

# Entrepreneurship and Firm Formation across Countries

Leora Klapper, Raphael Amit, and Mauro F. Guillén

## 4.1 Introduction

Entrepreneurship is essential for the continued dynamism of the modern market economy, and a greater entry rate of new businesses can foster competition and economic growth (Klapper, Laeven, and Rajan 2006; Djankov et al. 2002). In this regard, a comprehensive longitudinal study of entrepreneurial activity can assess time-varying and time-invariant determinants of firm creation and its relationship to economic growth and poverty reduction. Furthermore, from an evolutionary economics perspective, new research suggests that disparities in economic growth between advanced and less-developed countries can narrow, owing precisely to the growth of entrepreneurial activity (Galor and Michalopoulos 2006). Empirical data can also help us better understand how entrepreneurs interact within their respective networks, wherein new business ideas are generated and businesses are

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1 created (Stuart and Sorenson 2005). Additionally, there is a strong need to  
2 develop data sets to study how economic and political factors affect entre-  
3 preneurship. For instance, Brander et al. (1998) used a longitudinal data set  
4 on the evolution of firm formation in Canada to document that economic  
5 growth is driven by new entry rather than by the growth of existing firms.

6 This study offers a methodology for collecting data on new business crea-  
7 tion, serving as a first step in enabling research on the dynamics of entre-  
8 preneurial activity. Furthermore, the data can be used as a benchmark for  
9 changes in the composition of the private sector and may further advance  
10 the study of the impact of regulatory, political, macroeconomic, and insti-  
11 tutional changes on entrepreneurship and growth.

12 We find that business entry and density rates are significantly related to  
13 country-level indicators of economic development and growth, the qual-  
14 ity of the legal and regulatory environment, ease of access to finance, and  
15 prevalence of informality. In the multivariate panel analyses, we find that  
16 the business environment—specifically, the ease of starting a business and  
17 political corruption—remain significant indicators of total firm registra-  
18 tions, even after controlling for the level of economic development. These  
19 results are thus consistent with prior work on the efficient allocation of  
20 inputs and other resources to entrepreneurial activities (Jovanovic 1982) and  
21 the impact of regulatory reform (Mullainathan and Schnabl, chapter 5 in  
22 this volume). We also find significantly higher entry rates in countries with  
23 better governance. Case studies show the impact of political, institutional,  
24 and tax reforms on new business creation. These results can guide effective  
25 policymaking and deliver new capabilities for identifying the impact of  
26 reforms.

## 27 28 **4.2 Methodology: How Do We Define Entrepreneurship?**

29  
30 In order to measure entrepreneurship and make the data universally com-  
31 parable, we developed a methodology that can be applicable across het-  
32 erogeneous legal regimes and economic systems. Previous efforts had been  
33 made in this regard, but the great majority focused solely on the developed  
34 world and did not take into account differences in legal systems, sectors, and  
35 economic structures (see United Nations [2005]).

36 The definition of entrepreneurship lacks a common language (Outcalt  
37 2000). Joseph Schumpeter defined entrepreneurship as “the assumption of  
38 risk and responsibility in designing and implementing a business strategy or  
39 starting a business” (Schumpeter 1911). J. W. Gough stated that entrepre-  
40 neurship “refers to a person who undertakes and operates a new enterprise  
41 or venture, and assumes some accountability for the inherent risks” (Gough  
42 1969). For practitioners, entrepreneurship has generally been viewed as the  
43 process of creating new wealth. The entrepreneurial process centers on the  
44

1 discovery, creation, and profitable exploitation of markets for goods and  
2 services.<sup>1</sup> Therefore, for the purposes of the analysis in this study, entrepre-  
3 neurship is defined as *the activities of an individual or a group aimed at initiat-*  
4 *ing economic activities in the formal sector under a legal form of business.*

5 Notably, this definition excludes informal sector initiatives. This exclusion  
6 is based on the difficulties of quantifying the number of firms in the informal  
7 sector rather than on its relevance for developing economies (Nielsen and  
8 Plovsing 1997). The only way to measure the informal sector is through eco-  
9 nomic censuses, which are infrequently collected due to their high costs.

10 After defining our measure of entrepreneurship, we need to create a stan-  
11 dard unit of measurement. Generally, entrepreneurial activities are carried  
12 out in the form of a “business.” Statistical agencies around the world define  
13 a business in many different ways based on the sources of available admin-  
14 istrative data (Vale 2005). Due to the lack of a universally agreed-upon  
15 definition of what constitutes a business, agencies have formulated either  
16 an economic, statistical, or legal definition.<sup>2</sup> For instance, the United States  
17 bases its business statistics on establishments, and Canada reports average  
18 labor units (ALU),<sup>3</sup> while countries reporting to Eurostat<sup>4</sup> and the United  
19 Nations Economic Commission for Europe (UNECE)<sup>5</sup> use various mea-  
20 sures including legal (enterprises), geographical (local unit), and activity-  
21 based (kind of activity unit) approaches for their business statistics. As a  
22 result, the data are not easily comparable across countries: the proposed unit  
23 of measurement must take into consideration the availability of the data,  
24 the consistency across countries, the relevance to entrepreneurship, and the  
25 focus on the formal sector.

26 Hence, to make the data comparable across a large number of countries,  
27 the specific type of business measured is simply *the number of limited liabil-*  
28 *ity corporations* or its equivalent in other legal systems. There are no clearly  
29 defined, internationally agreed-upon, minimum-sized criteria for business  
30 activity (United Nations 2005; Hoffmann, Larsen, and Oxholm 2006). Fur-  
31 thermore, in many countries, neither financial information nor the number  
32 of employees is collected, making it impossible to identify firm size. There-  
33

34 1. See Shane and Venkataraman (2000) and Venkataraman (1997) for a discussion of alter-  
35 native definitions.

36 2. At the international level, Eurostat and the OECD have attempted to define the concept  
37 of business. Other countries, like the United States, choose the establishment as the main unit  
38 for business statistical purposes.

39 3. See the US Census Bureau, available at: <http://www.census.gov/econ/>. Also see the Longitu-  
40 dinal Employment Analysis Program (LEAP) of Statistics Canada, available at: [http://strategis.](http://strategis.gc.ca/epic/site/sbrp-rppe.nsf/en/rd00827e.html)

41 4. “Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the  
42 observation and analysis of the production system in the Community,” *Official Journal L076*  
43 (2003): 1–11.

44 5. Terminology on statistical metadata, United Nations Statistical Commission, available at:  
<http://www.unece.org/stats/publications/53metadaterminology.pdf>.

fore, in this study, we collect information on all corporations, regardless of their economic or staff size.

#### 4.2.1 A Focus on the Formal Sector

This study focuses on the size and growth of the *formal* private sector. However, the informal sector (or “shadow economy”) plays an important role in many countries, ranging from over 75 percent of official gross domestic product (GDP) in Nigeria to about 10 percent in the United States (Schneider and Enste 2000). The previous literature has highlighted the potential advantages to formal sector participation, including police and judicial protection (and less vulnerability to corruption and the demand for bribes), access to formal credit institutions, the ability to use formal labor contracts, and greater access to foreign markets (Schneider and Enste 2000).<sup>6</sup> However, because of burdensome regulations, high marginal tax rates, the absence of monitoring and compliance (of both registration and tax regulations), and other weaknesses in the business environment, many firms might find it optimal to evade regulations and operate in the informal sector. Firms that choose to stay small and informal might be unable to realize their full growth potential. Our data set allows us to examine the growth of the formal private sector relative to the informal sector and to identify factors that encourage firms to begin operations in or transitions to the formal sector.

For instance, a large cross-country study finds that increases in product market and labor regulations have been linked to increases in the size of the informal sector (Loayza, Oviedo, and Serven 2006). Furthermore, a study in the United States finds that increases in the top marginal income tax rate and decreases in tax audit probabilities and penalties might increase the size of the shadow economy (Cebula 1997). Another cross-country analysis finds that entrepreneurs are most likely to operate informally to avoid the burdens of bureaucracy and corruption and that increases in regulation—and importantly, the enforcement of regulations—is associated with larger informal sectors (Johnson, Kaufmann, and Zoido-Lobaton 1998, 1999; Friedman et al. 2000). This suggests that regulations can affect the creation of new firms, the average size of firms, and the dynamism of incumbent firms.<sup>7</sup> Our empirical analysis examines the relationship between growth in the formal sector and improvements in the tax, regulatory, and governance environment.

Evidence on the relationship between the informal sector and economic growth is mixed. On the one hand, a larger shadow economy is related to less

6. The benefits of formal sector registration might vary by industry. This is discussed in section 4.5.3.

7. However, informal microenterprises might not lag behind formal microenterprises in terms of growth or dynamism; for instance, studies of Latin America suggest that in developing countries with low levels of formal sector labor productivity, entrepreneurs with low levels of human capital might optimally choose to operate in the informal sector (Maloney 2004).

1 tax revenue, which might lead to less investment in public infrastructure and  
2 economic growth, particularly in developing countries (i.e., Loayza 1996).  
3 On the other hand, evidence in the Organization for Economic Coopera-  
4 tion and Development (OECD) countries finds that the informal economy  
5 has a strongly positive effect on consumer purchases of both durable and  
6 nondurable expenditures and an indirectly positive effect on tax revenue  
7 and economic growth (Schneider 1998; Bhattacharyya 1999). In our longitu-  
8 dinal analysis, we find no significant relationship between economic growth  
9 and new firm creation, but this might be due to our short panel series.

### 11 4.3 Business Registries

12 The information presented in this study was collected from business regis-  
13 tries and other government sources in over one hundred countries. The data  
14 were collected via a survey and follow-up phone calls. These other sources  
15 include statistical agencies, tax and labor agencies, chambers of commerce,  
16 and private vendors (such as Dunn and Bradstreet [D&B]), which were used  
17 only when business registry data were unavailable or nonexistent.<sup>8</sup> While  
18 this analysis reasserts the great heterogeneity that characterizes these public  
19 entities in terms of, inter alia, prevailing regulations, methodologies, and the  
20 implantation of digital administrations, a number of common challenges  
21 and achievements have been identified and are described in this section.

22 Business registries<sup>9</sup> are public entities that are generally established by  
23 commercial- or business-code mandates and managed by the ministries of  
24 commerce or justice (Labariega Villanueva 2006). They are responsible for  
25 registering businesses, as well as noting any significant modifications to the  
26 internal structure of these businesses throughout their life span. The main  
27 purpose of business registries is to guarantee that businesses comply with  
28 current regulations and to make such information available to the public.  
29 Their composition varies greatly across countries, as is amply evidenced by  
30 the fact that they can either coexist with real estate registries (e.g., Mexico),  
31 be managed by chambers of commerce or professional associations (e.g.,  
32 Syria), or be stand-alone agencies (e.g., the United Kingdom).

33 While the laws for business registrations vary greatly across countries, a  
34 common thread among all is the “legal entity” element: any business with a  
35 legal entity (or “corporate personhood”) separate from its owners must be duly  
36 registered.<sup>10</sup> Thus, the definition of *what* constitutes a separate legal entity in  
37 a given country is key in deciding which businesses are required to register.

40 8. A complete list of sources is provided in the appendix.

41 9. Also called Incorporation Offices (US), Companies Registration Offices (IR), Companies  
42 House (UK), Business Register (AU), Mercantile Registries (SP), Public Registries of Property  
43 and Commerce (MEX), Registry of Commerce (FR), etc.

44 10. The registration of businesses without legal entity (e.g., professional associations, indi-  
vidual merchants, etc.) can be voluntary, not compulsory, in some countries (e.g., Spain).

1 The amount of information required to register varies across coun-  
2 tries. However, in general, information is collected during both the  
3 incorporation/registration process and the life of the business. For instance,  
4 at the time of registration, firms are generally required to report the list of  
5 shareholders and managing directors, the main industrial activity, proof  
6 of payment of taxes and fees, and proof of compliance with applicable  
7 business regulations. On an annual basis, many countries require firms to  
8 report balance sheet and profit/loss accounts and changes in employment.  
9 Furthermore, during the course of the business life, firms are often required  
10 to report any changes in share capital, mergers or acquisitions, and any  
11 insolvency or liquidation proceedings.

12 However, many countries requiring businesses to file certain data lack the  
13 ability to enforce compliance. A key case in point is the fact that whereas 65  
14 percent of the countries surveyed require businesses to record their finan-  
15 cial statements, a significantly lower percentage actually manage to collect  
16 the data. The same applies to the reporting of closures: over 80 percent of  
17 the countries surveyed require notification of firm closures—either through  
18 liquidation, bankruptcy, merger, or acquisition—but a large number of  
19 countries lack the proper mechanisms to enforce this requirement. In sum,  
20 although information requirements do not vary markedly across countries,  
21 many registries lack the enforcement mechanisms regarding business filing  
22 and reporting laws. This further contributes to the significant differences in  
23 the quality of the registration information across countries.

24 In principle, registries are open to the public; therefore, none of the infor-  
25 mation they contain is regarded as confidential.<sup>11</sup> Nevertheless, the way in  
26 which customers access information and the format in which the informa-  
27 tion is presented varies greatly across countries. This variance is mainly a  
28 function of the degree to which registries have been digitalized and to which  
29 an efficient accessing framework governing the system exists. For instance,  
30 when the register has been successfully converted into electronic format,  
31 the information is generally available to customers through the Internet for  
32 a small fee. If the country has not made such a transition, the client gener-  
33 ally must go to the registry bureau (which is often decentralized) in person  
34 and conduct “manual” research on-site. To complement official channels,  
35 private vendors (e.g., D&B) also distribute registry information in many  
36 countries.

#### 37 38 **4.4 Challenges and Data Limitations**

39  
40 Despite the effort made to minimize disparities and make the data compa-  
41 rable across countries, certain limitations preclude a completely systematic  
42

43  
44 <sup>11</sup>. Some countries do not disclose the articles of incorporation or have more restrictive  
legislation because of privacy laws (e.g., Germany).

analysis of entrepreneurial development. The following subsections represent the most frequently faced problems in the process of gathering and processing the data.

#### 4.4.1 Data Availability

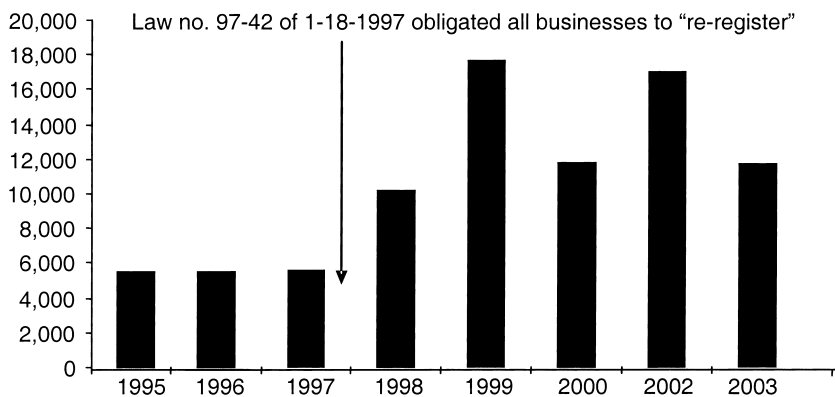
As previously stated, several countries do not compile data on newly created businesses or on firms that went out of business, much less on re-registered businesses (i.e., businesses that register existing businesses because of changes to firm names, ownership, sector, etc.) A second challenge refers to some countries, excluded from this survey, that have in fact collected data on enterprise creation but simply do not have the tools or resources to process them. In some cases, decentralized business registries make aggregation to the national level extremely difficult. In other cases, the data are archived only in paper format.

#### 4.4.2 Data “Purity”

Time series data was carefully examined, since the levels of total and newly registered businesses might be inflated due to recent legal or economic reforms. For instance, Algeria issued a new law requiring all existing businesses to re-register in order to bring their status up to new sectoral requirements. As a result, the number of businesses doubled from 1997 to 1998 (figure 4.1).

#### 4.4.3 Limitations Regarding Data on Firm Closures

As previously stated, although approximately 80 percent of surveyed countries require businesses to report closures, a significantly lower number were actually able to report the number of closed businesses. The reasons differ from country to country but are mainly due to the fact that the registrars



**Fig. 4.1** Legal reforms that affect business statistics: The Algerian case

Source: World Bank Group Entrepreneurship Database (2008).

generally have no enforcement mechanisms to obligate businesses to report closures. In other cases, the number of closed businesses was reported but might be imprecise, because only a low percentage of businesses actually report their closure. Although the number of closed companies is essential to paint a clear picture of the economic and entrepreneurial activities of a country, it is not yet feasible to obtain comparable data (Nucci 1999).<sup>12</sup>

#### 4.4.4 Shell Corporations

Shell companies are defined as companies that are registered for tax purposes but are not active businesses. These corporations do not fit into the methodology of our study, since they do not correspond to the category of “entrepreneurship” or to that of “business.” Therefore, we also exclude some countries that are internationally recognized tax havens (i.e., Jersey).

### 4.5 Summary Statistics

We collected data on the number of new and total businesses for 101 countries for the maximum time period from 2000 to 2008. The appendix provides the complete list of data sources by country. Country-level data is available at: <http://econ.worldbank.org/research/entrepreneurship>.

#### 4.5.1 Total Business Density, Entry Density, and Entry Rates

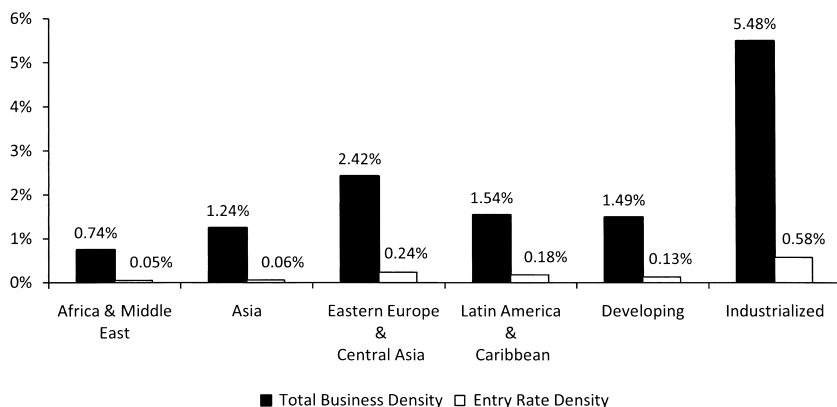
Total business density is calculated as the number of registered businesses as a percentage of the active population (aged fifteen to sixty-four) in that year. Data are available for 101 countries. The differences among regions are pronounced, as shown in figure 4.2. Business density ranges from an average of thirty-three per thousand in Australia to less than one in many low-income African countries. The highest density is found in the developed world, with an average of sixty-four businesses for every 1,000 active individuals, whereas all the other regions have a density lower than forty businesses for every 1,000 active individuals.

Entry density rates are calculated as new firms (those that were registered in the current year) as a percentage of the working-age population. The data collected for eighty-two countries show significant disparities across regions, ranging from 0.05 percent in Africa and the Middle East to 0.58 percent in industrialized countries.

Entry rates are calculated as new registrations of companies as a percentage of total (lagged previous year) registered businesses. The data for eighty-two countries, summarized by region, are shown in figure 4.3. On a regional level, industrialized countries had the highest entry rates over our

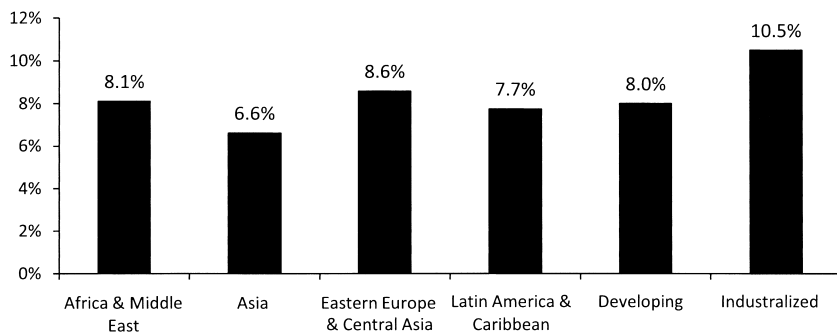
12. Information on “active” companies—excluding closed or inoperative businesses—is available from national tax agencies and labor ministries, although these agencies generally do not make their data public.





**Fig. 4.2 Average business density and entry density rates by region, 2000 to 2008**

Source: World Bank Group Entrepreneurship Database (2008).



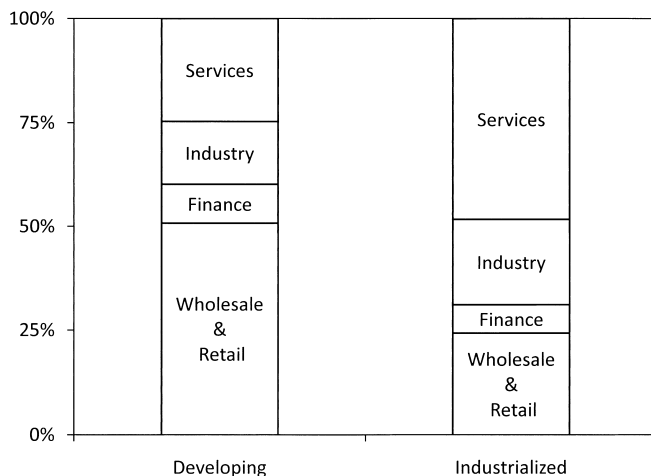
**Fig. 4.3 Average entry rates by region, 2000 to 2008**

Source: World Bank Group Entrepreneurship Database (2008).

sample period. Interestingly, the data collected across countries show that this indicator presents fewer disparities across regions, ranging from 6.6 percent to 10 percent.

#### 4.5.2 Business Distribution by Sector

The 2008 survey collected data on the number of total and new businesses disaggregated by sector of activity. In order to compare data across regions, the classification was truncated to wholesale and retail trade, financial and real estate, industry, and services. In addition to sectoral differences across levels of economic development, we expect variation across regulatory and governance regimes. For instance, we might expect that capital- and labor-intensive industries would be underrepresented in countries with weak financial development and burdensome labor regulations (Rajan and Zingales 1998). We should also find that sectors that have greater needs for formal



**Fig. 4.4 Total business distribution by sector, 2006**

*Source:* World Bank Group Entrepreneurship Database (2008).

sector registration documents are overrepresented in countries with challenging business environments.

Indeed, an initial analysis of the data shows an almost perfect asymmetry in the business distribution in developing and industrialized countries (figure 4.4). While in developing countries, the retail and finance sectors are twice as big as in the industrialized countries, the industry and services sectors are half their size. Approximately the same distribution was found among new business created in 2004 (not shown). An in-depth study would be necessary to better understand why entrepreneurs focus so disproportionately on certain sectors in developing countries. Nevertheless, a preliminary analysis might suggest the relatively lower requirements of investment, human resources, knowledge, and capital as among the reasons that entrepreneurs in developing countries focus on the retail sector. In addition, in developing countries with costly and timely barriers to starting a business, only firms in wholesale and retail trade might have the greatest incentive to formally register—for instance, in order to receive a value added tax (VAT) number, which might be required for domestic and international sales.<sup>13</sup>

#### 4.6 Empirical Analysis

In this section, we examine various macroeconomic, financial, political, and regulatory indicators that might be related to business density and entry

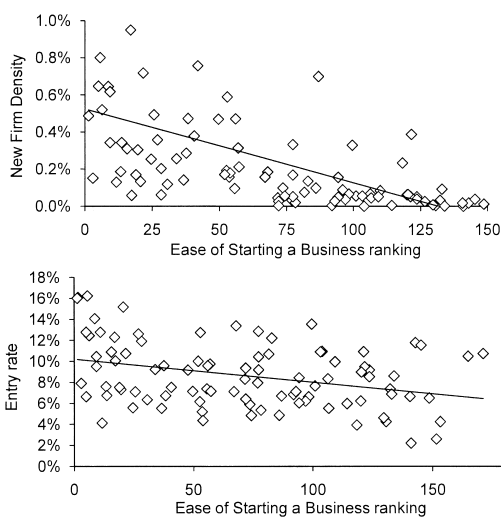
13. We are unable to control for sectoral distribution in our empirical analysis, since the data are only available for a small subsample of countries and was not collected over time. However, we expect changes in the distribution to be related to economic development and improvements in the business environments, which are measured by our explanatory variables.

1 rates. Although we find significant relationships with these measures—that is,  
 2 more dynamic economies in countries with better business environments—  
 3 we cannot postulate on the direction of causality. We plan to continue to col-  
 4 lect this data over time and construct time series of private-sector entry and  
 5 growth that will allow us to study the country characteristics that determine  
 6 entrepreneurship and the effect of regulatory and institutional reforms.

#### 4.6.1 Importance of the Business Environment

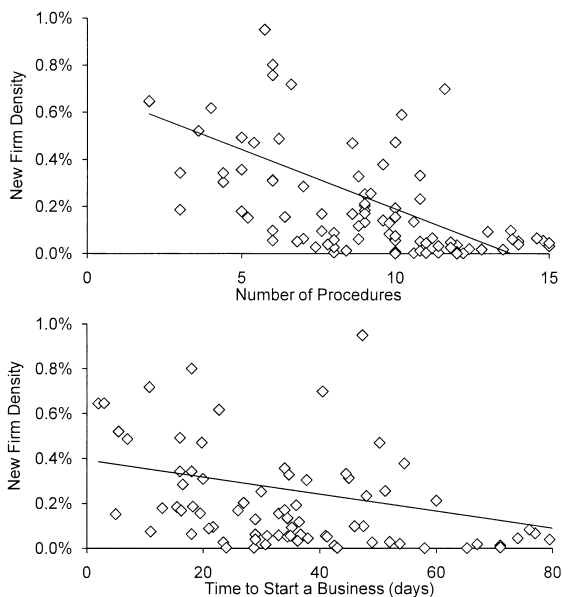
9 Several results highlight the importance of the business environment for  
 10 the growth and development of the private sector. For instance, the 2009  
 11 Doing Business Report includes a ranking (from 1 to 175) of an “ease of  
 12 doing business index,” which measures the relative strength of the regula-  
 13 tory environment as conducive to the operation of business. The index is  
 14 constructed as the simple average of the countries’ percentile rankings on ten  
 15 topics: starting a business, dealing with licenses, employing workers, register-  
 16 ing property, getting credit, protecting investors, paying taxes, trading across  
 17 borders, enforcing contracts, and closing a business. We find a negative and  
 18 significant relationship between the ease of starting a business with entry  
 19 and new firm density rates per country (figure 4.5).

20 More specifically, barriers to starting a business are significantly and  
 21 negatively correlated with business density and the entry rate. For example,  
 22 the fewer the procedures required and the shorter the number of days to  
 23 start a business, the greater the number of registered firms—and the higher  
 24 the entry rate (figure 4.6). There is also a significant relationship between  
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42 **Fig. 4.5 New firm density rates versus ease of doing business rankings by country, average 2000 to 2008**

43 *Source:* World Bank Group Entrepreneurship Database (2008) and Doing Business Database  
 44 (2009).



**Fig. 4.6 Business creation and the number of procedures and time to start a business by country, average 2000 to 2008**

*Source:* World Bank Group Entrepreneurship Database (2008) and Doing Business Database (2009).

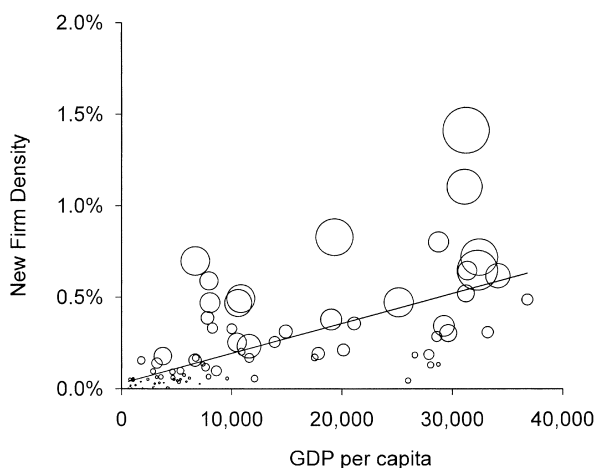
the cost of starting a business (as a percentage of gross national income [GNI]) and business density and the entry rate (not shown). For example, for every 10 percentage-point decrease in entry costs, density and the entry rate increase by about 1 percentage point.<sup>14</sup>

#### 4.6.2 Economic and Financial Development

The data also show a positive and significant relationship between economic and financial development and entrepreneurship. The log of GDP per capita and domestic credit to the private sector as a percentage of GDP (not shown) are both positively and significantly correlated with business and entry density rates (figure 4.7). Furthermore, greater business entry is also related to higher entry density rates (as shown by the relative “bubble” size). This suggests that greater business opportunities and better access to finance are related to a more robust private sector.

Disentangling the direction of causality—whether positive economic growth is a determinant for the creation (i.e., registration) of new businesses or whether greater entrepreneurship leads to economic growth and innovation—is an important area of future research.

14. Countries with entry costs greater than 40 percent of GNI per capita are excluded.



**Fig. 4.7** New firm density, GDP per capita, and total business density (“bubble”) by country, average 2000 to 2008

*Source:* World Bank Group Entrepreneurship Database (2008) and World Bank (2009).

#### 4.6.3 Relationship with the Informal Sector

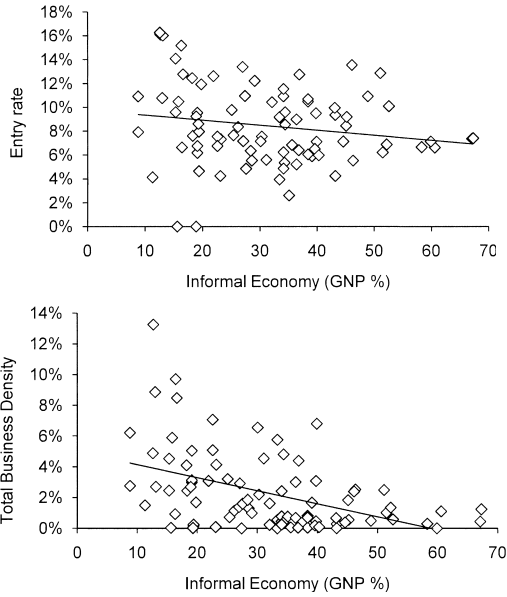
Total firm registrations are significantly higher in countries with a smaller informal sector (figure 4.8). This suggests a substitution effect and a larger informal sector in countries with higher entry barriers. The data also show a significant (but smaller) relationship between the entry rate and the informal sector.

Together, these results suggest that an increase in total and newly registered firms might indicate a decrease in the size of the informal sector. Indeed, a 30 percentage-point increase in business density and a 10 percentage-point increase in entry rates are commensurate with a 10 percentage-point decline in the informal sector (as a share of GDP). We do not include this variable in the multivariate analysis because of its very large (about 80 percent) and significant relationship with GDP per capita.

#### 4.6.4 Business Creation and Governance

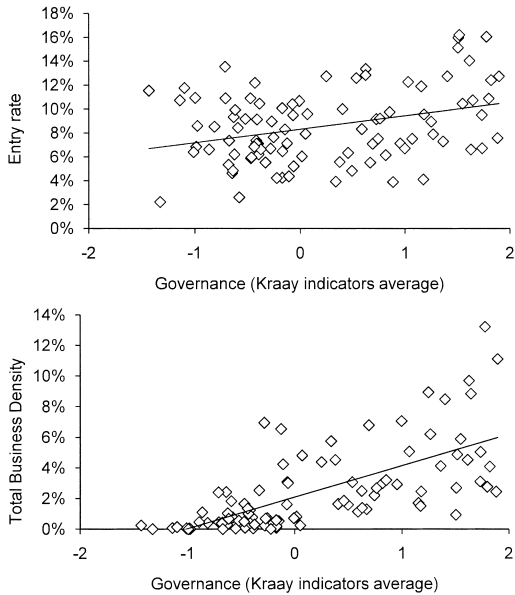
In order to study the relation between governance and entrepreneurship, we use the average of the six Kaufmann, Kraay, and Mastruzzi (2006) governance indices: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. The data show a strong and significant relationship between entry rates and good governance (figure 4.9).

This result suggests that a stable business environment should be expected to foster private-sector development and growth. The case of Peru shows the sensitivity of new firm registrations to political changes (figure 4.10).



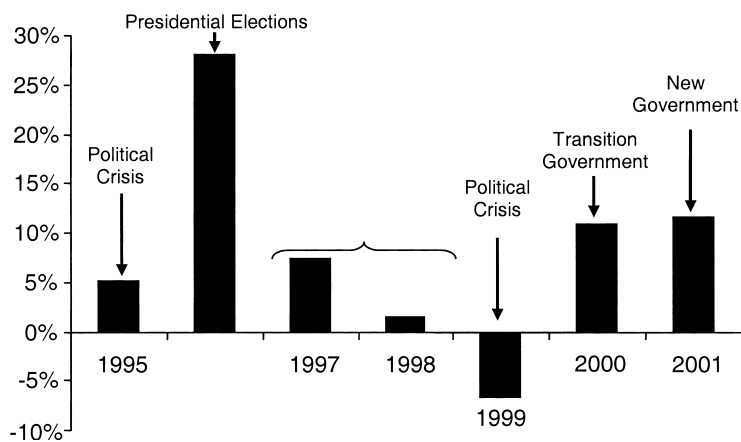
**Fig. 4.8 Business creation and the informal sector by country, average 2000 to 2008**

*Source:* World Bank Group Entrepreneurship Database (2008) and World Bank (2006).



**Fig. 4.9 Entry rates and Kaufmann et al. (2006) governance indicators by country, average 2000 to 2008**

*Source:* World Bank Group Entrepreneurship Database (2008) and World Bank (2008).



**Fig. 4.10 Entrepreneurship and political stability: The Peruvian case**

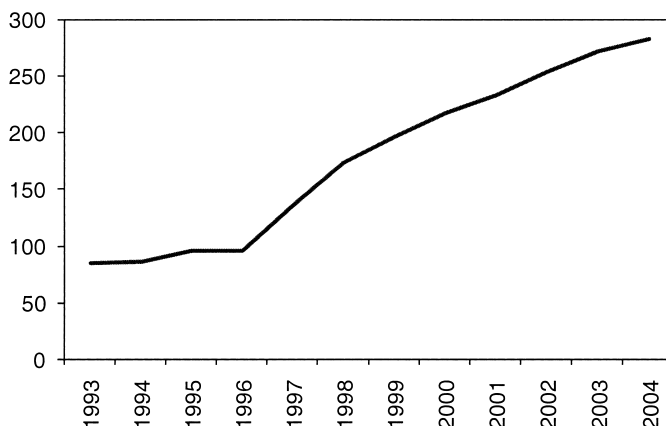
Source: World Bank Group Entrepreneurship Database (2008) and World Bank (2009).

Note: Bars show the year-on-year percentage increase of new businesses.

Case-based evidence also suggests that government policy in the areas of taxation and enforcement can have a large impact on business registrations. For instance, in the posttransitional period (1992 to 1996), the Ukraine imposed high marginal tax rates, tax legislation was vague and nonspecific (i.e., included complex exemptions and deductions), regulators did not enforce compliance, and the system was perceived as unfair and corrupt (Kravchuk 2002). However, in July 1996, the government enacted a simplified procedure for patenting many types of entrepreneurial activities, and in September 1998, it enacted a simplified (unified) system of taxation, accounting, and reporting for small business entities (with less than fifty employees and less than 1 million UAH in revenue).<sup>15</sup> These reforms have contributed to the increase in new small business registrations (figure 4.11). Interestingly, the increase in registrations of new small enterprises happened mostly due to the establishment of newly operating enterprises—91.7 percent in 2004—rather than the splitting of larger enterprises (1.12 percent in 2004), established to take advantage of the small business tax exemptions.

Taxation levels have also been found to be related to new firm formation in developed countries. For instance, a study of manufacturing-firm registrations in Spain's fifty provinces between 1981 and 1995 found a correlation of -15.3 percent (marginally significant at the 10 percent level) between the number of new registrations per capita and production taxes. The cor-

15. Law of Ukraine, "On Patenting Certain Kinds of Entrepreneurial Activity," July 1, 1996; Decree of the President of Ukraine, "On the Simplified System of Taxation, Accounting and Reporting for Small Business Entities," September 9, 1998.



**Fig. 4.11** Number of small businesses in Ukraine (1,000s)

*Source:* National Statistics, Ukraine (2005).

relation with provincial per capita income, by contrast, was +47.3 percent (Sánchez Moral 2005, 114–27).

#### 4.6.5 Multivariate Analysis Using the Panel Data

We use as predictors of entrepreneurial activity the country characteristics defined in table 4.1. The sample for the analysis is a pooled, cross-sectional, longitudinal, unbalanced panel of 197 observations across seventy-six countries, with nonmissing explanatory variables for 2003, 2004, and 2005.<sup>16</sup> We use three measures of entrepreneurship as our dependent variables: business density, entry rates, and entry per capita, which is defined as new firms as a percentage of the active population. While entry rates proxy new company formation compared to the existing stock of existing companies, entry per capita captures new company formation relative to the population, thus capturing the extent to which a country was entrepreneurial during a given year, regardless of the previous (or cumulative) history of net company formation. Thus, it measures a different aspect of entrepreneurial activity.

Our explanatory variables include three indicators of the business environment, which vary over time. First, we proxy the barriers to entry by the number of procedures to start a business and the rigidity of employment index and by an indicator of governance. We control in all analyses for policy stability, the ratio of domestic credit to GDP, and GDP per capita.

16. We exclude from this analysis six countries that are not included in the Doing Business Database. We use this shorter period of time because of the maximum coverage of registration and macroeconomic data.



**Table 4.1** Definitions and summary statistics, panel of seventy-six countries, 2003 to 2005

Variable	Observations	Description	Mean	Standard deviation
Entry	197	New registered corporations during year $t$ divided by existing stock of corporations as of end of year $t - 1$	0.09	0.04
Entry per capita	197	New registered corporations during year $t$ divided by population (000s)	34.43	33.51
Business density	197	Stock of corporations as of end of year $t$ divided by population (000s)	3.25	4.06
Entry procedures	197	Log of number of entry procedures (Doing Business Database)	2.07	0.49
Rigidity of employment	197	Rigidity of employment index (Doing Business Database)	36.97	16.85
Governance	197	Average of governance indicators (Kaufmann et al. 2006)	0.33	1.00
Domestic credit (% GDP)	197	Domestic credit divided by GDP (World Bank statistics)	62.01	53.69
GDP per capita	197	Log of GDP per capita, purchasing power parities, 2000 international dollars (World Bank)	9.01	1.13

Source: World Bank Group Entrepreneurship Database and World Bank (2007).

Table 4.2 shows the correlation matrix, with asterisks identifying statistical significance. These univariate tests show that business density (column [3]) is significantly related to all country characteristics; however, entry rates are more sensitive to the business environment and governance. We also find large and significant correlations among our dependent variables.

We use two different estimation methods: random-effects generalized least squares (GLS) and population-averaged generalized estimating equations (GEE). In the latter, a year trend was added as a control. In fixed effects specifications (not shown), most of the variation in the sample was accounted for by the country dummies, thus providing no additional insight into the determinants of new firm registrations.

Table 4.3 presents the regression results based on the panel data. We find that entry rates are significantly related to better governance, even after controlling for GDP per capita. This finding is robust to the estimation method used (i.e., GLS or GEE). This suggests that government corruption and enforcement is the driving force in the decision of entrepreneurs to join the formal sector. Next, we find that entry per capita is significantly related to the number of entry procedures, access to finance, and economic development. This measure of new firm formation is independent of the previous history of entrepreneurship; hence, it is not surprising that GDP per capita turns out to be an important predictor. Finally, we find that business density is strongly

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**Table 4.2 Correlation matrix, panel of seventy-six countries, 2003 to 2005**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Entry (1)							
Entry per capita (2)	0.2728***						
Business density (3)	0.574***	0.8731***					
Entry procedures (4)	-0.2425***	-0.5545***	-0.5505***				
Rigidity of employment (5)	-0.2566***	-0.1457**	-0.2573***	0.3153***			
Governance (6)	0.3721***	0.5286***	0.5431***	-0.6322***	-0.2811***		
Domestic credit (% GDP) (7)	0.1297*	0.3988***	0.3472***	-0.5107**	-0.3475***	0.7031***	
GDP per capita (8)	0.3096***	0.5504***	0.4753***	-0.5349***	-0.1633**	0.8173***	0.7066***

Source: World Bank Group Entrepreneurship Database and World Bank (2007).

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

**Table 4.3** Regressions predicting entry rates and density, panel of seventy-six countries, 2003 to 2005

	Entry		Entry per capita		Density	
	[GLS] (1)	[GEE] (2)	[GLS] (3)	[GEE] (4)	[GLS] (5)	[GEE] (6)
Procedures	-0.0080 [-0.96]	-0.0044 [-0.53]	-5.0875 [-1.84]*	-8.6206 [-1.62]	-1.6417 [-3.06]***	-1.2862 [-1.94]*
Rigidity employment	-0.0003 [-1.11]	-0.0002 [-0.83]	-0.1003 [-0.81]	-0.0577 [-0.34]	-0.0125 [-0.64]	-0.0232 [-1.11]
Governance	0.0125 [1.85]*	0.0178 [2.56]**	-1.9257 [-0.62]	3.8461 [0.78]	0.6388 [1.21]	1.3942 [2.31]**
Domestic credit	-0.0001 [-1.49]	-0.0001 [-1.61]	0.0665 [2.15]**	0.0278 [0.50]	0.0008 [0.14]	-0.0045 [-0.65]
GDP per capita	0.0058 [1.00]	0.0028 [0.48]	16.4294 [5.10]***	10.9955 [2.51]**	1.1195 [2.24]**	0.6106 [1.15]
Year		0.0047 [3.94]***		1.0996 [1.62]		0.2736 [3.17]***
Constant	0.0682 [1.31]	-9.4265 [3.91]***	-101.469 [-3.45]***	-2,250.14 [-1.66]*	-3.0723 [-0.68]	-547.17 [-3.17]***
Observations	197	197	197	197	197	197
R <sup>2</sup>	0.19		0.32		0.34	
Wald $\chi^2$		38.89***		56.42***		63.67***

Source: World Bank Group Entrepreneurship Database and World Bank (2007).

Note: Variables are defined in table 4.1; z-scores are shown in brackets beneath regression coefficient.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

and significantly related to lower barriers to entry and better governance (in the GEE model). These findings spotlight the importance of the business environment in formal private-sector development and growth.<sup>17</sup>

#### 4.7 Business Registries and Electronic Business Registration (EBR)

Many governments have taken action to make it easier for entrepreneurs to start a new firm, such as deregulating and automating the registration process, which can reduce time and cost for entrepreneurs.<sup>18</sup> A larger number of formally registered firms is associated with a smaller informal sector, which

17. We also added the corporate tax rate and the GDP growth rate to assess the impact of taxation and the business cycle, respectively. These two variables were not significant in any of the models. We also added to the models in table 4.3 the interaction between GDP per capita and governance. This term reached significance, with a positive sign, only in model (5). However, the main effect of governance continued to be insignificant. This evidence seems to indicate that good governance is especially conducive to higher density in high-income countries.

18. Cross-country data on the cost, time, and number of procedures required to register a business is available in the Doing Business report, available at: [www.doingbusiness.org](http://www.doingbusiness.org).

1 is associated with slower growth and employment and lower tax revenue.<sup>19</sup>  
2 Furthermore, formal sector registration provides firms access to a VAT sales  
3 ID, which offers greater domestic and international sales opportunities. Leg-  
4 islative reforms to the registration process have been shown in countries  
5 around the world to increase entry and small business employment (i.e.,  
6 Mexico and Russia).<sup>20</sup> An example of legislative reform to encourage formal  
7 entrepreneurship and the growth of new and small firms is to introduce on-  
8 line electronic registration systems. Automating the registration process also  
9 helps provide lenders, suppliers, and customers greater access to information  
10 on the financial health, management, and ownership of registered firms,  
11 which encourages greater access to financing and growth.

12 In order to have a better understanding of the business registration pro-  
13 cess and the impact of different typologies of registries in the ease of doing  
14 business, the 2008 World Bank Group Entrepreneurship Survey added a  
15 special section related to the business registries. Seventy-five countries par-  
16 ticipated in this section, providing valuable information about the registra-  
17 tion processes, information requirements, and the availability of e-registries  
18 and e-distribution, among other issues.

#### 19 4.7.1 Business Registry Typology

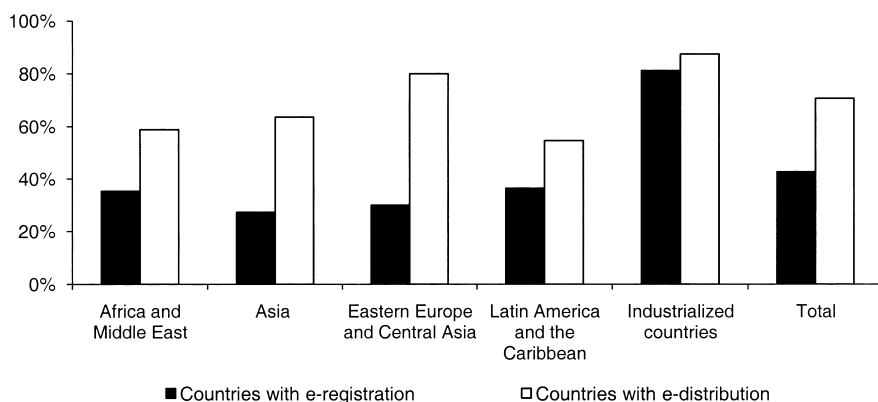
21 In order to assess the different degrees of modernization of business regi-  
22 stries, the survey collected information on the availability of electronic regi-  
23 stration, which broadly includes the automation and computerization of  
24 local registrars, the ability to register over the Internet, and the electronic dis-  
25 tribution of data via the Internet. However, this does not necessarily include  
26 on-line authentication or integration of e-government services.<sup>21</sup> Figure 4.12  
27 shows the deep disparity found between industrialized and developing coun-  
28 tries. While on average, only 32 percent of developing countries have imple-  
29 mented an electronic registry, more than 80 percent of the industrialized  
30 countries have already achieved complete automation. However, in most  
31 regions, over 60 percent of countries make registrar information available  
32 over the Internet. This discrepancy might be explained by the fact that elec-  
33 tronic distribution is less expensive and less difficult to implement and does  
34 not require electronic signature or security laws or complex e-government  
35 platforms.

36 Moreover, the registries were questioned on the information that busi-  
37 nesses were required to file, as well as on any other information they reg-

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40 19. For example, see Djankov et al. (2002).

41 20. See Kaplan, Piedra, and Seira (2007) and Yakovlev and Zhuravskaya (2007) for studies  
42 on the effect of registration reform on entrepreneurship in Mexico and Russia, respectively.

43 21. For further information on EBR, see A. Lewin, L. Klapper, B. Lanvin, D. Satola, S.  
44 Sirtaine, R. Symonds and C. Zappala, "Implementing Electronic Business Registry (e-BR)  
Services: Recommendations for Policy Makers Based on the Experience of EU Accession  
Countries" (World Bank, Washington, DC, 2007).



**Fig. 4.12 Electronic business registration by region**

*Source:* World Bank Group Entrepreneurship Database (2008).

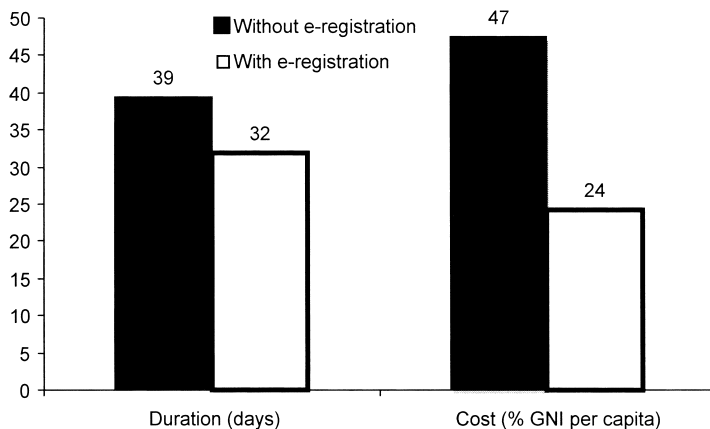
istered besides business incorporations. We find deep disparities among regions (not shown). When it comes to the information the companies are required to register, the majority of them oblige businesses to report closures and annual financial statements. Nevertheless, not all countries have the mechanisms to enforce these requirements. In addition, while business registries in industrialized countries tend to stand alone, and only in some cases do they register Internet domains, developing countries tend to have registries where businesses, real estate, Internet domains, and patent registrations coexist.

#### 4.7.2 Impact of e-Registry on the Ease of Doing Business

Once the typology of the registry is defined, the survey then aims to understand how different typologies impact entrepreneurship and the ease of doing business. In this regard, the data show that countries with e-registries tend to have shorter incorporation time frames, with less bureaucratic and cheaper procedures. For instance, the cost of incorporating a new business (as a percentage of gross national income [GNI] per capita) is on average almost 50 percent lower in countries with e-registries, as shown in figure 4.13.

#### 4.7.3 Impact of e-Registration on Entry Rates

The data also reveal a significant role of modernized business registries in facilitating business creation. We find higher entry rates—defined as the number of new registrations divided by the stock of existing registrations—in those countries with e-registries compared to the ones without them. However, we cannot dismiss reverse causality—that is, that registry modernization is demand driven by a more robust private sector.



**Fig. 4.13 e-Registration and the investment climate**

*Source:* World Bank Group Entrepreneurship Database (2008).

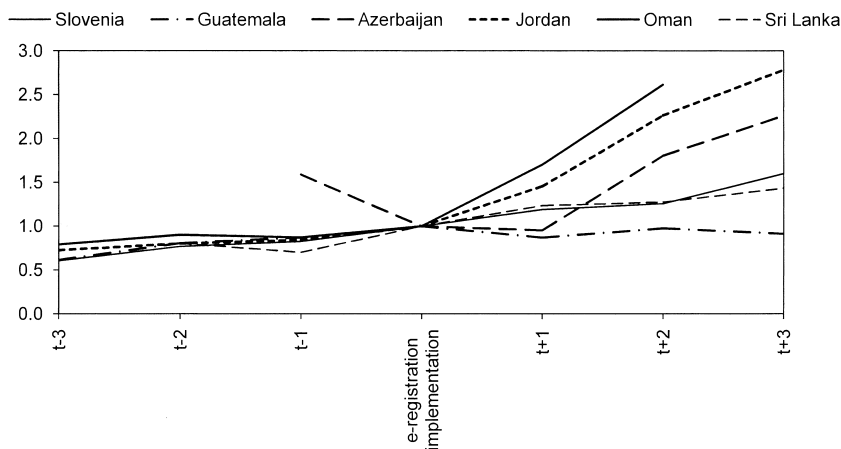
#### 4.7.4 The Impact of Electronic Registration: Guatemala, Sri Lanka, and Jordan

The modernization of business registries is an important step in a successful private-sector development strategy. If appropriate political and economical reforms take place, the country will require an efficient registry that can satisfy new businesses' demands. Otherwise, the registry will become a bottleneck for entrepreneurs, not only encumbering the business creation process but also discouraging the transition between the informal and formal sectors.

Our data suggest that the modernization process of business registries is usually a long process framed inside a larger national private-sector development strategy. On average, countries draft five-year plans, and the goal is to implement electronic registration and distribution.

The data suggest a relationship between the implementation of electronic registration and an increase in the number of new businesses registered. Countries like Slovenia, Guatemala, Azerbaijan, Jordan, Oman, and Sri Lanka had increases of more than 30 percent in new density rates after the full implementation of electronic registries (figure 4.14). These increases cannot be attributed solely to the improvements in the countries' business registries, but it can be stated that the modernization of their business registries was the culmination of a successful implementation of regulatory reforms that when taken together produced a significant and positive impact in the ease of doing business in these countries.

For example, Guatemala began its modernization plan in 1996, achieving e-registration and e-distribution in 1999. Jordan, following a 1997 law, created a new entity in charge of business registration and entrepreneurship



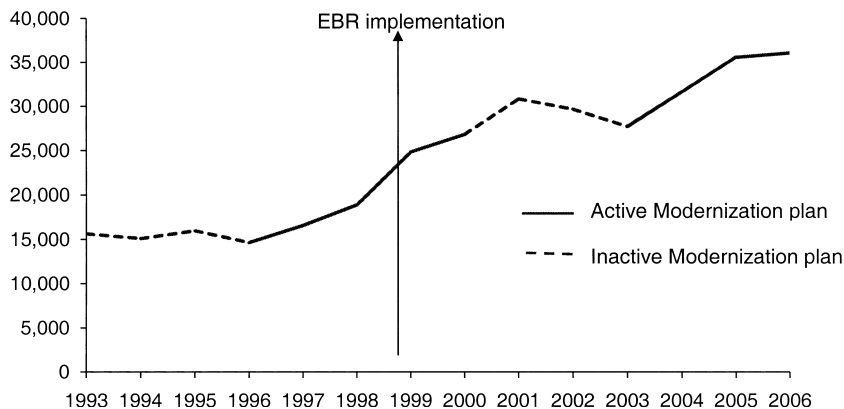
**Fig. 4.14 Impact of e-registration implementation**  
 Source: World Bank Group Entrepreneurship Database (2008).

promotion that fully implemented the electronic registration in 2002. Sri Lanka, on the other hand, partially implemented its electronic business registration in 2001 in order to prepare for the new Companies Act of 2007.

In addition, in several countries, the business registry has played a central role in private-sector development strategies. Instead of being a passive actor, the registries have in many cases been entrusted with the task of fostering entrepreneurship through a variety of activities. Among others tasks, they provide an advisory role in training potential entrepreneurs, they are in charge of the dissemination of information, they promote foreign investment, they reduce bureaucratic barriers, and so on.

Since the creation of the business registry of Guatemala in 1971, its structure remained almost unchanged for two decades. An average of seven employees and a couple of mechanical typewriters composed its organizational structure until 1995. In 1996, under a new administration, the business registry undertook an ambitious modernization plan. The initial program, divided into four phases, would be accomplished with the implementation of e-registry and e-distribution in 1999 (figure 4.15).

The plan included not only the modernization of the business registry but also the entrustment of the registry as the central actor for the new private-sector development strategy. The registry would gain an active role in the promotion of entrepreneurship through activities such as the training of entrepreneurs, investment promotion, dissemination, and so forth. As shown in figure 4.2, the modernization of the business registry and the new economic policies had a direct impact on the number of new businesses registered, with an increase of 40 percent on new registrations. In comparison, the three-year period (2000 to 2003) during which the modernization



**Fig. 4.15 EBR implementation in Guatemala**

*Source:* World Bank Group Entrepreneurship Database (2008).

strategy was paralyzed due to a change in the administration resulted in a sharp 11 percent decline in the number of new businesses registered.

In 2003, the new administration reactivated the second modernization plan for the business registry. A number of new and ambitious goals were defined, such as an increase in the number of registration locations, the reduction of necessary steps for business incorporation, and the promotion of foreign investment. This second stage had a remarkable impact on the number of new businesses incorporated and increased the number of new businesses registered per year by almost 25 percent. Moreover, the number of monthly electronic transactions—including incorporations, closures, re-registrations, and consultations—has climbed to over 3,400, representing more than 50 percent of the total number of monthly transactions.

#### 4.8 Conclusion

The 2008 World Bank Group Entrepreneurship Survey provides a new set of indicators to study the relationship between business creation, the investment climate, and economic development. Preliminary findings suggest that a higher level of entrepreneurship significantly relates to greater economic development, formal sector participation, and better governance. For instance, countries with lower barriers to entry and less corruption generally see higher percentages of firm registrations and entry. Consistent with the findings of Brander et al. (1998) for the Canadian economy, we find that in the eighty-two countries included in our analysis, entrepreneurship—measured both in terms of new registrations and entry rates—is also positively correlated with economic growth. This might suggest that countries that facilitate entrepreneurship see commensurate increases in overall economic



1 growth and an expansion of the formal sector. Alternatively, it might be the  
 2 case that periods of economic expansion encourage optimism and entrepre-  
 3 neurship; for instance, individuals might be willing to leave their job security  
 4 to start a business if they are more confident they could find another job if  
 5 their business fails. We hope to continue collecting data on firm creation over  
 6 time, which will allow us to better understand how the private sector behaves  
 7 over business and financial cycles. The current data limitations prevent us  
 8 from observing the evolution of new entrants over time in order to assess  
 9 their longevity and their growth. Furthermore, entrepreneurship indicators  
 10 can be used to complement other World Bank group indicators—such as the  
 11 Doing Business indicators—in the development of policy recommendations  
 12 to promote private-sector development and growth.

13 In addition, the data collected could become the base for further studies  
 14 in business ecology. For instance, the distribution of businesses per sector  
 15 could be used for a deeper research paper aimed to answer questions such  
 16 as which kind of businesses are easier to incorporate in challenging business  
 17 environments, which sectors are interdependent on one another, and which  
 18 ones contribute more to a country's economic development.

## 22 Appendix

### 23 *Sources by Country*

24 <i>Country</i>	25 <i>Source</i>
26 Albania	27 Boga and Associates, Attorneys at Law
28 Algeria	29 Centre National du Registre du Com- 30 merce
31 Argentina	32 INDEC
33 Armenia	34 National Statistical Service
35 Australia	36 Business Demographics Section
37 Austria	38 Bundesministerium für Justiz
39 Azerbaijan	40 Ministry of Justice
41 Bangladesh	42 Registrar of Joint Stock Companies and 43 Firms (RJSC)
44 Belgium	45 Business Register
Bolivia	Fundación para el Desarrollo Empresarial
Bosnia and Herzegovina	IFC
Botswana	Registrar of Companies
Canada	Statistics Canada
Chile	Servicio de Impuestos Internos
China	Ministry of Commerce, State Administra- tion for Industry and Commerce

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1	Colombia	Confecamaras
2	Congo, Democratic Republic	Djunga and Risasi, Attorneys at Law
3	Costa Rica	Registro Nacional
4	Croatia	Financial Agency (FINA)
5	Curacao	Curacao Chamber of Commerce
6	Cyprus	Ministry of Commerce, Industry and
7		Tourism
8		Department of Registrar of Companies
9		and Official Receiver
10	Czech Republic	Ministry of Justice, Czech Statistical
11		Office
12	Denmark	Danmarks Statistik
13	Egypt	Commercial Registry Authority
14	El Salvador	Dirección del Registro de Comercio
15	Estonia	Centre of Registers, Ministry of Justice of
16		Estonia
17	Finland	Business Register
18	France	Institut National de le Statistique et des
19		Etudes Economiques
20	Georgia	Ministry of Economic Development
21	Germany	Statistisches Bundesamt
22	Ghana	Registrar-General's Department, Ministry
23		of Justice
24	Greece	Athens Chamber of Commerce (ACCI)
25	Guatemala	Registro Mercantil
26	Haiti	Direction Général des Impôts (DGI)
27	Hong Kong, China	Companies Registry, Inland Revenue
28		Department
29	Hungary	Hungarian Central Statistical Office,
30		Business Register Unit
31	Iceland	Statistics Iceland
32	India	Dun and Bradstreet Information Services
33		India Private Limited
34	Indonesia	Ministry of Trade
35	Ireland	Companies Registration Office
36	Israel	Registry of Companies
37	Italy	InfoCamere
38	Jamaica	Registry of Companies
39	Japan	Ministry of Justice
40	Jordan	Companies Control Department
41	Kazakhstan	Agency of Statistics of the Republic of
42		Kazakhstan
43	Kenya	Iseme, Kamau and Maena Advocates
44	Latvia	Ministry of Justice

1	Lebanon	Etude Badri et Salim El Meouchi
2	Lithuania	State Enterprise Center of Registers,
3		Department of Register of Legal
4		Entities
5	Luxembourg	Répertoire des Entreprises
6	Macedonia, FYR	Macedonia Statistics Office
7	Madagascar	Direction Générale Statistique, Ministère
8		de l'économie, des finances et du
9		budget
10	Malawi	Registry General
11	Malta	Registrar of Companies
12	Mexico	Mexican Statistical Agency and Labor
13		Ministry
14	Moldova	State Registration Chamber
15	Morocco	Office Marocain de la Propriété
16	Mozambique	National Director of the Registry and
17		Notary Offices, Central Investment
18		Center
19	The Netherlands	Dutch Association of Chambers of
20		Commerce
21	New Zealand	New Zealand Companies Office
22	Nigeria	Corporate Affairs Commission
23	Norway	Brønnøysundregistrene
24	Oman	Company Registrar's Office, Department
25		of Industry
26	Pakistan	Securities and Exchange Commission
27		(SEC)
28	Panama	Instituto Nacional de Estadística
29	Peru	Ministerio de Economía y Finanzas
30	Poland	World Bank
31	Portugal	Centro de Formação dos Registos e do
32		Notariado, Ministry of Justice
33	Romania	Registrar of Corporations, Office of the
34		Attorney General
35	Russia	Russian SME Resource Center
36	Senegal	Agence Nationale de la Statistique et de la
37		Démographie (ANSD)
38	Serbia and Montenegro	Department for Statistical Registers and
39		Standards Accounting and Corporate
40		Regulatory Authority (ACRA)
41	Singapore	Business Statistics Division, Singapore
42		Department of Statistics
43	Slovak Republic	Analyses and Information Service Unit,
44		Statistical Office of the Slovak Republic

1	Slovenia	AJPES
2	South Africa	Companies and Intellectual Property
3		Registration Office
4	Spain	Registro Mercantil Central de Madrid
5	Sri Lanka	Board of Investment of Sri Lanka,
6		Registrar of Companies
7	Sweden	Swedish Companies Registration Office
8	Switzerland	Eidg, Amt für das Handelsregister
9	Syria	Federation of Syrian Chambers of
10		Commerce
11	Tanzania	Business Registration and Licensing
12		Authority (BRELA)
13	Thailand	World Bank
14	Togo	Direction Générale de la Statistique et de
15		la Comptabilité Nationale du Togo
16	Tunisia	Répertoire National d'entreprises
17	Turkey	Turkish Statistical Institute
18		(TURKSTAT)
19	Uganda	Registrar General's Department
20	Ukraine	State Statistics Committee of Ukraine
21	United Kingdom	International Relations Manager at the
22		Companies House
23	United States	D&B
24	Yemen	Deputy Minister for Trade Affairs
25	Zambia	World Bank
26	Zimbabwe	Office of the Chief Registry of Deeds and
27		Companies, Ministry of Justice

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