	(0.06)	(0.19)
Observations	236	236
Country Fixed-Effect[1]	Yes	Yes
R^2	0.16	0.13
Adjusted R^2	0.10	0.06

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Burkina Faso, Cameroon, Congo, Cote d'Ivoire, Liberia, Ghana, Kenya, Madagascar, Malawi, Niger, Sierra Leone, Tanzania, Uganda, and Zambia.

Table 6: Growth estimation results of the food industry from 2010 to 2012

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	0.009	0.069*
	(0.01)	(0.04)
Training	0.028**	-0.007
	(0.01)	(0.05)
Foreign firms	0.027	0.146**
	(0.02)	(0.07)
Young Firms (t-3)	0.005	0.142**
	(0.02)	(0.06)
Mature Firms (t-3)	0.015	0.029
	(0.02)	(0.06)
Micro Size Firms (t-3)	0.145***	0.105
	(0.03)	(0.10)
Small Size Firms (t-3)	0.018	0.035
	(0.02)	(0.07)
Medium Size Firms (t-3)	-0.001	0.027
	(0.02)	(0.07)
Electricity outages	0.007	-0.163**
	(0.02)	(0.07)
Constant	-0.040	-0.124
	(0.05)	(0.16)
Observations	363	363
Country Fixed-Effect[1]	Yes	Yes
R^2	0.13	0.10
Adjusted R^2	0.09	0.06

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Madagascar, Tanzania, Uganda, and Zambia.

Table 7: Growth estimation results of the food industry from 2013 to 2015

	Dependent variable:	
	Annual employment Growth (1)	Annual sales growth (2)
Ln (Experience)	0.004	0.058
	(0.01)	(0.12)
Training	0.019	0.267∗
	(0.02)	(0.15)
Foreign firms	-0.001	0.068
	(0.02)	(0.20)
Young Firms (t-3)	0.039∗	0.285
	(0.02)	(0.21)
Mature Firms (t-3)	-0.022	0.014
	(0.02)	(0.20)
Micro Size Firms (t-3)	0.173∗∗∗	-0.130
	(0.03)	(0.27)
Small Size Firms (t-3)	0.035∗	-0.161
	(0.02)	(0.19)
Medium Size Firms (t-3)	0.021	-0.314
	(0.02)	(0.21)
Electricity outages	-0.030	0.174
	(0.03)	(0.25)
Constant	-0.001	-0.462
	(0.06)	(0.51)
Observations	205	205
Country Fixed-Effect[1]	Yes	Yes
R^2	0.26	0.07
Adjusted R^2	0.21	0.01

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Cameroon, Guinea, Cote d'Ivoire, and Mali.

Table 8: Growth estimation results of the garment industry from 2003 to 2005

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	-0.014	0.014
	(0.02)	(0.04)
Graduate	-0.012	-0.026
	(0.04)	(0.09)
Primary	-0.009	0.024
	(0.03)	(0.07)
Secondary	-0.016	0.009
	(0.03)	(0.06)
University	0.085	-0.023
	(0.06)	(0.12)
Training	0.034	0.058
	(0.02)	(0.05)
Foreign firms	0.022	-0.048
	(0.04)	(0.08)
Young Firms (t-3)	0.027	0.016
	(0.03)	(0.06)
Mature Firms (t-3)	0.022	0.016
	(0.03)	(0.06)
Micro Size Firms (t-3)	0.272***	0.173
	(0.07)	(0.14)
Small Size Firms (t-3)	0.135**	0.170
	(0.06)	(0.14)
Medium Size Firms (t-3)	0.264***	0.248
	(0.07)	(0.15)
Electricity outages	-0.034	-0.029
	(0.03)	(0.06)
Constant	-0.027	-0.066
	(0.08)	(0.17)
Observations	134	134
Country Fixed-Effect[1]	Yes	Yes
R^2	0.45	0.25
Adjusted R^2	0.35	0.11

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 9: Growth estimation results of the garment industry from 2004 to 2006

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	-0.001	-0.005
	(0.01)	(0.01)
Training	0.006	-0.023∗
	(0.01)	(0.01)
Foreign firms	0.032∗	0.011
	(0.02)	(0.02)
Young Firms (t-3)	0.030∗∗∗	0.010
	(0.01)	(0.02)
Mature Firms (t-3)	0.030∗∗	-0.006
	(0.01)	(0.01)
Micro Size Firms (t-3)	0.169∗∗∗	0.097∗∗∗
	(0.02)	(0.03)
Small Size Firms (t-3)	0.041∗∗	0.060∗∗
	(0.02)	(0.03)
Medium Size Firms (t-3)	0.011	0.013
	(0.02)	(0.03)
Electricity outages	0.017∗	0.024∗
	(0.01)	(0.01)
Constant	0.003	0.140∗∗∗
	(0.03)	(0.05)
Observations	796	796
Country Fixed-Effect[1]	Yes	Yes
R^2	0.24	0.14
Adjusted R^2	0.23	0.12

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 10: Growth estimation results of the garment industry from 2006 to 2008

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	0.012	0.001
	(0.01)	(0.03)
Training	0.022	0.140***
	(0.02)	(0.05)
Foreign dummy	-0.039*	-0.019
	(0.02)	(0.05)
Young Firms (t-3)	0.036*	0.021
	(0.02)	(0.05)
Mature Firms (t-3)	0.012	0.047
	(0.02)	(0.05)
Micro Size Firms (t-3)	0.129***	0.148*
	(0.03)	(0.09)
Small Size Firms (t-3)	0.010	0.080
	(0.03)	(0.07)
Medium Size Firms (t-3)	-0.037	0.037
	(0.03)	(0.08)
Electricity outages	0.010	-0.017
	(0.02)	(0.05)
Constant	-0.044	0.025
	(0.05)	(0.14)
Observations	427	427
Country Fixed-Effect[1]	Yes	Yes
R^2	0.16	0.18
Adjusted R^2	0.13	0.15

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Ghana, Kenya, Madagascar, Tanzania, Uganda, and Zambia.

Table 11: Growth estimation results of the garment industry from 2010 to 2012

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	-0.045∗	-0.000
	(0.02)	(0.05)
Training	-0.022	0.093∗
	(0.03)	(0.05)
Foreign firms	0.039	0.119
	(0.04)	(0.08)
Young Firms (t-3)	-0.050∗	0.083
	(0.03)	(0.06)
Mature Firms (t-3)	-0.046∗	0.091
	(0.03)	(0.06)
Micro Size Firms (t-3)	0.116	-0.297∗
	(0.08)	(0.16)
Small Size Firms (t-3)	-0.011	-0.330∗∗
	(0.08)	(0.16)
Medium Size Firms (t-3)	-0.072	-0.246
	(0.08)	(0.16)
Electricity outages	0.021	-0.087∗
	(0.02)	(0.05)
Constant	0.187∗	0.304
	(0.11)	(0.23)
Observations	161	161
Country Fixed-Effect[1]	Yes	Yes
R^2	0.30	0.24
Adjusted R^2	0.23	0.16

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia.

Table 12: Growth estimation results of the garment industry from 2013 to 2015

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	-0.004	-0.035
	(0.01)	(0.13)
Training	0.019	-0.020
	(0.02)	(0.15)
Foreign firms	0.006	-0.369*
	(0.02)	(0.20)
Young Firms (t-3)	0.044**	-0.017
	(0.02)	(0.19)
Mature Firms (t-3)	0.025	-0.058
	(0.02)	(0.16)
Micro Size Firms (t-3)	0.078**	0.431
	(0.04)	(0.38)
Small Size Firms (t-3)	-0.045	0.502
	(0.04)	(0.35)
Medium Size Firms (t-3)	-0.056	0.789**
	(0.04)	(0.36)
Electricity outages	-0.013	0.063
	(0.02)	(0.18)
Constant	0.066	-0.476
	(0.06)	(0.56)
Observations	277	277
Country Fixed-Effect[1]	Yes	Yes
R^2	0.20	0.17
Adjusted R^2	0.16	0.14

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia.

Table 13: Growth estimation results of the wood industry from 2003 to 2005

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	0.00	0.021
	(0.01)	(0.02)
Graduate	0.033	0.080
	(0.03)	(0.05)
Primary	0.001	-0.010
	(0.02)	(0.04)
Secondary	0.043**	0.046
	(0.02)	(0.04)
University	0.053*	-0.054
	(0.03)	(0.06)
Training	0.005	0.045
	(0.02)	(0.03)
Foreign firms	-0.018	-0.013
	(0.03)	(0.05)
Young Firms (t-3)	0.048**	0.096**
	(0.02)	(0.04)
Mature Firms (t-3)	0.028	0.020
	(0.02)	(0.04)
Micro Size Firms (t-3)	0.270***	0.007
	(0.05)	(0.10)
Small Size Firms (t-3)	0.064	-0.049
	(0.05)	(0.09)
Medium Size Firms (t-3)	0.024	-0.088
	(0.05)	(0.09)
Electricity outages	0.016	-0.018
	(0.02)	(0.04)
Constant	-0.013	0.068
	(0.06)	(0.11)
Observations	265	265
Country Fixed-Effect[1]	Yes	Yes
R^2	0.33	0.21
Adjusted R^2	0.27	0.14

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Angola, Botswana, the Democratic Republic of Congo, Gambia, Guinea, Guinea Bissau, Namibia, Tanzania, and Uganda.

Table 14: Growth estimation results of the metal industry from 2004 to 2006

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	-0.006	0.023
	(0.01)	(0.02)
Training	0.005***	0.042*
	(0.02)	(0.03)
Foreign firms	-0.009	-0.005
	(0.02)	(0.04)
Young Firms (t-3)	0.043**	0.041
	(0.02)	(0.04)
Mature Firms (t-3)	0.059***	-0.009
	(0.02)	(0.04)
Micro Size Firms (t-3)	0.201***	0.165**
	(0.03)	(0.06)
Small Size Firms (t-3)	0.073***	0.078
	(0.03)	(0.06)
Medium Size Firms (t-3)	0.028	0.042
	(0.03)	(0.05)
Electricity outages	-0.013	-0.030
	(0.02)	(0.03)
Constant	0.002	0.049
	(0.05)	(0.11)
Observations	254	254
Country Fixed-Effect[1]	Yes	Yes
R^2	0.32	0.11
Adjusted R^2	0.28	0.06

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 15: Growth estimation results of the furniture industry from 2010 to 2012

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	- 0.017	0.025
	(0.02)	(0.04)
Training	0.011	-0.020
	(0.02)	(0.05)
Foreign firms	- 0.031	-0.160
	(0.05)	(0.12)
Young Firms (t-3)	-0.029	0.030
	(0.03)	(0.07)
Mature Firms (t-3)	-0.005	0.066
	(0.02)	(0.06)
Micro Size Firms (t-3)	0.200	0.339
	(0.14)	(0.35)
Small Size Firms (t-3)	0.069	0.329
	(0.14)	(0.35)
Medium Size Firms (t-3)	0.026	0.291
	(0.14)	(0.35)
Electricity outages	0.090***	0.108*
	(0.02)	(0.06)
Constant	-0.031	-0.492
	(0.16)	(0.39)
Observations	220	220
Country Fixed-Effect[1]	Yes	Yes
R^2	0.20	0.13
Adjusted R^2	0.15	0.07

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 16: Growth estimation results of the fabricated metal industry from 2010 to 2012

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	-0.019	-0.029
	(0.02)	(0.05)
Training	0.020	0.192***
	(0.02)	(0.05)
Foreign firms	-0.011	-0.010
	(0.03)	(0.08)
Young Firms (t-3)	0.038*	0.059
	(0.02)	(0.07)
Mature Firms (t-3)	-0.009	0.015
	(0.02)	(0.06)
Micro Size Firms (t-3)	0.053	-0.030
	(0.05)	(0.14)
Small Size Firms (t-3)	-0.081**	-0.058
	(0.04)	(0.12)
Medium Size Firms (t-3)	-0.084**	-0.158
	(0.04)	(0.12)
Electricity outages	0.009	-0.089
	(0.02)	(0.07)
Constant	0.141**	0.185
	(0.06)	(0.19)
Observations	169	169
Country Fixed-Effect[1]	Yes	Yes
R^2	0.30	0.31
Adjusted R^2	0.24	0.25

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia.

Table 17: Growth estimation results of the textile industry from 2013 to 2015

	Dependent variable:	
	Annual employment growth (1)	Annual sales growth (2)
Ln (Experience)	0.032**	0.254**
	(0.01)	(0.12)
Training	0.009	0.072
	(0.02)	(0.13)
Foreign firms	0.000	-0.253
	(0.02)	(0.16)
Young Firms (t-3)	0.050*	0.057
	(0.03)	(0.19)
Mature Firms (t-3)	0.024	-0.063
	(0.02)	(0.14)
Micro Size Firms (t-3)	0.089**	0.527*
	(0.04)	(0.29)
Small Size Firms (t-3)	-0.007	0.323
	(0.04)	(0.26)
Medium Size Firms (t-3)	-0.031	0.350
	(0.04)	(0.27)
Electricity outages	-0.028	0.072
	(0.02)	(0.16)
Constant	-0.030	-1.264***
	(0.06)	(0.45)
Observations	196	196
Country Fixed-Effect[1]	Yes	Yes
R^2	0.16	0.07
Adjusted R^2	0.11	0.02

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey.

[1] Countries included in these growth estimations are Cameroon, Guinea, Cote d'Ivoire, and Mali.

Table 18: Mean of descriptive statistics of institutional data used in the growth estimations

	Wood	Metal	Furniture	Fabricated metal	Textile	Food					Garment				
Institutional variables (in points)	2003-05	2004-06	2010-12	2010-12	2013-15	2003-05	2004-06	2006-08	2010-12	2013-15	2003-05	2004-06	2006-08	2010-12	2013-15
Government stability	9.45	8.95	7.53	7.05	7.28	9.44	8.97	8.72	7.14	7.37	9.47	9.00	8.57	7.42	7.42
Corruption	2.05	2.23	1.90	1.85	2.00	1.98	2.23	2.63	1.77	1.96	2.23	2.24	2.52	1.84	1.93
Law and order	3.68	2.88	3.49	2.97	2.28	3.51	2.96	2.48	2.90	2.30	3.47	2.91	2.58	3.30	2.43
Investment profile	7.72	9.09	7.10	7.17	7.88	7.51	8.42	7.99	7.25	7.80	7.08	8.69	7.35	7.14	7.61
Internal conflicts	8.15	9.53	8.04	8.08	7.44	8.00	9.29	9.07	8.10	7.50	8.35	9.17	8.93	7.94	7.54
Observations	265	255	220	169	196	281	514	236	363	205	134	797	427	161	277

Source: Author, based on data from the International Country Risk Guide.

Table 19: Growth estimation and institutional quality results of the food industry from 2003 to 2005

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	0.011	0.013	0.011	-0.013	-0.020	-0.016
	(0.012)	(0.012)	(0.012)	(0.020)	(0.021)	(0.020)
Graduate	0.013	0.005	0.014	0.031	0.018	0.023
	(0.024)	(0.022)	(0.022)	(0.040)	(0.039)	(0.037)
Primary	-0.022	-0.021	-0.025	0.022	0.029	0.021
	(0.023)	(0.023)	(0.023)	(0.038)	(0.040)	(0.038)
Secondary	0.009	0.005	0.004	0.033	0.033	0.029
	(0.022)	(0.021)	(0.022)	(0.037)	(0.038)	(0.036)
University	0.007	0.009	0.005	0.021	0.026	0.019
	(0.034)	(0.034)	(0.034)	(0.057)	(0.060)	(0.057)
Training	0.008	0.012	0.011	-0.0001	0.017	-0.002
	(0.018)	(0.018)	(0.018)	(0.031)	(0.032)	(0.031)
Foreign firms	0.0002	0.009	0.010	0.006	-0.022	-0.001
	(0.021)	(0.021)	(0.021)	(0.035)	(0.036)	(0.035)
Young Firms (t-3)	0.072***	0.079***	-0.077***	0.070**	0.049	0.060*
	(0.020)	(0.019)	(0.020)	(0.033)	(0.034)	(0.033)
Mature Firms (t-3)	0.024	0.032	0.026	0.024	0.014	0.014
	(0.022)	(0.021)	(0.021)	(0.036)	(0.038)	(0.036)
Micro Size Firms (t-3)	0.201***	0.192***	0.197***	-0.014	-0.004	0.011
	(0.040)	(0.040)	(0.040)	(0.068)	(0.071)	(0.068)
Small Size Firms (t-3)	0.027	0.020	0.026	-0.081	-0.085	-0.061
	(0.030)	(0.030)	(0.030)	(0.051)	(0.053)	(0.051)
Medium Size Firms (t-3)	0.008	-0.004	0.002	-0.090*	-0.071	-0.068
	(0.029)	(0.028)	(0.028)	(0.049)	(0.050)	(0.048)
Electricity outages	0.028	0.029	0.032	-0.014	0.017	0.013
	(0.025)	(0.024)	(0.024)	(0.042)	(0.041)	(0.040)
Law and Order			0.006			0.084***
			(0.009)			(0.016)
Risks of Corruption		-0.004	0.012		-0.054	-0.105***
		(0.023)	(0.024)		(0.041)	(0.039)
Government Stability		0.031**			0.065***	
		(0.014)			(0.025)	
Internal Conflicts		-0.001	-0.002		0.003	-0.010
		(0.007)	(0.007)		(0.013)	(0.012)
Risks of Investment Profile		-0.001	0.009		-0.009	-0.010
		(0.009)	(0.008)		(0.016)	(0.013)
Constant	-0.040	-0.319**	-0.142*	0.145*	-0.298	0.219
	(0.051)	(0.109)	(0.082)	(0.086)	(0.191)	(0.138)
Observations	281	281	281	281	281	281
Country Fixed-Effects[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.25	0.24	0.22	0.17	0.08	0.15
Adjusted R^2	0.19	0.19	0.17	0.10	0.02	0.09

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Angola, Botswana, the Democratic Republic of Congo, Gambia, Guinea, Guinea Bissau, Namibia, Tanzania, and Uganda.

Table 20: Growth estimation and institutional quality results of the food industry from 2004 to 2006

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	0.003	0.002	0.003	0.015	0.015	0.011
	(0.009)	(0.009)	(0.008)	(0.010)	(0.010)	(0.011)
Training	0.019	0.020	0.018	0.028*	0.028*	0.040**
	(0.013)	(0.013)	(0.013)	(0.016)	(0.016)	(0.016)
Foreign firms	0.002	0.003	0.002	-0.014	-0.016	-0.018
	(0.016)	(0.016)	(0.016)	(0.020)	(0.020)	(0.020)
Young Firms (t-3)	0.017	0.018	0.016	0.010	0.008	0.014
	(0.014)	(0.014)	(0.014)	(0.017)	(0.017)	(0.017)
Mature Firms (t-3)	0.014	0.014	0.014	-0.018	-0.019	-0.020
	(0.014)	(0.014)	(0.014)	(0.017)	(0.017)	(0.017)
Micro Size Firms (t-3)	0.251***	0.251***	0.251***	0.060*	0.060*	0.063*
	(0.029)	(0.029)	(0.029)	(0.036)	(0.036)	(0.036)
Small Size Firms (t-3)	0.033*	0.035*	0.034*	0.030	0.028	0.023
	(0.019)	(0.019)	(0.019)	(0.023)	(0.023)	(0.024)
Medium Size Firms (t-3)	-0.002	-0.003	-0.002	-0.006	-0.009	-0.007
	(0.019)	(0.019)	(0.019)	(0.023)	(0.023)	(0.024)
Electricity outages	0.014	0.011	0.015	-0.009	-0.005	-0.016
	(0.013)	(0.013)	(0.013)	(0.017)	(0.016)	(0.017)
Law and Order			0.038			-0.098**
			(0.036)			(0.045)
Risks of Corruption		0.025**	0.007		-0.016	0.055***
		(0.012)	(0.016)		(0.014)	(0.020)
Government Stability		0.006			-0.042***	
		(0.006)			(0.008)	
Internal Conflicts		0.003	-0.003		0.011	0.037***
		(0.006)	(0.006)		(0.007)	(0.008)
Risks of Investment Profile		0.004	0.014		-0.034***	-0.060***
		(0.005)	(0.010)		(0.006)	(0.013)
Constant	0.020	-0.179	-0.222	0.111**	0.690***	0.446***
	(0.035)	(0.127)	(0.155)	(0.043)	(0.156)	(0.194)
Observations	514	514	514	514	514	514
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.19	0.18	0.18	0.22	0.22	0.18
Adjusted R^2	0.16	0.16	0.16	0.20	0.20	0.16

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal and Zambia.

Table 21: Growth estimation and institutional quality results of the food industry from 2006 to 2008

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.015	-0.015	-0.015	-0.007	-0.019	-0.016
	(0.011)	(0.011)	(0.011)	(0.034)	(0.035)	(0.035)
Training	0.011	0.012	0.012	0.008	-0.006	-0.006
	(0.019)	(0.019)	(0.019)	(0.058)	(0.060)	(0.060)
Foreign firms	0.017	0.019	0.019	0.051	0.029	0.027
	(0.023)	(0.023)	(0.023)	(0.069)	(0.071)	(0.071)
Young Firms (t-3)	0.017	0.011	0.012	-0.028	0.014	0.015
	(0.023)	(0.023)	(0.023)	(0.070)	(0.071)	(0.071)
Mature Firms (t-3)	0.034	0.030	0.031	-0.051	-0.028	-0.022
	(0.024)	(0.024)	(0.024)	(0.073)	(0.074)	(0.075)
Micro Size Firms (t-3)	0.194***	0.200***	0.204***	0.120	0.071	0.076
	(0.046)	(0.045)	(0.045)	(0.136)	(0.139)	(0.140)
Small Size Firms (t-3)	0.016	0.021	0.023	-0.065	-0.053	-0.056
	(0.028)	(0.027)	(0.027)	(0.082)	(0.082)	(0.082)
Medium Size Firms (t-3)	0.022	0.026	0.026	0.007	0.005	0.006
	(0.028)	(0.027)	(0.027)	(0.082)	(0.083)	(0.083)
Electricity outages	0.003	0.019	0.019	-0.049	-0.150*	-0.138
	(0.032)	(0.028)	(0.028)	(0.094)	(0.087)	(0.087)
Law and Order			0.008			0.167*
			(0.028)			(0.085)
Risks of Corruption		-0.024*	-0.019		-0.010	0.052
		(0.012)	(0.018)		(0.037)	(0.056)
Government Stability		0.003			-0.070**	
		(0.011)			(0.035)	
Risks of Internal Conflicts		0.002	0.001		0.090	-0.063
		(0.019)	(0.021)		(0.060)	(0.065)
Investment Profile		0.007	0.008		0.018	0.040
		(0.010)	(0.011)		(0.030)	(0.033)
Constant	0.042	-0.023	-0.035	0.675***	0.062	0.074
	(0.062)	(0.117)	(0.117)	(0.185)	(0.361)	(0.360)
Observations	236	236	236	236	236	236
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.16	0.15	0.15	0.13	0.05	0.05
Adjusted R^2	0.10	0.10	0.10	0.06	-0.01	-0.01

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Burkina Faso, Cameroon, Congo, Cote d'Ivoire, Liberia, Ghana, Kenya, Madagascar, Malawi, Niger, Sierra Leone, Tanzania, Uganda, and Zambia.

Table 22: Growth estimation and institutional quality results of the food industry from 2010 to 2012

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	0.009	0.009	0.007	0.069*	0.075**	0.072**
	(0.011)	(0.011)	(0.011)	(0.036)	(0.036)	(0.036)
Training	0.028*	0.028**	0.028**	-0.007	-0.005	-0.004
	(0.014)	(0.014)	(0.014)	(0.048)	(0.048)	(0.048)
Foreign firms	0.027	0.027	0.020	0.146**	0.136**	0.157**
	(0.019)	(0.019)	(0.019)	(0.066)	(0.066)	(0.065)
Young Firms (t-3)	0.005	0.007	0.008	0.142**	0.155**	0.132**
	(0.019)	(0.018)	(0.019)	(0.064)	(0.063)	(0.063)
Mature Firms (t-3)	0.015	0.016	0.018	0.029	0.043	0.024
	(0.019)	(0.019)	(0.019)	(0.064)	(0.063)	(0.063)
Micro Size Firms (t-3)	0.145***	0.145***	0.145***	0.105	0.125	0.111
	(0.028)	(0.028)	(0.029)	(0.096)	(0.096)	(0.096)
Small Size Firms (t-3)	0.018	0.019	0.015	0.035	0.035	0.041
	(0.021)	(0.021)	(0.021)	(0.072)	(0.072)	(0.072)
Medium Size Firms (t-3)	-0.001	-0.002	-0.006	0.027	0.041	0.040
	(0.021)	(0.021)	(0.021)	(0.072)	(0.072)	(0.072)
Electricity outages	0.007	0.006	0.011	-0.163**	-0.149**	-0.161**
	(0.020)	(0.020)	(0.020)	(0.068)	(0.067)	(0.067)
Law and Order			0.015			-0.135***
			(0.014)			(0.045)
Risks of Corruption		-0.053	0.097		0.160	0.726***
		(0.036)	(0.075)		(0.124)	(0.253)
Government Stability		0.021**			-0.074**	
		(0.009)			(0.030)	
Risks of Internal Conflicts		0.013	0.020		-0.005	-0.096**
		(0.009)	(0.014)		(0.030)	(0.046)
Investment Profile		-0.025	-0.016		0.068	0.137*
		(0.019)	(0.022)		(0.063)	(0.074)
Constant	-0.040	-0.020	0.044	-0.124	-0.403	-1.273**
	(0.048)	(0.135)	(0.170)	(0.162)	(0.458)	(0.571)
Observations	363	363	363	363	363	363
Country Fixed-Effects[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.13	0.13	0.12	0.10	0.09	0.10
Adjusted R^2	0.09	0.10	0.09	0.06	0.06	0.06

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Madagascar, Tanzania, Uganda, and Zambia.

Table 23: Growth estimation and institutional quality results of the food industry from 2013 to 2015

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	0.004	0.004	0.004	0.058	0.058	0.058
	(0.014)	(0.014)	(0.014)	(0.124)	(0.124)	(0.124)
Training	0.019	0.019	0.019	0.267*	0.267*	0.267*
	(0.017)	(0.017)	(0.017)	(0.154)	(0.154)	(0.154)
Foreign firms	-0.001	-0.001	-0.001	0.068	0.068	0.068
	(0.022)	(0.022)	(0.022)	(0.201)	(0.201)	(0.201)
Young Firms (t-3)	0.039*	0.039*	0.039*	0.285	0.285	0.285
	(0.023)	(0.023)	(0.023)	(0.207)	(0.207)	(0.207)
Mature Firms (t-3)	-0.022	-0.022	-0.022	0.014	0.014	0.014
	(0.022)	(0.022)	(0.022)	(0.198)	(0.198)	(0.198)
Micro Size Firms (t-3)	0.173***	0.173***	0.173***	-0.130	-0.130	-0.130
	(0.030)	(0.030)	(0.030)	(0.270)	(0.270)	(0.270)
Small Size Firms (t-3)	0.035*	0.035*	0.035*	-0.161	-0.161	-0.161
	(0.021)	(0.021)	(0.021)	(0.192)	(0.192)	(0.192)
Medium Size Firms (t-3)	0.021	0.021	0.021	-0.314	-0.314	-0.314
	(0.023)	(0.023)	(0.023)	(0.205)	(0.205)	(0.205)
Electricity outages	-0.030	-0.030	-0.030	0.174	0.174	0.174
	(0.028)	(0.028)	(0.028)	(0.254)	(0.254)	(0.254)
Law and Order		0.015	0.015		-0.116	-0.116
		(0.029)	(0.029)		(0.260)	(0.260)
Risks of Corruption		-0.123	-0.123		-0.420	-0.420
		(0.089)	(0.089)		(0.810)	(0.810)
Government Stability		0.010	0.010		-0.283	-0.283
		(0.024)	(0.024)		(0.214)	(0.214)
Constant	-0.001	0.145	0.145	-0.462	2.592	2.592
	(0.056)	(0.316)	(0.316)	(0.508)	(2.874)	(2.874)
Observations	205	205	205	205	205	205
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.26	0.26	0.26	0.07	0.07	0.07
Adjusted R^2	0.21	0.21	0.21	0.01	0.01	0.01

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Cameroon, Guinea, Cote d'Ivoire, and Mali.

Table 24: Growth estimation and institutional quality results of the garment industry from 2003 to 2005

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.014	-0.018	-0.015	0.014	-0.008	0.003
	(0.017)	(0.017)	(0.018)	(0.037)	(0.038)	(0.037)
Graduate	-0.012	-0.019	-0.020	-0.026	-0.015	-0.014
	(0.040)	(0.040)	(0.041)	(0.086)	(0.088)	(0.087)
Primary	-0.009	-0.028	-0.026	0.024	0.026	0.039
	(0.031)	(0.030)	(0.031)	(0.067)	(0.067)	(0.066)
Secondary	-0.016	-0.036	-0.042	0.009	0.016	0.021
	(0.029)	(0.028)	(0.028)	(0.063)	(0.062)	(0.060)
University	0.085	0.066	0.062	-0.023	-0.035	-0.018
	(0.056)	(0.056)	(0.057)	(0.121)	(0.123)	(0.121)
Training	0.034	0.028	0.028	0.058	0.050	0.045
	(0.023)	(0.023)	(0.023)	(0.050)	(0.050)	(0.050)
Foreign firms	0.022	0.003	0.002	-0.048	-0.072	-0.075
	(0.036)	(0.035)	(0.036)	(0.078)	(0.077)	(0.076)
Young Firms (t-3)	0.027	0.017	0.017	0.016	-0.028	-0.009
	(0.026)	(0.026)	(0.027)	(0.057)	(0.057)	(0.057)
Mature Firms (t-3)	0.020	0.022	0.020	0.016	0.003	0.004
	(0.028)	(0.028)	(0.028)	(0.060)	(0.061)	(0.060)
Micro Size Firms (t-3)	0.272***	0.282***	0.287***	0.173	0.182	0.173
	(0.066)	(0.067)	(0.068)	(0.144)	(0.147)	(0.145)
Small Size Firms (t-3)	0.135**	0.136*	0.143**	0.170	0.163	0.165
	(0.064)	(0.065)	(0.065)	(0.138)	(0.141)	(0.139)
Medium Size Firms (t-3)	0.264***	0.268***	0.273***	0.248	0.255	0.242
	(0.070)	(0.071)	(0.072)	(0.152)	(0.156)	(0.154)
Electricity outages	-0.034	-0.005	-0.008	-0.029	-0.036	-0.041
	(0.029)	(0.028)	(0.028)	(0.063)	(0.061)	(0.060)
Law and Order			-0.005			0.050**
			(0.011)			(0.024)
Risks of Corruption		-0.022	-0.032		-0.164***	-0.140**
		(0.028)	(0.028)		(0.061)	(0.059)
Government Stability		-0.036			0.035	
		(0.024)			(0.052)	
Risks of Internal Conflicts		0.032**	0.028*		0.103***	0.068*
		(0.014)	(0.016)		(0.030)	(0.034)
Investment Profile		-0.017	-0.027**		-0.048**	-0.030
		(0.010)	(0.009)		(0.023)	(0.019)
Constant	-0.027	0.212	0.004	-0.066	-0.520	-0.286
	(0.079)	(0.169)	(0.103)	(0.171)	(0.371)	(0.220)
Observations	134	134	134	134	134	134
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.45	0.41	0.40	0.25	0.18	0.21
Adjusted R^2	0.35	0.33	0.31	0.11	0.06	0.09

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 25: Growth estimation and institutional quality results of the garment industry from 2004 to 2006

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.001	-0.001	-0.001	-0.005	-0.005	-0.012
	(0.007)	(0.007)	(0.007)	(0.010)	(0.010)	(0.010)
Training	0.006	0.006	0.006	-0.023*	-0.023*	-0.022
	(0.010)	(0.010)	(0.010)	(0.014)	(0.014)	(0.014)
Foreign firms	0.032*	0.030*	0.032*	0.011	0.011	0.011
	(0.017)	(0.017)	(0.017)	(0.023)	(0.023)	(0.024)
Young Firms (t-3)	0.030***	0.030***	0.030***	0.010	0.010	0.010
	(0.011)	(0.011)	(0.011)	(0.016)	(0.016)	(0.016)
Mature Firms (t-3)	0.021**	0.022**	0.021**	-0.006	-0.005	-0.012
	(0.010)	(0.010)	(0.010)	(0.014)	(0.014)	(0.015)
Micro Size Firms (t-3)	0.169***	0.169***	0.168***	0.097***	0.096***	0.082***
	(0.020)	(0.020)	(0.020)	(0.028)	(0.028)	(0.028)
Small Size Firms (t-3)	0.041**	0.040**	0.040**	0.060**	0.059**	0.046*
	(0.018)	(0.018)	(0.018)	(0.025)	(0.025)	(0.025)
Medium Size Firms (t-3)	0.011	0.011	0.010	0.013	0.014	0.007
	(0.018)	(0.018)	(0.018)	(0.025)	(0.025)	(0.025)
Electricity outages	0.017*	0.024***	0.017*	0.024*	0.028**	0.015
	(0.009)	(0.009)	(0.009)	(0.013)	(0.013)	(0.013)
Law and Order			-0.077***			-0.088**
			(0.028)			(0.041)
Risks Corruption		0.019**	0.045***		-0.016	0.047***
		(0.009)	(0.011)		(0.013)	(0.016)
Government Stability		-0.004			-0.039***	
		(0.005)			(0.006)	
Risks of Internal Conflicts		-0.006	0.003		0.019***	0.038***
		(0.004)	(0.005)		(0.006)	(0.007)
Investment Profile		0.013***	-0.007		-0.013***	-0.036***
		(0.003)	(0.008)		(0.005)	(0.012)
Constant	0.003	-0.073	0.166	0.140***	0.433***	0.260
	(0.032)	(0.093)	(0.128)	(0.045)	(0.129)	(0.182)
Observations	796	796	796	796	796	796
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.24	0.24	0.24	0.14	0.13	0.10
Adjusted R^2	0.23	0.22	0.23	0.12	0.12	0.09

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 26: Growth estimation and institutional quality results of the garment industry from 2006 to 2008

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	0.012	0.006	0.008	0.001	0.001	0.003
	(0.011)	(0.011)	(0.011)	(0.029)	(0.029)	(0.030)
Training	0.022	0.021	0.024	0.140***	0.158***	0.187***
	(0.021)	(0.020)	(0.020)	(0.054)	(0.056)	(0.055)
Foreign firms	-0.039*	-0.038*	-0.039*	-0.019	-0.009	-0.013
	(0.021)	(0.021)	(0.021)	(0.054)	(0.056)	(0.056)
Young Firms (t-3)	0.036*	0.027	0.030	0.021	0.043	0.047
	(0.020)	(0.019)	(0.019)	(0.051)	(0.052)	(0.053)
Mature Firms (t-3)	0.012	0.011	0.010	0.047	0.051	0.047
	(0.019)	(0.019)	(0.019)	(0.049)	(0.051)	(0.051)
Micro Size Firms (t-3)	0.129***	0.111***	0.124***	0.148*	0.048	0.083
	(0.034)	(0.032)	(0.033)	(0.089)	(0.088)	(0.092)
Small Size Firms (t-3)	0.010	-0.005	0.004	0.080	0.030	0.060
	(0.029)	(0.028)	(0.029)	(0.076)	(0.076)	(0.079)
Medium Size Firms (t-3)	-0.037	-0.049*	-0.042	0.037	0.028	0.054
	(0.029)	(0.028)	(0.029)	(0.075)	(0.077)	(0.078)
Electricity outages	0.010	0.009	0.009	-0.017	-0.028	-0.044
	(0.020)	(0.019)	(0.019)	(0.052)	(0.053)	(0.053)
Law and Order			0.029			-0.021
			(0.025)			(0.068)
Risks of Corruption		-0.013	0.0001		-0.056**	-0.054
		(0.009)	(0.014)		(0.025)	(0.039)
Government Stability		-0.0005			0.058**	
		(0.008)			(0.023)	
Risks of Internal Conflicts		-0.035**	-0.051***		0.021	0.087*
		(0.014)	(0.018)		(0.038)	(0.050)
Investment Profile		0.009	0.014*		-0.065***	-0.069***
		(0.007)	(0.008)		(0.018)	(0.021)
Constant	-0.044	0.298***	0.289***	0.025	0.090	0.047
	(0.054)	(0.091)	(0.091)	(0.140)	(0.247)	(0.249)
Observations	427	427	427	427	427	427
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.16	0.15	0.15	0.18	0.11	0.10
Adjusted R^2	0.13	0.12	0.13	0.15	0.08	0.07

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Ghana, Kenya, Madagascar, Tanzania, Uganda, and Zambia.

Table 27: Growth estimation and institutional quality results of the garment industry from 2010 to 2012

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.045*	-0.049**	-0.044*	0.0002	0.005	0.004
	(0.023)	(0.023)	(0.023)	(0.047)	(0.047)	(0.047)
Training	-0.022	-0.018	-0.015	0.093*	0.087*	0.113**
	(0.025)	(0.025)	(0.024)	(0.052)	(0.052)	(0.050)
Foreign firms	0.039	0.044	0.040	0.119	0.111	0.127
	(0.039)	(0.039)	(0.039)	(0.080)	(0.080)	(0.080)
Young Firms (t-3)	-0.050*	-0.051*	-0.052*	0.083	0.084	0.076
	(0.030)	(0.030)	(0.030)	(0.062)	(0.061)	(0.061)
Mature Firms (t-3)	-0.046*	-0.044*	-0.045*	0.091	0.089	0.095*
	(0.027)	(0.027)	(0.027)	(0.056)	(0.056)	(0.056)
Micro Size Firms (t-3)	0.116	0.125	0.119	-0.297*	-0.311*	-0.287*
	(0.078)	(0.079)	(0.078)	(0.163)	(0.162)	(0.163)
Small Size Firms (t-3)	-0.011	-0.007	-0.007	-0.330**	-0.336**	-0.319**
	(0.075)	(0.076)	(0.075)	(0.156)	(0.156)	(0.156)
Medium Size Firms (t-3)	-0.072	-0.059	-0.066	-0.246	-0.265*	-0.234
	(0.076)	(0.076)	(0.076)	(0.158)	(0.157)	(0.157)
Electricity outages	0.021	0.020	0.022	-0.087*	-0.086*	-0.089*
	(0.024)	(0.024)	(0.023)	(0.049)	(0.049)	(0.049)
Law and Order			0.029			-0.115***
			(0.020)			(0.041)
Risks of Corruption		-0.026	-0.192		-0.036	0.475*
		(0.074)	(0.132)		(0.152)	(0.274)
Government Stability		-0.001			-0.060***	
		(0.010)			(0.021)	
Risks of Internal Conflicts		0.009	0.036		0.031	-0.048
		(0.017)	(0.024)		(0.036)	(0.051)
Investment Profile		-0.042*	-0.084***		-0.016	0.057
		(0.022)	(0.032)		(0.046)	(0.067)
Constant	0.187*	0.440**	0.716***	0.304	0.596	-0.321
	(0.109)	(0.192)	(0.265)	(0.227)	(0.395)	(0.552)
Observations	161	161	161	161	161	161
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.30	0.29	0.30	0.24	0.23	0.23
Adjusted R^2	0.23	0.22	0.23	0.16	0.16	0.16

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia.

Table 28: Growth estimation and institutional quality results of the garment industry from 2013 to 2015

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.004	-0.004	-0.006	-0.035	-0.035	-0.035
	(0.013)	(0.013)	(0.013)	(0.125)	(0.125)	(0.125)
Training	0.019	0.018	0.016	-0.060	-0.060	-0.060
	(0.015)	(0.015)	(0.014)	(0.146)	(0.146)	(0.146)
Foreign firms	0.004	0.004	0.004	-0.369*	-0.369*	-0.369*
	(0.020)	(0.020)	(0.020)	(0.196)	(0.196)	(0.196)
Young Firms (t-3)	0.044**	0.043**	0.043**	-0.017	-0.017	-0.017
	(0.019)	(0.019)	(0.019)	(0.186)	(0.186)	(0.186)
Mature Firms (t-3)	0.025	0.025	0.023	-0.058	-0.058	-0.058
	(0.017)	(0.017)	(0.016)	(0.163)	(0.163)	(0.163)
Micro Size Firms (t-3)	0.078**	0.070*	0.079**	0.431	0.431	0.431
	(0.039)	(0.039)	(0.039)	(0.382)	(0.382)	(0.382)
Small Size Firms (t-3)	-0.045	-0.050	-0.045	0.502	0.502	0.502
	(0.035)	(0.035)	(0.035)	(0.346)	(0.346)	(0.346)
Medium Size Firms (t-3)	-0.056	-0.058	-0.056	0.789**	0.789**	0.789**
	(0.037)	(0.037)	(0.037)	(0.358)	(0.358)	(0.358)
Electricity outages	-0.013	-0.014	-0.012	0.063	0.063	0.063
	(0.018)	(0.018)	(0.018)	(0.180)	0.180)	0.180)
Law and Order			0.021			0.010
			(0.019)			(0.206)
Risks of Corruption		-0.048	0.002		3.368	3.505***
		(0.074)	(0.039)		(2.442)	(0.915)
Government Stability		-0.014			-0.018	
		(0.019)			(0.353)	
Risks of Internal Conflicts					0.791	0.845
					(0.952)	(0.567)
Constant	0.066	0.275	0.022	-0.476	-13.088	-13.915**
	(0.057)	(0.269)	(0.105)	(0.555)	(14.109)	(6.272)
Observations	277	277	277	277	277	277
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.20	0.19	0.20	0.17	0.17	0.17
Adjusted R^2	0.16	0.16	0.16	0.14	0.14	0.14

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia.

Table 29: Growth estimation and institutional quality results of the wood industry from 2003 to 2005

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	0.0004	-0.004	-0.004	0.021	0.028	0.023
	(0.013)	(0.013)	(0.013)	(0.023)	(0.023)	(0.023)
Graduate	0.033	0.027	0.030	0.080*	0.069	0.085*
	(0.029)	(0.027)	(0.027)	(0.052)	(0.050)	(0.049)
Primary	0.010	0.011	0.004	-0.009	-0.010	0.001
	(0.023)	(0.023)	(0.023)	(0.041)	(0.042)	(0.041)
Secondary	0.043**	0.038**	0.038*	0.046	0.059	0.052
	(0.021)	(0.021)	(0.021)	(0.038)	(0.038)	(0.038)
University	0.053*	0.046	0.048	-0.054	-0.038	-0.049
	(0.031)	(0.031)	(0.031)	(0.056)	(0.057)	(0.056)
Training	0.005	0.001	0.008	0.045	0.055	0.042
	(0.018)	(0.018)	(0.018)	(0.033)	(0.034)	(0.033)
Foreign firms	-0.018	-0.017	-0.022	-0.013	-0.027	-0.010
	(0.029)	(0.028)	(0.029)	(0.052)	(0.052)	(0.051)
Young Firms (t-3)	0.048**	0.046**	0.044**	0.096**	0.096**	0.095**
	(0.020)	(0.020)	(0.020)	(0.037)	(0.037)	(0.036)
Mature Firms (t-3)	0.028	0.026	0.023	0.020	0.027	0.023
	(0.021)	(0.021)	(0.021)	(0.037)	(0.038)	(0.037)
Micro Size Firms (t-3)	0.270***	0.275***	0.272***	0.007	0.008	0.006
	(0.054)	(0.054)	(0.054)	(0.098)	(0.099)	(0.098)
Small Size Firms (t-3)	0.064	0.066	0.065	-0.049	-0.036	-0.044
	(0.048)	(0.048)	(0.048)	(0.088)	(0.089)	(0.087)
Medium Size Firms (t-3)	0.024	0.025	0.026	-0.088	-0.070	-0.088
	(0.049)	(0.048)	(0.049)	(0.088)	(0.089)	(0.088)
Electricity outages	0.016	0.018	0.023	-0.018	-0.013	-0.020
	(0.021)	(0.020)	(0.020)	(0.038)	(0.037)	(0.036)
Law and Order			-0.007			0.051***
			(0.009)			(0.016)
Corruption		-0.013	0.007		-0.044	-0.075**
		(0.021)	(0.021)		(0.039)	(0.038)
Government Stability		0.020*			0.011	
		(0.011)			(0.020)	
Risks of Internal Conflicts		0.002	0.004		0.012	0.0003
		(0.007)	(0.007)		(0.012)	(0.012)
Investment Profile		0.002	0.011*		0.036***	0.026**
		(0.007)	(0.007)		(0.013)	(0.012)
Constant	-0.013	-0.241**	-0.147*	0.068	-0.330*	-0.153
	(0.061)	(0.104)	(0.088)	(0.110)	(0.192)	(0.157)
Observations	265	265	265	265	265	265
Country Fixed-Effects[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.33	0.31	0.30	0.21	0.16	0.19
Adjusted R^2	0.27	0.26	0.26	0.14	0.10	0.14

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Angola, Botswana, the Democratic Republic of Congo, Gambia, Guinea, Guinea Bissau, Namibia, Tanzania, and Uganda.

Table 30: Growth estimation and institutional quality results of the metal industry from 2004 to 2006

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.006	-0.005	-0.008	0.023	0.023	0.019
	(0.012)	(0.012)	(0.012)	(0.024)	(0.024)	(0.024)
Training	0.046***	0.046***	0.050***	0.042	0.042	0.050
	(0.017)	(0.017)	(0.017)	(0.034)	(0.034)	(0.034)
Foreign firms	-0.009	-0.011	-0.008	-0.005	-0.003	-0.002
	(0.021)	(0.021)	(0.021)	(0.044)	(0.043)	(0.044)
Young Firms (t-3)	0.043**	0.043**	0.043**	0.041	0.041	0.041
	(0.018)	(0.018)	(0.018)	(0.037)	(0.037)	(0.037)
Mature Firms (t-3)	0.059***	0.058***	0.059***	-0.009	-0.008	-0.011
	(0.018)	(0.018)	(0.018)	(0.036)	(0.036)	(0.036)
Micro Size Firms (t-3)	0.201***	0.201***	0.195***	0.165***	0.165**	0.151**
	(0.031)	(0.031)	(0.031)	(0.064)	(0.064)	(0.064)
Small Size Firms (t-3)	0.073***	0.074***	0.070**	0.078	0.078	0.069
	(0.027)	(0.027)	(0.027)	(0.056)	(0.055)	(0.056)
Medium Size Firms (t-3)	0.028	0.027	0.027	0.042	0.043	0.042
	(0.025)	(0.025)	(0.025)	(0.051)	(0.051)	(0.051)
Electricity outages	-0.013	-0.009	-0.017	-0.030	-0.032	-0.040
	(0.015)	(0.014)	(0.015)	(0.030)	(0.029)	(0.030)
Law and Order			-0.092			-0.046
			(0.059)			(0.121)
Risks Corruption		-0.003	0.044**		-0.046	0.019
		(0.021)	(0.018)		(0.042)	(0.038)
Government Stability		-0.020*			-0.039*	
		(0.011)			(0.022)	
Risks Internal Conflicts		0.0002	0.016		0.038**	0.050**
		(0.008)	(0.011)		(0.016)	(0.023)
Investment Profile		0.011**	-0.012		-0.021*	-0.031
		(0.005)	(0.017)		(0.011)	(0.034)
Constant	0.002	0.073	0.126	0.049	0.316	-0.062
	(0.053)	(0.189)	(0.246)	(0.107)	(0.385)	(0.502)
Observations	254	254	254	254	254	254
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.32	0.32	0.32	0.11	0.11	0.10
Adjusted R^2	0.28	0.28	0.28	0.06	0.07	0.05

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 31: Growth estimation and institutional quality results of the furniture industry from 2010 to 2012

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.017	-0.017	-0.017	0.025	0.023	0.026
	(0.018)	(0.018)	(0.018)	(0.044)	(0.044)	(0.044)
Training	0.011	0.011	0.011	-0.020	-0.018	-0.019
	(0.022)	(0.022)	(0.022)	(0.054)	(0.054)	(0.054)
Foreign firms	-0.031	-0.028	-0.031	-0.160	-0.170	-0.138
	(0.048)	(0.048)	(0.047)	(0.118)	(0.117)	(0.116)
Young Firms (t-3)	-0.029	-0.029	-0.029	0.030	0.032	0.034
	(0.028)	(0.028)	(0.028)	(0.068)	(0.068)	(0.068)
Mature Firms (t-3)	-0.005	-0.006	-0.005	0.066	0.069	0.068
	(0.024)	(0.024)	(0.024)	(0.060)	(0.060)	(0.060)
Micro Size Firms (t-3)	0.200	0.199	0.199	0.339	0.342	0.307
	(0.144)	(0.143)	(0.143)	(0.352)	(0.351)	(0.350)
Small Size Firms (t-3)	0.069	0.066	0.068	0.329	0.337	0.296
	(0.142)	(0.141)	(0.140)	(0.346)	(0.346)	(0.344)
Medium Size Firms (t-3)	0.026	0.023	0.025	0.291	0.301	0.260
	(0.142)	(0.142)	(0.141)	(0.348)	(0.348)	(0.346)
Electricity outages	0.090***	0.090***	0.090***	0.108*	0.110**	0.101*
	(0.023)	(0.023)	(0.022)	(0.056)	(0.056)	(0.055)
Law and Order			0.013			-0.080*
			(0.019)			(0.048)
Risks of Corruption		0.136	0.055		-0.236	0.183
		(0.084)	(0.157)		(0.206)	(0.384)
Government Stability		0.004			-0.040*	
		(0.010)			(0.023)	
Risks of Internal Conflicts		-0.036*	-0.023		0.097*	0.030
		(0.020)	(0.030)		(0.050)	(0.074)
Investment Profile		-0.027	-0.039		-0.018	0.029
		(0.021)	(0.030)		(0.052)	(0.074)
Constant	-0.031	0.144	0.257	-0.492	-0.440	-1.012
	(0.157)	(0.209)	(0.280)	(0.385)	(0.513)	(0.686)
Observations	220	220	220	220	220	220
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.20	0.20	0.20	0.13	0.13	0.13
Adjusted R^2	0.15	0.15	0.15	0.07	0.08	0.08

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 32: Growth estimation and institutional quality results of the fabricated industry from 2010 to 2012

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	-0.019	-0.018	-0.019	-0.029	-0.037	-0.027
	(0.015)	(0.015)	(0.015)	(0.046)	(0.047)	(0.047)
Training	0.020	0.020	0.020	0.192***	0.195***	0.182***
	(0.018)	(0.018)	(0.017)	(0.053)	(0.054)	(0.053)
Foreign firms	-0.011	-0.010	-0.011	-0.010	-0.016	-0.029
	(0.026)	(0.026)	(0.025)	(0.077)	(0.079)	(0.076)
Young Firms (t-3)	0.038*	0.038*	0.038*	0.059	0.057	0.066
	(0.022)	(0.022)	(0.022)	(0.067)	(0.068)	(0.067)
Mature Firms (t-3)	-0.009	-0.010	-0.009	0.015	0.024	0.016
	(0.019)	(0.019)	(0.019)	(0.057)	(0.058)	(0.057)
Micro Size Firms (t-3)	0.053	0.041	0.053	-0.030	0.080	-0.020
	(0.045)	(0.043)	(0.045)	(0.136)	(0.131)	(0.136)
Small Size Firms (t-3)	-0.081**	-0.090**	-0.081**	-0.058	0.029	-0.058
	(0.040)	(0.039)	(0.040)	(0.121)	(0.119)	(0.122)
Medium Size Firms (t-3)	-0.084**	-0.090**	-0.084**	-0.158	-0.108	-0.158
	(0.039)	(0.038)	(0.039)	(0.116)	(0.117)	(0.117)
Electricity outages	0.009	0.006	0.009	-0.089	-0.058	-0.072
	(0.022)	(0.022)	(0.022)	(0.066)	(0.066)	(0.065)
Law and Order			0.013			-0.088**
			(0.013)			(0.039)
Risks of Corruption		-0.004	-0.078		-0.183	0.367
		(0.052)	(0.095)		(0.158)	(0.286)
Government Stability		0.006			0.005	
		(0.009)			(0.029)	
Risks of Internal Conflicts		0.008	0.021		0.115***	0.014
		(0.012)	(0.019)		(0.037)	(0.057)
Investment Profile		-0.024	-0.033*		-0.125**	-0.024
		(0.016)	(0.019)		(0.048)	(0.058)
Constant	0.141**	0.218*	0.299**	0.185	0.295	-0.268
	(0.064)	(0.121)	(0.146)	(0.192)	(0.371)	(0.442)
Observations	169	169	169	169	169	169
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.30	0.30	0.30	0.31	0.28	0.30
Adjusted R^2	0.24	0.24	0.24	0.25	0.22	0.24

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia.

Table 33: Growth estimation and institutional quality results of the textile industry from 2013 to 2015

	Dependent variable:					
	Annual employment growth			Annual sales growth		
	(1)	(2)	(3)	(4)	(5)	(6)
Ln (Experience)	0.032**	0.032**	0.032**	0.254**	0.254**	0.254**
	(0.016)	(0.016)	(0.016)	(0.119)	(0.119)	(0.119)
Training	0.009	0.009	0.009	0.072	0.072	0.072
	(0.017)	(0.017)	(0.017)	(0.127)	(0.127)	(0.127)
Foreign firms	0.0003	0.0003	0.0003	-0.253	-0.253	-0.253
	(0.022)	(0.022)	(0.022)	(0.163)	(0.163)	(0.163)
Young Firms (t-3)	0.050*	0.050*	0.050*	0.057	0.057	0.057
	(0.026)	(0.026)	(0.026)	(0.193)	(0.193)	(0.193)
Mature Firms (t-3)	0.024	0.024	0.024	-0.063	-0.063	-0.063
	(0.019)	(0.019)	(0.019)	(0.143)	(0.143)	(0.143)
Micro Size Firms (t-3)	0.089**	0.089**	0.089**	0.527*	0.527*	0.527*
	(0.039)	(0.039)	(0.039)	(0.288)	(0.288)	(0.288)
Small Size Firms (t-3)	-0.007	-0.007	-0.007	0.323	0.323	0.323
	(0.035)	(0.035)	(0.035)	(0.257)	(0.257)	(0.257)
Medium Size Firms (t-3)	-0.031	-0.031	-0.031	0.350	0.350	0.350
	(0.037)	(0.037)	(0.037)	(0.268)	(0.268)	(0.268)
Electricity outages	-0.028	-0.028	-0.028	0.072	0.072	0.072
	(0.022)	(0.022)	(0.022)	(0.159)	(0.159)	(0.159)
Law and Order			-0.017			-0.197
			(0.043)			(0.319)
Risks of Corruption						
Government Stability		0.029			0.338	
		(0.074)			(0.547)	
Risks of Internal Conflicts		0.136	0.048		1.003	-0.010
		(0.170)	(0.082)		(1.249)	(0.600)
Investment Profile						
Constant	-0.030	-1.264	-0.359	-1.264***	-11.233	-0.793
	(0.061)	(1.788)	(0.694)	(0.447)	(13.122)	(5.095)
Observations	196	196	196	196	196	196
Country Fixed-Effect[1]	Yes	No	No	Yes	No	No
Institutional Quality	No	Yes	Yes	No	Yes	Yes
R^2	0.16	0.16	0.16	0.07	0.07	0.07
Adjusted R^2	0.11	0.11	0.11	0.02	0.02	0.02

Note: Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries included in these growth estimations are Cameroon, Guinea, Cote d'Ivoire, and Mali.

Table 34: Summary of the percentage effect of firm size in the food industry

Period	Firm size	Growth strength of the industry	Percentage effect	Findings
2003-05	Micro	Fast	22.3	Active Imitation
	Small	-	-	-
	Medium	-	-	-
2004-06	Micro	Fast	28.5	Some innovation
	Small	Fast	3.35	Some imitation
	Medium	-	-	-
2006-08	Micro	Fast	21.4	Active imitation
	Small	-	-	-
	Medium	-	-	-
2010-12	Micro	Slow	15.6	Active imitation
	Small	-	-	-
	Medium	-	-	-
2013-15	Micro	Stagnant	18.8	Active imitation
	Small	Stagnant	3.5	Some imitation
	Medium	-	-	-

Source: Author, based on the estimation of various growth functions.

Table 35: Summary of the percentage effect of firm size in the garment industry

Period	Firm size	Growth strength of the industry	Percentage effect	Findings
2003-05	Micro	Stagnant	30	Some innovation
	Small	Stagnant	14.4	Active imitation
	Medium	Stagnant	30	Some innovation
2004-06	Micro	Slow	18.4	Active imitation
	Small	Slow	4.1	Some imitations
	Medium	-	-	-
2006-08	Micro	Fast	13.7	Imitation
	Small	-	-	-
	Medium	-	-	-
2010-12	Micro	-	-	-
	Small	-	-	-
	Medium	-	-	-
2013-15	Micro	Stagnant	8.1	Some imitation
	Small	-	-	-
	Medium	-	-	-

Source: Author, based on the estimation of various growth functions.

Table 36: Summary of the percentage effect of firm size in the wood industry

Period	Firm size	Growth strength of the industry	Percentage effect	Findings
2003-05	Micro	Slow	30	Some innovation
	Small	-	-	-
	Medium	-	-	-

Source: Author, based on the estimation of various growth functions

Table 37: Summary of the percentage effect of firm size in the metal industry

Period	Firm size	Growth strength of the industry	Percentage effect	Findings
2004-06	Micro	Slow	22.2	Some innovation
	Small	Slow	7.5	Some imitation
	Medium	-	-	-

Source: Author, based on the estimation of various growth functions

Table 38: Summary of the percentage effect of firm size in the fabricated metal industry

Period	Firm size	Growth strength of the industry	Percentage effect	Findings
2010-12	Micro	-	-	-
	Small	Stagnant	-8.4	No imitation
	Medium	Stagnant	-8.7	No imitation

Source: Author, based on the estimation of various growth functions

Table 39: Summary of the percentage effect of firm size in the textile industry

Period	Firm size	Growth strength of the industry	Percentage effect	Findings
2013-15	Micro	Stagnant	9.3	Some imitation
	Small	-	-	-
	Medium	-	-	-

Source: Author, based on the estimation of various growth functions

Table 40: Summary of the percentage effect of firm age in the food industry

Period	Firm age	Growth strength of the industry	Percentage effect	Findings
2003-2005	Young	Fast	7.4	Imitation
	Mature	-	-	-
2004-2006	Young	-	-	-
	Mature	-	-	-
2006-2008	Young	-	-	-
	Mature	-	-	-
2010-2012	Young	-	-	-
	Mature	-	-	-
2013-2015	Young	Stagnant	3.9	Some imitation
	Mature	-	-	-

Source: Author computation based on the estimation of various growth functions.

Table 41: Summary of the percentage effect of firm age in the garment industry

Period	Firm age	Growth strength of the industry	Percentage effect	Findings
2003-2005	Young	-	-	-
	Mature	-	-	-
2004-2006	Young	Slow	3	Some imitation
	Mature	Slow	2	Some imitation
2006-2008	Young	Fast	3.6	Some imitation
	Mature	-	-	-
2010-2012	Young	Stagnant	-5	No imitation
	Mature	Stagnant	- 4.7	No imitation
2013-2015	Young	Stagnant	4.5	Some imitation
	Mature	-	-	-

Source: Author, based on the estimation of various growth functions.

Table 42: Summary of the percentage effect of firm age in the wood industry

Period	Firm age	Growth strength of the industry	Percentage effect	Findings
2003-2005	Young	Slow	5	Some imitation
	Mature	-	-	-

Source: Author, based on the estimation of various growth functions

Table 43: Summary of the percentage effect of firm age in the metal industry

Period	Firm age	Growth strength of the industry	Percentage effect	Findings
2004-2006	Young	Slow	4.3	Some imitation
	Mature	Slow	6	Imitation

Source: Author, based on the estimation of various growth functions.

Table 44: Summary of the percentage effect of firm age in the fabricated metal industry

Period	Firm age	Growth strength of the industry	Percentage effect	Findings
2010-12	Young	Stagnant	3.8	Some imitation
	Mature	-	-	-

Source: Author, based on the estimation of various growth functions

Table 45: Summary of the percentage effect of firm age in the textile industry

Period	Firm age	Growth strength of the industry	Percentage effect	Findings
2013-15	Young	Stagnant	5	Some imitation
	Mature	-	-	-

Source: Author, based on the estimation of various growth functions

Table 46: Proportion of innovative firms in the food industry by size

Period	Firm size	Product innovation (% of firms)	Process innovation (% of firms)	Proportion of firm size (in %)
From 2003 to 2005	Micro	33	14	7
	Small	45.9	33.7	53
	Medium	68.2	53.6	29
	Large	76	60	11
From 2004 to 2006	Micro	-	-	-
	Small	-	-	-
	Medium	-	-	-
	Large	-	-	-
From 2006 to 2008	Micro	14.2	-	6
	Small	11	-	46
	Medium	10	-	28
	Large	19	-	20
From 2010 to 2012	Micro	54	40.5	10
	Small	51.8	44.3	45
	Medium	64.5	59	30
	Large	80	68	15
From 2013 to 2015	Micro	33	-	13
	Small	30.8	-	40
	Medium	38.8	-	26
	Large	46.5	-	21

Source: Author's computation based on data from the World Bank Enterprise Survey.

Table 47: Proportion of innovative firms in the garment industry by size

Period	Firm size	Product innovation (% of firms)	Process innovation (% of firms)	Proportion of firm size (in %)
From 2003 to 2005	Micro	73	38.4	20
	Small	69.1	40	70
	Medium	90	50	7
	Large	100	100	3
From 2004 to 2006	Micro	7.8	-	19
	Small	11.5	-	54
	Medium	5.1	-	21
	Large	-	-	6
From 2006 to 2008	Micro	-	-	-
	Small	-	-	-
	Medium	-	-	-
	Large	-	-	-
From 2010 to 2012	Micro	38.7	16.1	19
	Small	46.5	17.8	63
	Medium	61	53.8	16
	Large	33	66	2
From 2013 to 2015	Micro	31	-	15
	Small	38	-	61
	Medium	46	-	20
	Large	30	-	4

Source: Author's computation based on data from the World Bank Enterprise Survey.

Table 48: Proportion of innovative firms in other industries by size

Industry and Survey period	Firm size	Product innovation (% of firms)	Process innovation (% of firms)	Proportion of firm size (in %)
Wood from 2003 to 2005	Micro	50	25	9
	Small	53.5	35.6	70
	Medium	64.5	54.1	18
	Large	62.5	62.5	3
Metal from 2004 to 2006	Micro	-	-	-
	Small	-	-	-
	Medium	-	-	-
	Large	-	-	-
Fabricated Metal from 2010 to 2012	Micro	70	35	12
	Small	40	31	59
	Medium	71.4	47.6	25
	Large	71.4	71.4	4
Furniture from 2010 to 2012	Micro	56.7	16.6	14
	Small	51	25.5	63
	Medium	68.7	50	22
	Large	100	100	1
Textile from 2013 to 2015	Micro	-	-	18
	Small	37.5	-	49
	Medium	37.7	-	27
	Large	41.6	41.6	6

Source: Author's computation based on data from the World Bank Enterprise Survey.

Table 49: Proportion of innovative firms in the food industry by age

Period	Firm Age	Product innovation (% of firms)	Process innovation (% of firms)	Proportion of firm age (in %)
From 2003 to 2005	Young	53	42	42
	Mature	57	39	23
	Old	54	40	35
From 2004 to 2006	Young	-	-	-
	Mature	-	-	-
	Old	-	-	-
From 2006 to 2008	Young	-	-	-
	Mature	-	-	-
	Old	-	-	-
		-	-	-
From 2010 to 2012	Young	-	-	-
	Mature	-	-	-
	Old	-	-	-
From 2013 to 2015	Young	33	7	16
	Mature	40	5.3	17
	Old	36.5	-	67

Source: Author's computation based on data from the World Bank Enterprise Survey.

Table 50: Proportion of innovative firms in the garment industry by age

Period	Firm Age	Product innovation (% of firms)	Process innovation (% of firms)	Proportion of firm age (in %)
From 2003 to 2005	Young	-	-	-
	Mature	-	-	-
	Old	-	-	-
From 2004 to 2006	Young	-	-	32
	Mature	-	-	23
	Old	-	-	45
From 2006 to 2008	Young	7	-	30.3
	Mature	6	-	23.6
	Old	-	-	46.1
From 2010 to 2012	Young	-	-	-
	Mature	-	-	-
	Old	-	-	-
From 2013 to 2015	Young	34.9	-	23
	Mature	37.5	-	26
	Old	40.1	-	51

Source: Author's computation based on data from the World Bank Enterprise Survey.

Table 51: Proportion of innovative firms in other industries by age

Industry and Survey period	Firm Age	Product innovation (% of firms)	Process innovation (% of firms)	Proportion of firm age (in %)
Wood from 2003 to 2005	Young	58.8	41	40
	Mature	-	-	25
	Old	-	-	35
Metal from 2004 to 2006	Young	-	-	29
	Mature	-	-	25
	Old	-	-	46
Fabricated Metal from 2010 to 2012	Young	42.8	28.5	25
	Mature	-	-	28
	Old	-	-	47
Textile from 2013 to 2015	Young	39.1	46.5	12
	Mature	-	-	30
	Old	-	-	58

Source: Author's computation based on data from the World Bank Enterprise Survey.

Table 52: Marginal effect of innovation in the food industry from 2003 to 2005

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	-0.02	-0.01	0.05	0.05
	(0.05)	(0.05)	(0.06)	(0.05)
Graduate	0.14	0.22∗	-0.02	0.04
	(0.10)	(0.09)	(0.11)	(0.10)
Primary	0.03	0.02	0.07	0.05
	(0.09)	(0.09)	(0.10)	(0.10)
Secondary	-0.06	-0.04	0.00	-0.00
	(0.09)	(0.09)	(0.10)	(0.09)
University	0.13	0.12	0.11	0.08
	(0.16)	(0.15)	(0.15)	(0.15)
Training	0.13	0.11	0.23∗∗	0.21∗∗
	(0.08)	(0.07)	(0.07)	(0.07)
Foreign Firms	-0.02	0.00	0.09	0.15
	(0.09)	(0.09)	(0.09)	(0.09)
Young Firms (t-3)	0.08	0.10	0.12	0.14
	(0.09)	(0.08)	(0.09)	(0.08)
Mature Firms (t-3)	0.03	0.03	0.16	0.14
	(0.09)	(0.09)	(0.09)	(0.08)
Micro Size Firms (t-3)	-0.33∗∗	-0.34∗∗∗	-0.32∗	-0.31∗
	(0.10)	(0.10)	(0.15)	(0.16)
Small Size Firms (t-3)	-0.17	-0.18	-0.24	-0.20
	(0.14)	(0.13)	(0.15)	(0.14)
Medium Size Firms (t-3)	0.01	-0.02	-0.06	-0.05
	(0.13)	(0.12)	(0.15)	(0.14)
Electricity outages	0.11	0.05	0.21	0.16
	(0.11)	(0.10)	(0.12)	(0.11)
Law and Order		0.00		0.05
		(0.04)		(0.04)
Risks of Corruption		0.04		0.07
		(0.10)		(0.11)
Risks of Internal Conflicts		0.07∗		0.03
		(0.03)		(0.03)
Investment Profile		0.01		0.01
		(0.03)		(0.03)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	281	281	281	281
Deviance	319.74	315.02	329.81	332.50
AIC	361.74	357.02	363.81	366.50
BIC	438.13	433.42	425.67	428.35

Note: Robust standard error are in parentheses. ∗∗∗p<0.001; ∗∗p<0.01; ∗p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 53: Marginal effect of innovation in the food industry from 2010 to 2012

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	0.06	0.06	-0.01	-0.01
	(0.05)	(0.05)	(0.04)	(0.04)
Training	0.28***	0.28***	0.30***	0.29***
	(0.06)	(0.06)	(0.06)	(0.05)
Foreign Firms	0.06	0.07	0.05	0.03
	(0.09)	(0.09)	(0.08)	(0.08)
Young Firms (t-3)	-0.03	-0.07	0.09	0.05
	(0.08)	(0.08)	(0.08)	(0.07)
Mature Firms (t-3)	0.11	0.09	0.10	0.09
	(0.08)	(0.08)	(0.07)	(0.07)
Micro Size Firms (t-3)	-0.26*	-0.23*	-0.25*	-0.22
	(0.11)	(0.11)	(0.12)	(0.12)
Small Size Firms (t-3)	-0.28**	-0.25**	-0.26**	-0.24**
	(0.10)	(0.09)	(0.09)	(0.09)
Medium Size Firms (t-3)	-0.18	-0.13	-0.18	-0.14
	(0.10)	(0.10)	(0.10)	(0.09)
Electricity outages	-0.13	-0.07	-0.03	0.02
	(0.09)	(0.08)	(0.09)	(0.08)
Law and Order		-0.03		0.10
		(0.05)		(0.05)
Risks of Corruption		-0.35		-0.57
		(0.30)		(0.31)
Risks of Internal Conflicts		0.12*		0.07
		(0.06)		(0.06)
Investment Profile		0.14		0.08
		(0.09)		(0.09)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	363	363	363	363
Deviance	399.26	417.38	397.38	411.81
AIC	429.26	443.38	427.38	437.81
BIC	487.68	494.01	485.79	488.44

Note: Robust standard error are in parentheses. ***p<0.001; **p<0.01; *p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia

Table 54: Marginal effect of innovation in the food industry from 2013 to 2015

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	0.00	-0.00	-0.08	-0.08
	(0.00)	(0.00)	(0.06)	(0.06)
Training	-0.00	0.00	0.18∗	0.18∗
	(0.00)	(0.00)	(0.08)	(0.08)
Foreign Firms	0.00	-0.00	-0.07	-0.07
	(0.00)	(0.00)	(0.10)	(0.10)
Young Firms (t-3)	0.00	0.00	-0.04	-0.04
	(0.00)	(0.00)	(0.11)	(0.11)
Mature Firms (t-3)	0.00	-0.00	-0.01	-0.01
	(0.00)	(0.00)	(0.10)	(0.10)
Micro Size Firms (t-3)	0.00	-0.00	-0.13	-0.13
	(0.00)	(0.00)	(0.12)	(0.12)
Small Size Firms (t-3)	0.00	-0.00	-0.18	-0.18
	(0.00)	(0.00)	(0.09)	(0.09)
Medium Size Firms (t-3)	0.00	-0.00	-0.13	-0.13
	(0.00)	(0.00)	(0.10)	(0.10)
Electricity outages	0.00	0.00	0.02	0.02
	(0.00)	(0.00)	(0.13)	(0.13)
Law and Order		0.00		-0.04
		(0.00)		(0.17)
Risks of Corruption		-0.00		-0.14
		(0.00)		(0.32)
Risks of Internal Conflicts		-0.00		-0.08
		(0.00)		(0.33)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	205	205	205	205
Deviance	0.00	0.00	256.55	256.55
AIC	24.00	24.00	280.55	280.55
BIC	63.88	67.20	320.43	323.75

Note: Robust standard error are in parentheses. ∗∗∗p<0.001; ∗∗p<0.01; ∗p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include Cameroon, Guinea, Cote d'Ivoire, and Mali.

Table 55: Marginal effect of innovation in the garment industry from 2003 to 2005

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	-0.03	-0.06	-0.01	-0.00
	(0.06)	(0.10)	(0.06)	(0.06)
Graduate	0.35	0.32	0.08	0.07
	(0.33)	(0.24)	(0.13)	(0.15)
Primary	-0.15∗	-0.26∗	-0.06	-0.07
	(0.07)	(0.13)	(0.15)	(0.14)
Secondary	-0.05	0.01	-0.04	-0.02
	(0.09)	(0.13)	(0.11)	(0.11)
University	-0.15∗∗	-0.22	-0.10	-0.07
	(0.05)	(0.18)	(0.20)	(0.19)
Training	0.12	0.14	0.21∗∗∗	0.22∗∗∗
	(0.10)	(0.12)	(0.06)	(0.06)
Foreign Firms	-0.03	-0.11	-0.04	-0.01
	(0.14)	(0.23)	(0.17)	(0.16)
Young Firms (t-3)	-0.04	-0.01	0.00	0.05
	(0.10)	(0.15)	(0.10)	(0.09)
Mature Firms (t-3)	-0.11	-0.13	-0.17	-0.13
	(0.08)	(0.14)	(0.13)	(0.13)
Micro Size Firms (t-3)	-0.51∗∗∗	-0.78∗∗∗	-0.97∗∗∗	-0.97∗∗∗
	(0.08)	(0.04)	(0.02)	(0.02)
Small Size Firms (t-3)	-0.98∗∗∗	-0.93∗∗∗	-0.73∗∗∗	-0.74∗∗∗
	(0.02)	(0.03)	(0.10)	(0.09)
Medium Size Firms (t-3)	-0.27∗∗∗	-0.56∗∗∗	-0.86∗∗∗	-0.86∗∗∗
	(0.05)	(0.05)	(0.04)	(0.04)
Electricity outages	-0.03	0.02	-0.00	0.00
	(0.11)	(0.13)	(0.11)	(0.09)
Law and Order		0.12∗		-0.05
		(0.06)		(0.04)
Risks of Corruption		0.10		0.08
		(0.14)		(0.10)
Risks of Internal Conflicts		0.05		0.09
		(0.08)		(0.05)
Investment Profile		-0.05		-0.11∗∗∗
		(0.05)		(0.03)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	134	134	134	134
Deviance	128.11	120.33	142.35	124.65
AIC	172.11	164.33	178.35	160.65
BIC	235.86	228.08	230.51	212.81

Note: Robust standard error are in parentheses. ∗∗∗p<0.001; ∗∗p<0.01; ∗p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.

Table 56: Marginal effect of innovation in the garment industry from 2010 to 2012

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	0.10	0.12	0.09	0.10
	(0.07)	(0.08)	(0.09)	(0.10)
Training	0.23∗	0.29∗∗	0.39∗∗∗	0.39∗∗∗
	(0.09)	(0.10)	(0.10)	(0.09)
Foreign Firms	-0.11	-0.12	0.21	0.23
	(0.06)	(0.08)	(0.14)	(0.14)
Young Firms (t-3)	0.19	0.20	-0.04	-0.04
	(0.11)	(0.12)	(0.13)	(0.13)
Mature Firms (t-3)	0.29∗	0.33∗∗	-0.01	0.01
	(0.11)	(0.12)	(0.11)	(0.12)
Micro Size Firms (t-3)	-0.13	-0.14	0.48	0.47∗
	(0.11)	(0.13)	(0.25)	(0.23)
Small Size Firms (t-3)	-0.26	-0.26	0.45	0.49∗
	(0.18)	(0.19)	(0.24)	(0.24)
Medium Size Firms (t-3)	0.04	0.05	0.50∗	0.48∗
	(0.17)	(0.19)	(0.22)	(0.20)
Electricity outages	0.09	0.09	0.06	0.04
	(0.06)	(0.08)	(0.10)	(0.10)
Law and Order		-0.04		-0.01
		(0.06)		(0.09)
Risks of Corruption		-0.10		-0.33
		(0.38)		(0.57)
Risks of Internal Conflicts		0.01		0.04
		(0.07)		(0.11)
Investment Profile		0.19		0.10
		(0.11)		(0.14)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	161	161	161	161
Deviance	142.70	146.95	188.84	195.45
AIC	172.70	172.95	218.84	221.45
BIC	218.92	213.01	265.06	261.51

Note: Robust standard error are in parentheses. ∗∗∗p<0.001; ∗∗p<0.01; ∗p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia

Table 57: Marginal effect of innovation in the garment industry from 2013 to 2015

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	0.00	0.00	-0.04	-0.04
	(0.00)	(0.00)	(0.06)	(0.06)
Training	-0.00	-0.00	0.17∗	0.17∗
	(0.00)	(0.00)	(0.07)	(0.07)
Foreign Firms	-0.00	-0.00	0.09	0.09
	(0.00)	(0.00)	(0.10)	(0.10)
Young Firms (t-3)	-0.00	-0.00	0.01	0.01
	(0.00)	(0.00)	(0.09)	(0.09)
Mature Firms (t-3)	-0.00	-0.00	0.04	0.04
	(0.00)	(0.00)	(0.08)	(0.08)
Small Size Firms (t-3)	0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.10)	(0.10)
Medium Size Firms (t-3)	0.00	0.00	0.13	0.13
	(0.00)	(0.00)	(0.12)	(0.12)
Electricity outages	0.00	0.00	0.10	0.10
	(0.00)	(0.00)	(0.08)	(0.08)
Law and Order		-0.00		-0.10
		(0.00)		(0.09)
Risks of Corruption		-0.00		0.39∗∗∗
		(0.00)		(0.09)
Risks of Internal Conflicts		-0.00		0.36
		(0.00)		(0.27)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	273	273	273	273
Deviance	0.00	0.00	337.96	337.96
AIC	22.00	22.00	359.96	359.96
BIC	61.70	65.31	399.66	403.27

Note: Robust standard error are in parentheses. ∗∗∗p<0.001; ∗∗p<0.01; ∗p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include Cameroon, Guinea, Cote d'Ivoire, and Mali.

Table 58: Marginal effect of innovation in the wood industry from 2003 to 2005

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	-0.09	-0.11	-0.09	-0.10
	(0.06)	(0.05)	(0.06)	(0.05)
Graduate	0.12	0.11	0.06	-0.01
	(0.11)	(0.10)	(0.11)	(0.11)
Primary	-0.17∗	-0.19∗	-0.09	-0.13
	(0.08)	(0.08)	(0.10)	(0.10)
Secondary	-0.11	-0.13	-0.06	-0.10
	(0.08)	(0.08)	(0.09)	(0.09)
University	-0.14	-0.15	-0.03	-0.07
	(0.11)	(0.11)	(0.13)	(0.13)
Training	0.10	0.10	0.04	0.05
	(0.08)	(0.08)	(0.08)	(0.08)
Foreign Firms	0.03	0.02	0.05	0.01
	(0.11)	(0.11)	(0.12)	(0.12)
Young Firms (t-3)	0.03	0.02	0.06	0.06
	(0.09)	(0.09)	(0.08)	(0.08)
Mature Firms (t-3)	0.01	-0.01	0.05	0.02
	(0.09)	(0.09)	(0.09)	(0.09)
Micro Size Firms (t-3)	-0.30∗	-0.29∗	-0.17	-0.13
	(0.12)	(0.12)	(0.21)	(0.22)
Small Size Firms (t-3)	-0.21	-0.21	-0.10	-0.10
	(0.18)	(0.18)	(0.18)	(0.19)
Medium Size Firms (t-3)	-0.05	-0.04	0.00	0.02
	(0.17)	(0.17)	(0.19)	(0.19)
Electricity outages	0.08	0.11	0.03	0.06
	(0.08)	(0.08)	(0.09)	(0.08)
Law and Order		0.01		0.06
		(0.04)		(0.04)
Risks of Corruption		0.06		0.14
		(0.09)		(0.10)
Risks of Internal Conflicts		0.08∗		-0.01
		(0.03)		(0.03)
Investment Profile		-0.00		-0.00
		(0.03)		(0.03)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	265	265	265	265
Deviance	309.30	317.36	313.82	340.66
AIC	351.30	359.36	347.82	374.66
BIC	426.27	434.53	408.67	435.52

Note: Robust standard error are in parentheses. ∗∗∗p<0.001; ∗∗p<0.01; ∗p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include Angola, Botswana, Democratic Republic of Congo, Gambia, Guinea, Guinea Bissau, Namibia, Tanzania, and Uganda.

Table 59: Marginal effect of innovation in the fabricated metal industry from 2010 to 2012

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	-0.10	-0.11	-0.08	-0.08
	(0.09)	(0.09)	(0.09)	(0.09)
Training	0.32**	0.33**	0.37***	0.37***
	(0.10)	(0.10)	(0.09)	(0.09)
Foreign Firms	-0.15	-0.13	-0.02	-0.01
	(0.12)	(0.12)	(0.14)	(0.14)
Young Firms (t-3)	-0.15	-0.16	-0.22	-0.22
	(0.11)	(0.11)	(0.12)	(0.12)
Mature Firms (t-3)	-0.09	-0.09	-0.17	-0.17
	(0.10)	(0.10)	(0.11)	(0.11)
Micro Size Firms (t-3)	-0.09	-0.10	0.34*	0.34*
	(0.22)	(0.21)	(0.17)	(0.17)
Small Size Firms (t-3)	-0.13	-0.13	0.03	0.03
	(0.21)	(0.21)	(0.19)	(0.19)
Medium Size Firms (t-3)	-0.07	-0.08	0.21	0.21
	(0.20)	(0.19)	(0.16)	(0.16)
Electricity outages	0.21*	0.19*	0.32**	0.32**
	(0.08)	(0.09)	(0.11)	(0.11)
Law and Order		0.08		0.17*
		(0.08)		(0.08)
Risks of Corruption		-0.73		-1.08
		(0.58)		(0.62)
Risks of Internal Conflicts		0.18		0.20
		(0.12)		(0.12)
Investment Profile		-0.07		-0.16
		(0.11)		(0.12)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	169	169	169	169
Deviance	192.12	193.17	189.82	189.92
AIC	220.12	219.17	217.82	215.92
BIC	263.94	259.86	261.63	256.61

Note: Robust standard error are in parentheses. ***p<0.001; **p<0.01; *p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include the Democratic Republic of Congo, Ghana, Kenya, Tanzania, Uganda, and Zambia

Table 60: Marginal effect of innovation in the furniture industry from 2010 to 2012

	Dependent Binary Variable of Innovation:			
	Process	Process	Product	Product
Ln(Experience)	-0.08	-0.08	-0.08	-0.07
	(0.06)	(0.06)	(0.07)	(0.07)
Training	0.30***	0.30***	0.29***	0.29***
	(0.08)	(0.08)	(0.07)	(0.07)
Foreign Firms	0.11	0.13	-0.19	-0.14
	(0.21)	(0.21)	(0.20)	(0.19)
Young Firms (t-3)	-0.02	-0.02	-0.14	-0.14
	(0.10)	(0.10)	(0.10)	(0.10)
Mature Firms (t-3)	-0.13	-0.13	-0.03	-0.03
	(0.07)	(0.07)	(0.09)	(0.09)
Micro Size Firms (t-3)	-0.56***	-0.57***	-0.77***	-0.77***
	(0.04)	(0.04)	(0.03)	(0.03)
Small Size Firms (t-3)	-0.99***	-0.99***	-0.89***	-0.90***
	(0.01)	(0.00)	(0.03)	(0.03)
Medium Size Firms (t-3)	-0.67***	-0.67***	-0.83***	-0.84***
	(0.04)	(0.04)	(0.03)	(0.03)
Electricity outages	-0.04	-0.04	-0.01	-0.01
	(0.08)	(0.08)	(0.08)	(0.08)
Law and Order		-0.05		0.06
		(0.06)		(0.07)
Risks of Corruption		-0.29		-0.52
		(0.49)		(0.61)
Risks of Internal Conflicts		0.11		0.08
		(0.10)		(0.12)
Investment Profile		0.17		-0.08
		(0.10)		(0.11)
Country fixed-effect[1]	Yes	No	Yes	No
Institutional quality	No	Yes	No	Yes
Num. obs.	220	220	220	220
Deviance	223.91	224.11	277.10	279.13
AIC	251.91	250.11	305.10	305.13
BIC	299.42	294.23	352.61	349.25

Note: Robust standard error are in parentheses. ***p<0.001; **p<0.01; *p<0.05.

Source: Author, based on data from the World Bank Enterprise Survey and the International Country Risk Guide.

[1] Countries in these marginal effects estimations include Ghana, Mali, Mozambique, South Africa, Senegal, and Zambia.