INTERNATIONAL FINANCIAL INTEGRATION AND ENTREPRENEURIAL FIRM
ACTIVITY

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ABSTRACT

We explore the relation between international financial integration and the level of entrepreneurial activity in a country. We use a unique firm level data set of approximately 24 million firms in nearly 100 countries in 2004 and 1999, which enables us to present both cross-country and industry level evidence. We establish robust cross-country correlations between increased international financial integration and the activity of entrepreneurs using various proxies for entrepreneurial activity such as entry, size, and skewness of the firm-size distribution and de jure and de facto measures of international capital integration. We then explore causal channels through which foreign capital may encourage entrepreneurship. We find evidence that entrepreneurial activity in industries which are more reliant on external finance is disproportionately affected by international financial integration, suggesting that foreign capital may improve access to capital either directly or through improved domestic financial intermediation. Second we find that entrepreneurial activity is higher in industries which have a large share of foreign firms or in vertically linked industries.

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1 Introduction

In this paper we explore the relation between a country's level of international financial integration, that is, its links to international capital, and the level of entrepreneurial activity. Researchers have stressed the roles of entrepreneurship, new firm activity, and economic dynamism in economic growth.[1] The empirical effects of international capital mobility on firm dynamism and entrepreneurial activity, however, have received little attention in the literature albeit the intense academic and policy debates. Using different measures commonly employed in the literature in a new firm level data set in nearly 100 countries in 1999 and 2004, we find higher entrepreneurial activity in more financially integrated countries and countries with fewer restrictions on international capital flows. We further explore various channels through which international financial integration can affect entrepreneurship (a foreign direct investment channel and a capital/credit availability channel) and provide consistent evidence of our results.

The theoretical effects of international financial integration on entrepreneurship are ambiguous. The rapid rate of global financial integration, perhaps most directly observed in the explosive growth of foreign direct investment (FDI), has raised concerns in both the public and academic communities about potential negative effects of international capital on the development of domestic entrepreneurs with negative consequences to the economy as a whole. It has been argued that foreign enterprises crowd out local efforts, and thus impart few, if any, benefits to the local economy. Grossman (1984) shows that international capital, and in particular FDI, can lead to the crowding out of the domestic entrepreneurial class.[2] Hausmann and Rodrik (2003) argue that laissez-faire and in particular openness can lead to too little investment and entrepreneurship ex-ante. Similar concerns were raised by an earlier development literature. Hirschman (1958), for example, warned that in the absence of linkages, foreign investments can have negative effects on an economy (the so called 'enclave economies'). More generally, researchers have argued that in the presence of pre-existing distortions and weak institutional settings, international capital mobility can increase the likelihood of financial crises; higher volatility and risk can reduce entrepreneurship and innovative efforts in a country. Some scholars have asserted that open capital markets may be detrimental to economic development (see Bhagwati (1998), Rodrik (1998), and Stiglitz (2002)). As Eichengreen (2001) notes, "[C]apital account liberalization, it is fair to say, remains one of the most controversial and least understood policies of our day."

On the other hand, access to foreign resources can enable developing countries with little domestic capital to borrow to invest, and resource constrained entrepreneurs to start new firms. Indeed, availability of funds has been shown to be an important determinant of entrepreneurship.[3] International financial

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[1] Entrepreneurship and firm creation are often described as the keys to economic growth (Schumpeter 1942). See Aghion and Howitt (1998) for an exhaustive survey of Schumpeterian growth models.

[2] In addition, if foreign firms borrow heavily from local banks, instead of bringing scare capital from abroad, they may exacerbate domestic firms' financing constraints by crowding them out of domestic capital markets; see Harrison, Love and McMillian (2004) and Harrison and McMillian (2003).

[3] Evans and Jovanovic (1989) show theoretically that wealth constraints negatively affect entrepreneurship. Evans and Leighton (1989) find evidence that credit constraints are a critical factor in the founding and survival of new firms.

integration should also facilitate international risk sharing and thus lower the cost of capital for many developing countries, and, by fostering increased competition, improve the domestic financial sector with further benefits to entrepreneurship.[4] Furthermore, researchers have stressed the potential positive role of knowledge spillovers and linkages from foreign firms to domestic firm activity and innovation.[5]

Whether international capital mobility is fostering or destroying entrepreneurship is a critical question in academic and policy circles. Yet, empirical analysis of the effects of international capital mobility on entrepreneurial activity and firm dynamism are all but absent from the literature. This is largely due to the difficulty of obtaining an international data set sufficiently comprehensive to support studies of firm dynamism in both developed and developing countries. As Bartelesman, Haltinwanger and Scarpetta (2005) note, at the firm level, no comprehensive survey exists with data for multiple countries, nor are there international data sets that contain micro-level data for comprehensive samples of firms.[6]

We overcome this problem by using a new data set of private firms in 98 countries in 1999 and 2004. Our data set contains more than 24 million observations of both listed and unlisted firms across a broad range of developed and developing countries at different stages of international financial integration. Over the last decades, barriers to international capital mobility have fallen in developed countries and diminished considerably in many developing countries. But despite recent trends, restrictions on international financial transactions are still quantitatively important for many countries, and *de facto* flows remain low relative to those predicted by standard models, in particular, for developing countries.[7] Limitations with the data notwithstanding, the coverage of the data enables us to study the differential effects of restrictions on capital mobility on entrepreneurial activity.

Identifying the effects of international financial integration on entrepreneurial activity is, however, not an easy task. There is no one definition of entrepreneurship or what it entitles, hence, no one variable to measure it.[8] Therefore, we analyze a variety of measures commonly used in the literature as imperfect proxies for various aspects of entrepreneurial activity.[9] We focus on firm entry, average firm size and skewness of the firm-size as these measures better capture firm activity but also consider age and vintage (a size-weighted measure of the average age of the firm). The literature distinguishes between *de jure* indicators of financial integration, which are associated with capital account liberalization policies, and *de*

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[4] Increased risk sharing opportunities might encourage entrepreneurs to take on more total investments, or shift production activities towards higher-risk, higher-return projects; see Obstfeld (1994), Acemoglu and Zilibotti (1997).

[5] Markusen and Venables (1999) propose a model that suggests that FDI will be associated with firm turnover. Although entry of foreign firms increases competition and, initially, forces the exit of domestic firms, in the longer run multinationals might stimulate local activity through linkages with the rest of the economy. See also Rodriguez-Clare (1996) for a formalization of the linkage effects between foreign and domestic firms.

[6] Bartelesman, Haltinwanger and Scarpetta (2005) review the measurement and analytical challenges of handling firm level data and attempt to harmonize indicators of firm dynamics for a number of countries. Their harmonized data, however, is available for few countries (mostly industrialized) and for many countries that data is confidential.

[7] See Table 3 for stylized facts, and Alfaro, Kalemli-Ozcan, and Volosovych (2006) for a comprehensive analysis of the main trends related to international capital flows in the last thirty years.

[8] Different views in the literature have emphasized a broad range of activities including innovation (Schumpeter, 1942), the bearing of risk (Knight 1921), and the organization of the factors of production (Say, 1803).

[9] See Desai, Gompers, and Lerner (2003), Klapper, Laeven, and Rajan (2005), and Black and Strahan (2002).

facto indicators, which are associated with actual capital flows.[10] We use both, as they capture different aspects of international capital mobility and financial integration. We also control for other determinants found in the literature to affect the level of entrepreneurship such as local development level, market size, and institutional constraints.

The richness of our data enables us to study the relationship between international financial integration and entrepreneurial activity at two levels. First, we study the cross-country properties of our data between international financial integration and our measures of entrepreneurship. Using data for 1999 and 2004 we find countries with more relaxed capital controls (de jure integration) or receiving a higher volume of foreign capital (de facto integration) were on average more likely to experience greater entrepreneurship proxied by increased activity among new and small firms. Our results are both statistically and economically significant and are robust to different measures and specifications. In addition, we look at industries within countries using the methodology of Rajan and Zingales (1998) and Klapper, Laeven and Rajan (2005) which focuses on cross-industry, cross-country interaction effects to determine whether the effect of foreign capital is higher in industries which have a higher natural level of entrepreneurship using the Unites States as a proxy for the "natural activity" in an industry. We find that entry and skewness of the firm size distribution are relatively higher in naturally-high-activity industries when the country has relatively high international capital mobility. The results confirm our previous findings. While we are reluctant to over-interpret these simple correlations, they do present to our knowledge the first cross-country evidence of the effect of foreign capital on entrepreneurship.

The nature of our data further allows us to consider various channels through which foreign capital might affect entrepreneurship. First, international financial integration might increase capital in the economy and improve its intermediation (a capital/credit availability channel). Although small firms might not be able to borrow directly in international markets, improved financial intermediation and other firms' (and the government's) international borrowing might ease financing constraints until some of the additional capital finds its way to new firms. Second, local firms might benefit from spillovers and linkages from foreign firms (FDI channel). We test for the former channel by exploring whether entrepreneurial activity is higher in firms that are more dependent on external finance as defined by Rajan and Zingales (1998). The evidence does indeed suggest this to be case. In terms of the FDI channel, our data set has the advantage of enabling us to distinguish between foreign and local firms. We find that entrepreneurial activity is higher in industries which have a large share of foreign firms or in vertically linked industries. Our results are consistent with our previous findings.

Important concerns in our analysis are related to sample biases, policy endogeneity and omitted variables biases in terms of establishing the causality between international financial integration and proxy variables of entrepreneurial activity. Capital account liberalization and entrepreneurial activity might, for example, be positively correlated with an omitted third factor. If that factor was a government policy—for

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[10] See Prasad et al. (2003) for a discussion of the different indices and measures used in the literature.

example, a policy-maker anticipating improvements in external conditions liberalizes a country's capital account—we would observe capital liberalization and intensified firm activity. We take different steps to mitigate these concerns. We control for other variables that might affect entrepreneurial activity. We believe the extensive robustness analyses we perform eases concerns about potential omitted variables. We also look at different proxies for entrepreneurial activity and capital mobility. We analyze firm/industry characteristics as opposed to country characteristics, and test effects controlling for the different sectors. Even if firm dynamism is correlated because of an omitted common factor, it is hard to argue that the latter affects the relation between capital flows and entrepreneurial activity in a systematic way for firms in sectors with different characteristics. Although, naturally, it is impossible to control for all possible variables that might be correlated with international financial integration and firm activity, the results using two sample periods and the Rajan and Zingales (1998) methodologies further ease concerns that our results are driven by these biases. Finally, we feel more comfortable in interpreting our correlation as causation in as much as mechanisms consistent with such an interpretation are supported by the empirical evidence. However, even after all of these tests, our estimates should be interpreted with caution.

We noted earlier the scarcity of empirical work on the effects of international capital mobility on entrepreneurial activity. A number of papers have studied how different aspects of capital account liberalization affect a firm's financing constraints and the cost of capital. Chari and Herny's (2004) examination of the effect of stock market liberalization in 11 emerging markets suggests that publicly-listed firms that become eligible for foreign ownership experience a significant average stock price revaluation and significant decline in the average cost of capital. Harrison, Love and McMillian (2004) find FDI inflows to be associated with a reduction in firms' financing constraints while restrictions on capital account transactions negatively affect their financial constraints.[11] Gorg and Strobl (2002) find foreign presence to be associated with higher entry in Ireland. Recent work has studied the role of foreign banks (see Detragiache, Tressel and Gupta (2006) for survey and empirical finding). These studies, in particular those examining developing countries, tend not to use firm level data due to availability constraints. Overall, our results are consistent with their findings.

Our paper also relates to the research on the effects of the external environment on entrepreneurship. Bertrand and Kamarz (2002) study of the expansion decisions of French retailers following new zoning regulations in France. Scarpetta et al. (2002), Desai, Gompers, and Lerner (2003), Klapper, Laeven, and Rajan (2005), and Kumar, Rajan, and Zingales (1999) have studied different aspects of the external environment on firm creation and entrepreneurship in a cross-section of European countries.[12] Other work on aspects of entrepreneurship include Johnson et al.'s (2002) finding that

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[11] The authors use large publicly traded firm level data for 38 countries and 7079 firms from the Worldscope data base. In contrast, Harrison and McMillian (2003) find that in the Ivory Coast for the period 1974-1987, borrowing by foreign firms aggravated domestic firms' credit constraints.

[12] Scarpetta et al. (2002) use firm level survey data from OECD to study exit and entry. They find that higher product and labor regulations are negatively correlated with entry for small and medium sized firms in OECD. Using the

investment by entrepreneurs is lower in countries with weak property rights; Black and Strahan's (2002), Di Patti and Dell'Ariccia (2001) and Guiso, Sapienza, and Zingales' (2004) finding that competition in the banking sector and financial development fosters firm entry in the U.S. and Italy respetively; Fisman and Sarria-Allende's (2005) study of the effects of regulation of entry on the quantity and average size of firms; Beck, Demirguc-Kunt, Laeven, and Levine's (2006) finding that financial development exerts a disproportionately positive effect on small firms; and Acemoglu, Johnson and Mitton (2005) cross-country study of concentration and vertical integration. Most of these papers, with the exception of the latter, use data from the Amadeus dataset (which has data for Western and Eastern Europe only) or the Worldscope database (which includes information for a large number of countries but covers only relatively large, publicly trade firms).[13] Our paper also contributes to this literature by exploring the determinants of firm dynamism in a broader sample of developed and developing countries using data for both private and public firms.[14]

Finally, by focusing on micro effects, our results contribute to the broader debate on the effects of international financial integration.[15] As argued by Schumpeter, firm entry is a critical part of an economy's dynamism. Previous work has documented the important effects of new firm entry and economic dynamism on economic growth. Obstacles to this process can have severe macroeconomic consequences. International competition is an important source of creative destruction. Researchers have documented significant productivity, firm dynamism, and reallocation effects from trade openness with positive effects for specific countries.[16] This paper documents and studies the relation between firm dynamism and international financial integration. Our results suggest that, contrary to the fears of many, capital mobility has not hindered entrepreneurship. Instead, international financial integration has been associated with greater firm activity.

The rest of the paper is organized as follows. Section 2 describes the data. Section 3 presents the main empirical results. Section 4 discusses potential channels and presents evidence consistent with the main results. Section 5 concludes.

Amadeus data set for 1999, Desai, Gompers, and Lerner (2003) and Klapper, Laeven, and Rajan (2005) obtain similar findings. Kumar, Rajan and Zingales (1999) use data from Enterprise Europe for either 1991 or 1992.

[13] Di Patti and Dell'Ariccia (2001) use data for Italian firms only from the Movimprese database for 1996-1999; Fisman and Sarria-Allende (2005) complement industry data from UNIDO with Worldscope data for a sample of 34 countries; Black and Strahan (2002) use data for the U.S. from D&B, Acemoglu, Johnson, and Mitton (2005) use data for 769,100 firms from the 2002 WorldBase file; Beck et al. (2006) use industry level data complemented by U.S. Census data. Publicly listed firms account for only 25 percent of jobs, even in the United States (Davis, Faberman, and Haltiwanger 2006). Although it is difficult to quantify this number for our broad sample of countries, presumably, publicly traded firms are of much greater importance in the United States than in most other countries.

[14] To our knowledge our paper is the first to study different aspects of firm entrepreneurship and the effects of international capital. Most of the literature has not controlled for the role of international financial integration nor study the effects of financial market development using firm level data in a sample that encompasses developing countries. Our results show a positive and significant effect of international capital even after controlling financial market development. We thank Jean Imbs for bringing this to our attention.

[15] See Forbes (2004), Henry (2006), and Kose et al. (2006) for recent reviews of the literature.

[16] See Caballero (2006) for an overview of empirical evidence.

2 Data and Descriptive Statistics

2.1 Firm Level Data

Cross country empirical investigations at the firm level are notoriously difficult because of both a lack of data and problems with the few datasets which are available. Common problems include a paucity of data—in particular for developing countries—and selection problems associated with biases and potential endogeneity of the cross-country sample frame. Among the available sources of international firm data are Amadeus, Worldscope, UNIDO and Osiris. Of these, most studies have used the Amadeus data because it includes data on both publicly listed and private firms.[17]

In this paper, we use data from WorldBase compiled by Dun and Bradstreet, a database of public and private companies in more than 213 countries and territories. For each firm, WorldBase reports the four-digit SIC-1987 code of the primary industry in which each firm operates, and for a few countries the SIC codes of up to five secondary industries, listed in descending order of importance. We exclude establishments missing primary industry and year started information, and government related firms (SIC >8999). With these restrictions, our final data set includes more than 24 million observations. The criteria used to clean the sample are detailed in the Appendix A which also describes data set in further detail. Table 1 lists the countries represented in the data set and main summary statistics at the country level.

In our view, Dun and Bradstreet's WorldBase, while not without problems, is the best database to analyze our question. In particular it has four main advantages over most other sources. First it is much larger, including more than 45 million public and private firms in the total database in 2004. We observe the data at two time periods 2004 and 1999.

Second, data sources restricted to Europe such as Amadeus are not useful for our purposes because it does not have broad coverage of countries and in particular of developing countries with different levels of international financial integration, WorldBase by contrast has data in more than 213 countries and territories. We excluded territories with fewer than 80 observations, and those for which the World Bank provides no data—this leaves us with observations in 98 countries—creating significant variation in international financial integration.

Third, the unit of observation in WorldBase is the establishment. Establishments like firms have their own addresses, business names, and managers, but might be partly or wholly owned by other firms.

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[17] See for example Desai, Gompers and Lerner, Klapper, Laeven and Rajan (2005), Giannetti and Onenga (2005), and Ayyagari and Kozová (2006). The Amadeus data is provided by Bureau Van Dijk (BvD), a European electronic publishing firm which gathers the data through information providers of Amadeus data within each country. In some countries these providers gather the national data within each country (e.g., Companies House in the UK) and in other countries (particularly Eastern Europe) they collect it direct from firms. These national companies collect the data from the national public body in charge of collecting the annual accounts in its country. Because of different disclosure requirements, the amount and type of information also varies among countries.

We are therefore able to observe new enterprises spawned from existing firms or, by aggregating to the firm level, we can examine only independent new firms.[18]

Fourth, Dun & Bradstreet compile their data from a wide range of sources, whereas other databases collect primarily from national firm registries. Dun & Bradstreet compiles the WorldBase data from a number of sources with a view to providing its clients contact details and basic operating information about potential customers, competitors, and suppliers. Sources include partner firms in dozens of countries, from telephone directory records, websites, and self-registering firms. All information is verified centrally via a variety of manual and automated checks. Information from local insolvency authorities and merger and acquisition records are used to track changes in ownership and operations. The variety of sources from which the data are collected avoids a sample selection problem presented in studies using data from national firm registries. Because national statistical agency's reporting requirements differ widely across countries (for example, small firms are not required to register in some countries) samples drawn from such sources are not random but determined by the local institutional environment. These reporting requirements may be correlated with other national characteristics, potentially biasing the results. The wide variety of sources from which Dun & Bradstreet collects data reduces the likelihood that the sample frame will be determined by national institutional characteristics. In Appendix A, we compare the Dun & Bradstreet data to the United States Census data. The comparison illustrates that our data set seem to be well suited for our analysis.

2.2 Entrepreneurship Measures

How to measure entrepreneurship? Given the different perspectives in the literature on the role of entrepreneurs in an economy, definitions have emphasized a broad range of activities including the introduction of innovation (Schumpeter, 1942), bearing of risk (Knight, 1921), bringing together of factors of production (Say, 1803). In general, entrepreneurs are risk-bearers, coordinators and organizers, gap-fillers, leaders, and innovators or creative imitators.

If there is no one way to define entrepreneurship, there is certainly no one way to measure it. Hence, while simple comparisons of different indicators remain difficult to interpret, we use a variety of proxies commonly used in the literature which should give us an overall picture of entrepreneurial activity in the country (and mitigate concerns related to any one measure in particular). Following Black and Strahan (2002), Desai, Gompers, and Lerner (2003), Scarpetta et al. (2002), and Klapper, Laeven, and Rajan (2005), we calculate for each industry/country pair the rate of entry, average firm size, the skewness of firm size, age, and vintage.[19]

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[18] Our view is that the expansion of activity by existing firms via new plants is an indication of entrepreneurial activity. However, in the robustness section, we also we run our regressions using only wholly owned firms when calculating our entrepreneurship measures obtaining similar results.

[19] Because of the 5 year difference in our data sets, we do not calculate exit. As Bartelesman, Haltinwanger and Scarpetta (2005) note, about 20% to 40% of entering firms fail within the first two years of life. The Global

i. Firm Entry: Firm entry is defined as the number of new firms (two years of less) divided by the total number of firms in the country/industry pair.[20] Markets that provide an opportunity for more startup firms are said to be more dynamic and entrepreneurial. Greater access to capital and improvements in a country's financial markets associated with international financial integration should ease capital constraints and positively influence entry decisions in a country.[21]

 ii. Size: We calculate average firm size measured by the log of the average number of employees in each country/industry pair. Small firms play an important role in the economy as they are often portrayed as sources of innovation, regeneration, change and employment. Although the prediction is not unambiguous, we expect lower levels of capital rationing associated with international financial integration to result in greater numbers of small firms being able to enter and survive in the market.

 iii. Firm Size Distribution: We also examine the relation between skewness of the firm-size distribution and international financial integration. If capital constraints are operative in shaping the nature of industrial activity, the firm-size distribution should be skewed. Cooley and Quadrini (2003) and Cabral and Mata (2003) argue that in the presence of capital constraints firm size distribution will be skewed.[22]

 iv. Age: In the robustness section, we use average age in each industry/country pair—an alternative measure of firm turnover. We expect greater financial integration to be associated with more dynamic business environments and lower average firm age.

 v. Vintage: We also use in the robustness section a weighted average measure of age. Following Desai, Gompers and Lerner (2003) vintage is the weighted (by numbers of employees) average age of the firms in each country/industry pair. This measure shows the importance of young firms to the productive capacity of an industry. Low vintage indicates that young firms dominate the productive capacity. The predictions with respect to vintage are not unambiguous, although we expect smaller, younger firms to benefit from greater access to international funds. Appendix A explains all variables in detail.

2.3 Capital Mobility Data

 How to measure international financial integration? Assessing a country's integration with international financial markets is a complicated task. The process, that is, the change in the degree to which a country's government restricts cross-border financial transactions, is complex and involves multiple phases. Markets can be liberalized gradually and the effects smoothed if the reforms can be anticipated.[23] The literature, as we observed earlier, differentiates between *de jure* financial integration associated with

Entrepreneurship Monitor (GEM) publishes indices of entrepreneurial activity. These data did not seem to be empirically consistent with other measures used in the literature and hence are not used in this paper.

[20] Here and henceforth, we use the terms firm and establishment interchangeably when no confusion is caused by doing so.

[21] This might depend on whether a country is exporting or importing capital, but there might still be an improvement in intermediation of capital.

[22] In Cabral and Mata (2003), for example, firm growth depends upon investment and access to capital. Capital constraints tend also to affect younger firms that are likely to be capital rationed.

[23] Anticipation and gradualness should bias our results away from finding an effect.

policies on capital account liberalization and *de facto* measures related to actual capital flows. *De jure* liberalization processes might not reflect *de facto* liberalization processes. If, for example, one part of the system is liberalized, investors might use it to circumvent other controls. Some reforms might not be credible, and countries, albeit officially open, might nevertheless not have access to foreign capital. Hence, we use both measures of financial integration.

Most empirical analyses that require a measure of capital account restrictions use an index constructed from data in the International Monetary Fund's (IMF's) *Annual Report on Exchange Arrangements and Exchange Restrictions* (*AREAER*).[24] This is a rule-based indicator in that it focuses on *de jure* restrictions imposed by the legal authorities in each country. The index uses data on different restrictions: capital market securities, money market instruments, collective investment securities, derivatives and other instruments, commercial credits, financial credits, guarantees, securities, and financial backup facilities, direct investment, real estate transactions, and personal capital transactions. A corresponding dummy variable takes the value of 1 if each of the restrictions is present in each country, zero otherwise. We use the average of the dummies as our measure of restrictions for each country.

Our analysis employs the following *de facto* measures of capital mobility which are described in detail in Appendix A: *i. Capital Inflows/GDP:* which is the sum of flows of FDI, equity portfolio, financial derivatives, and debt. *ii. Inflows of Foreign Direct Investment/GDP, Net:* which emphasizes the potential benefits derived from FDI associated with technological transfers, knowledge spillovers, and linkages that go beyond the capital foreign firms might bring into a country. *iii. Stock of Foreign Liabilities/GDP*: which proxies the thickness of banking and equity relationships (both FDI and portfolio investment) with other countries. *iv. Gross Capital Flows/GDP:* which captures a country's overall foreign capital activity. In the robustness section we used *v. Equity Inflows/GDP* to capture the relation between entrepreneurial activity and equity flows of capital (sum of foreign direct investment and portfolio inflows) and *vi. Net Capital Flows/GDP* focusing on the net capital available to the economy.

3 Summary Statistics and Cross-Country Correlations

3.1 Summary Statistics

Table 1 presents summary statistics by country for our main variables for 2004. We have for the United States, for example, more than 7 million firms. France follows with more than 4 million. At the other end of the spectrum, we have Zimbabwe with 99 firms and Burkina Faso with 87. There is clearly wide variation in entrepreneurial activity across countries. Countries such as Denmark, Netherlands, and South Korea exhibit high firm creation, Papua New Guinea and Yemen relatively low firm creation, in 2004. Median employment per firm was relatively high for Indonesia, Papua New Guinea, and Thailand and

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[24] The index is constructed from data on restrictions presented in the survey appendix. In 1997, the IMF changed the way they report the capital controls data. The new classification is a vast improvement over the previous measure, although issues regarding circumvention of controls remain.

relatively low for Netherlands, Belgium, and Italy. Table 2 presents summary statistics by industry at the two-digit SIC code level. The service sector shows, overall, higher entry rates and lower median employment levels. Table 3 presents summary statistics on *de jure* and *de facto* capital mobility. Countries such as Costa Rica, Netherlands, and Belgium have low levels of *de jure* restrictions according to the IMF index, while Zimbabwe, Papua New Guinea and Thailand high levels of restrictions. There is also widespread variability in *de facto* flows of capital.[25] Table 4 reports summary statistics for our main control variables. Table 5 presents the correlation matrix of the main variables. Our data seem to be not only internally consistent, but also consistent with other studies of firm dynamics reported in the literature.[26]

Figure 1 plots the firm-size distribution measured by the number of employees for countries with high and low *de jure* restrictions to capital mobility. The figure shows there to be higher entrepreneurial activity in countries with lower restrictions. Figure 2, presents for low and high capital controls countries histograms of firm entry by industry, each industry observation weighted by the number of firms. Similarly, the figure shows firm activity to be higher in countries with fewer controls.

These figures, however, do not control for industry composition within countries or the level of development or activity in a country, which might be related to the level of *de jure* restrictions. We consider these issues in the following section.

3.2   Cross Country Correlations

Our initial regressions investigate whether there is variation in entrepreneurial activity across countries and time that is correlated with capital mobility (*de jure* or *de facto*). We run the following specification on our data for 1999 and 2004:

$$E_{ict} = \alpha K_{ct} + \beta X_{ct} + \delta_i + \delta_c + \delta_t + \varepsilon_{ict} \qquad (1)$$

where E_{ict} corresponds to the entrepreneurial activity measure in industry i of country c at time t, K_{ct} corresponds to the measure of capital account integration, X_{ct} corresponds to country level controls, δ_i is a full set of industry dummies, δ_c is a full set of country dummies and δ_t takes the value 1 for 2004 and 0 for 1999, and ε_{ic} corresponds to the error term. Our analysis is at the two-digit industry level. The industry dummies control for cross-industry differences in technological level or other determinants of entrepreneurship.[27] Hence, in equation (1), we look at whether, for each industry, firms in a country with greater capital mobility exhibit more entrepreneurial activity than firms in a country with less capital mobility. In other words, cross-country comparisons are relative to the mean propensity to "generate entrepreneurial activity" in an industry relative to the industry and time averages. The estimation procedure

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[25] Ireland experienced particularly high flows during this period. Results are robust to excluding Ireland from the sample.

[26] Bartelsman, Haltiwanger and Scarpetta (2004) provide evidence for the process of creative destruction across 24 countries and two-digit industries.

[27] Klepper and Graddy's (1990) results point to the importance of industry characteristics in firm's entry and exit patterns. Dunne and Roberts (1991), who describe certain industry characteristics that explain much of inter-industry variation in turnover rates, find the correlation between those industry characteristics and industry turnover pattern to be relatively stable over time.

uses White's correction for heteroskedasticity in the error term. Because the capital mobility variables vary only at the country level, we present results with standard errors corrected at the country level (clustering).

In terms of our controls, the literature has found the institutional and business environment as well as industry characteristics to affect the levels of entrepreneurial activity in a country. In the main specification we use the (logarithm of) GDP per capita to proxy for development. The level of economic development is likely to affect the attractiveness/success of becoming an entrepreneur. We use the (logarithm of) GDP to control for scale effects that might affect entrepreneurial activity. We control for the rate of real GDP growth to capture current economic activity. In addition, we use various controls for institutional quality. We use data from the International Country Risk Guide (ICRG), a monthly publication of Political Risk Services.[28] We use specifically the variables non-corruption, law and order, and bureaucratic quality, all of which we expect to be positively related to entrepreneurial activity.[29] We use domestic credit as a percentage of GDP control for financial market development which we expect to have a positive effect.

In our main regressions, we run specification (1) on the different measures of entrepreneurship: entry, firm size, and skewness of the firm-size distribution, and on different measures of capital account integration, namely, the IMF index, capital inflows, FDI inflows, stock of foreign liabilities, and gross flows. Our main control variables are (log of) GDP, (log of) GDP per capita, GDP growth, domestic credit to GDP, and indices of bureaucracy, non-corruption, and law and order. We use weights in the regressions to reflect the different size of each industry/country observation.[30] For many industries, the rate of firm entry is zero or negligible. To account for this large number of zeros and our upper bound at 1, we use a Tobit estimation model for the firm entry regressions.[31] This specification allows us to observe a regression line that is not heavily weighted by the large number of industries with a wide range of characteristics but which did not generate any observed new firms in our sample period.

Tables 6a-6c present the main results for our data that suggest a negative and significant relation between different measures of entrepreneurial activity and restrictions on capital mobility. We performed additional robustness checks some of which we report on Appendix B.

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[28] Data for 'days to start a business' from World Bank, World Development Indicators is not available for 1999. We used with the 2004 data in a cross section analysis obtaining similar results (available upon request).

[29] ICRG presents information on the following variables: investment profile, government stability, internal conflict, external conflict, no-corruption, non-militarized politics, protection from religious tensions, law and order, protection from ethnic tensions, democratic accountability, and bureaucratic quality. We do not use the entire index as we do not have, a priori, a view on how some of these variables might affect entrepreneurial activity, and suspect that some might have opposite effects.

[30] We find similar results when unweighted and when weighted by either the number of firms or the total employment in the industry/country.

[31] Entry regressions are not clustered. Several clustered entry estimates using Tobit were not significant at standard levels. These results, however, do not contradict our main findings. We believe the loss of robustness in our estimates to be due to computational issues associated with the use of the non-linear estimator Tobit and clustering, another large-sample asymptotic approximation. Together these techniques might be giving us more imprecise estimates. When we run the regression using OLS and clustering, the results are significant.

Table 6a presents results for firm entry as the dependent variable. In column (1), the marginal effect of the IMF index conditional on the dependent variable (rate of firm entry) being uncensored is -1.4. Consider a movement from the 25th percentile (0.77) to the 75th percentile (0.15) in the distribution of the index of restrictions. Based on the results shown in column (1), we have, on average, 0.8 percent more entry in an industry in the country with less restrictive controls. This represents, in industries with average rates of entry such as textiles and apparel, a 19 percent increase in entry over average entry.[32] Columns (2)-(5) present the main results of controlling for *de facto* measures of capital account integration. A movement from the 25th percentile (2.36) to the 75th percentile (14.2) of the Capital Inflows/GDP variable is associated, based on the results in column (2), with an increase in entry of 0.08, which represents a 21 percent increase in entry over average entry. In terms of the other control variables, our results are in line with the literature. The level of development and growth are positively and significantly related to entrepreneurship, and we find a positive effect of non-corruption and law and order.

In Table 6b, the dependent variable is the log of employment in the industry/country pair. As seen in Column (1), an inter-quartile reduction in the IMF index (less restrictive controls) is associated with a decrease in average firm size by 28 percent. Similar increases in the Capital Inflows/GDP variable are associated with a significant decrease in average firm size of 60 percent. The small FDI coefficient is expected as FDI is often associated with the entry of large firms.

In Table 6c, the dependent variable is skewness of the firm-size distribution. We believe this variable to constitute the most complete characterization of firm activity in the economy. Our results are both economically and statistically significant. Column (1) of the table shows the effect of the IMF index on the skewness of the firm size distribution in each industry to be negative and significant. To get a sense of the magnitude of the effect of a reduction in the IMF index on the level of entrepreneurial activity, consider a movement from the 25th percentile to the 75th percentile in the distribution of the index of restrictions; based on the results shown in column (1), we see a 4.4 reduction in skewness, which represents 38 percent of average industry skewness. In terms of the effect of *de facto* measures of integration on the firm size distribution, a similar interquantile movement of the Capital Inflows/GDP variable is associated, based on the results in column (2), with an increase in skewness of 2.31, which represents a 20 percent increase over the industry average.

3.3 Cross-Industry, Cross Country Interaction Effects

In addition, our data allows us to look at cross-industry, cross-country interaction effects following the methodology of Rajan and Zingales (1998) and Klapper, Laeven, and Rajan (2005). We run:

$$E_{ic} = \theta(Z_i \times K_c) + \delta_i + \gamma_c + \varepsilon_{ic} \quad (2)$$

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[32] Average entry in uncensored industries is 4.5 percent.

where E_{ic} corresponds to the entrepreneurial activity measure in industry i of country c, δ_i represents industry dummies, and γ_c corresponds to country level dummies. The industry indicators correct for industry-specific effects; country dummies correct for country-specific variables. The focus of analysis is on the interaction term θ between a country characteristic (K_c) and an industry characteristic, Z_i. For country characteristics, we use the capital mobility measures. For industry characteristics, following these authors, we use the United States as a proxy for the "natural" entrepreneurial activity in an industry reflecting technological barriers in that industry like economies of scale. "Of course, there is a degree of heroism in assuming that entry in the United States does not suffer from artificial barriers," write Klapper, Laeven, and Rajan (2005, p.17), but the methodology requires only that rank ordering in the United States correspond to the rank ordering of natural barriers across industries, and the latter rank ordering correspond to that of other countries. This methodology, as explained by the authors, enables us to address issues associated with country effects. We examine the differential effects of country level variables across industries and by correcting for industry effects we also correct for the fact that average entrepreneurial activity may depend on the industries' characteristics.[33]

Focusing on entry and the skewness of the firm size-distribution, we find the coefficient on the interaction term θ to be positive and significant for the different proxies of capital integration as seen in Table 7. Moreover, the magnitude of the relationship is economically significant. For example, a change in the IMF index equivalent to an increase from the 25th to the 75th percentile in our sample (0.61) reduces the percentage of new firms in an industry with average levels of entry in the U.S. (textiles, 4.5 percent) by 15%. Similar interquantile changes for the inflows of capital and inflows of foreign investment variables are associated with increases of 10% and 8% respectively.

3.4 Endogeneity and Sample Intensity: Discussion

Important concerns related to all the previous findings include whether a potential omitted third factor explains the relation between the different measures of entrepreneurship and international financial integration and whether reverse causality might be driving our results. The Rajan and Zingales methodology mitigates some concerns about endogeneity, but we also undertake several additional checks to examine the robustness of our results, some of which we report in Appendix B.

Table B1 shows the coefficients on the capital mobility measures to be stable across specifications with different controls. Table B2 shows our results to be robust to controlling for other measures of regulation and level of domestic financial development as well as other macroeconomic controls. Table B3 uses additional proxies for entrepreneurship and other measures of *de facto* financial integration. Table B4

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[33] This is equivalent to de-meaning the variables using their industry and country averages and thus removing some of the sample selection problems. The downside of this methodology is by focusing on relative effects, it does not analyze the overall magnitude of the effect of the characteristics. We have complemented the analysis with cross section regressions. For a detailed description of their methodology, see Rajan and Zingales (1998).

shows our results to be robust to using only the manufacturing sector, only developed countries, excluding the United States from the sample, and adding regional dummies.

In addition there are concerns that our results might be driven by the sample frame if changes in the sampling intensity of our data in specific countries are correlated with changes foreign capital flows. Nonetheless while we believe that the WorldBase is the best available data to answer our question, we are aware of its limitations. In our final sample, the number of observations per country ranges from more than 7 million firms in the United States to fewer than 90 firms in Burkina Faso (see Table 1). This variation reflects differences in country size, but also differences in the intensity with which Dun & Bradstreet samples firms in different countries and in the number of firms in the informal sector. This raises concerns that our measures of entrepreneurship might be affected by cross-country differences in the sample frame. For example, in countries where coverage is lower or where there are a large number of firms in the informal sector (which are not captured in our data), more established enterprises—often older and larger firms—may be overrepresented in the sample. This may bias our results if the country characteristics which determine the intensity of sampling are correlated with our explanatory variables.

We address this concern in a number of ways. We use summary statistics such as skewness which are arguably less dependent on the sampling frame. Rather than simply relying on a single measure, we use different proxies for entrepreneurial activity. We use industry fixed effects in the regression analysis to ensure that within industry variation is emphasized. We compare our results for 2004 and 1999 and study how changes in our measures of entrepreneurship between these time periods relate to changes in capital restrictions and capital mobility. As Bartelesman, Haltinwanger and Scarpetta (2005) note, since much of the error is country specific, methods that amount to some form of first differencing the data significantly reduce many of the identified problems in firm level data sets. This gives us more confidence that our results are not driven by the sample frame, although it is still possible that changes in sampling procedure are correlated with changes in financial integration over the same period. A comparison of the 2004 and 1999 samples suggested this not to be the case.[34] In particular we analyzed the correlation between the change in the sampling intensity of old firms (defined as percentage change in the number of firms established before 2000 in the two samples) and the change in the capital mobility measures. The correlation of these variables was low and in fact negative for most of our measures.[35] We also repeat our specifications for subsamples which include only the rich countries which are the most intensively sampled by Dun & Bradstreet. Third, we deal with the possibility that our results might be driven by a small number of observations in country/industry pairs by excluding outliers and weighting country/industry pairs by the number of observations in the industry. In the robustness section we include a measure of the size of the informal sector. Fourth, we include a measure of country sampling intensity in our regressions and find that

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[34] Conversations with Dun & Bradstreet also suggested that this was unlikely to be the case.
[35] The correlations between the change in the sampling intensity of old firms in 99-04 (number of firm in the 2004 data set established before 2000 minus the number of firms in the 1999 data set to the total number of firms in the 1999 data set) were -0.12 with the IMF index; 0.12 with Net Capital Flows/GDP; 0.05 with FDI Inflows/GDP; -0.07 with Foreign Liabilities/GDP; 0.07 with Capital Inflows/GDP; 0.02 with GDP Growth; -0.01 with Entry; and -0.07 with Skewness.

our results are robust.[36] We also use the Rajan and Zingales (1998) methodology and focus on cross-country, cross-industry interaction effects. By focusing on interactions, we examine the differential effects of country level variables across industries. Even after all of these tests, our results should be interpreted with caution. Notwithstanding the remarkable consistency in our results, we are reluctant at this stage to infer causality. Instead we present these results are strong correlations which motivate the analysis which follows.

4 The Effect of Foreign Capital on Entrepreneurship through Credit Availability

The Dun & Bradstreet data enable us to go beyond cross country correlations to look at causal channels through which foreign capital may affect domestic entrepreneurship. In particular we investigate whether capital mobility affects entrepreneurship through a change in the activity of domestically-owned firms in contact with foreign firms (an FDI channel) or through the availability of resources (a capital/credit availability channel).

4.1 Capital/Credit Availability Channel

We first investigate the possibility that capital mobility affects entrepreneurship through the capital /credit availability channel. There is considerable evidence suggesting that financing constraints are important determinants of firm dynamics. We investigate whether firm activity in industries which are more reliant on external finance are positively or negatively affected by our measures of international financial integration. For each industry we proxy the dependence on external finance with the variable defined by Rajan and Zingales (1998)—the difference between investment and cash generated from operations.[37] In this specification our interaction term $(Z_i \times K_c)$ from Equation (2) is *(External Financial Dependence$_i$ × Capital Mobility$_c$)*. We run this specification across *de jure* (the IMF index) and three *de facto* measures of capital mobility. Table 8 reports our main results.[38] We find entrepreneurship in industries more reliant on external finance to be more sensitive to restrictions on capital mobility and more strongly affected by increased flows of finance. This result is robust to controlling for financial development proxied by domestic credit to GDP and stock market capitalization (not shown). Moreover, the magnitude of the relationship is economically significant. For example, a change in the IMF index equivalent to an increase from the 25th to the 75th percentile in our sample (0.61) reduces the percentage of new firms in an industry with average levels of

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[36] We use the ratio of the number of firms in the database to GDP. We attempted to control for employment data at the industry level to get a sense of coverage using data from UNIDO, but these data were not available consistently for our cross-section of countries for 2004 and 1999.

[37] The authors identify an industry's need for external finance (the difference between investment and cash generated from operations) under two assumptions: (a) that U.S. capital markets, especially for the large, listed firms they analyze, are relatively frictionless enabling us to identify an industry's technological demand for external finance; (b) that such technological demands carry over to other countries. Following their methodology, we constructed similar data for the period 1999-2003 as explained in Appendix A.

[38] The lower number of observations in Table 9 relative to Table 6c is due to the lack of external finance measures for some industries.

financial dependence (Rubber Products) by 20% over the average proportion of new firms in all industries. Similar interquantile changes for the inflows of capital and inflows of foreign investment variables are associated with increases of 26% and 29% respectively.

Our results are also consistent with the findings of Harrison et al. (2004) that incoming FDI has a significant impact on investment cash flow sensitivities for domestically owned firms and firms with no foreign assets. The authors argue that their results are in line with the hypothesis that foreign investment is associated with a greater reduction of credit constraints on firms less likely to have access to international capital markets. This is plausible because incoming foreign investment provides an additional source of capital, freeing up scare domestic credit which can then be redirected towards domestic enterprises.

4.2 The Effect of Foreign Capital Through Foreign Direct Investment

We examine the effect of international financial integration on entrepreneurial activity through foreign firms' (FDI) influence on the creation of new domestic firms. Our data contain information on the nationality of each firm's ownership, which enables us to directly test the FDI channel through the presence of foreign-owned firms.

We investigate the effects of foreign firms on new domestically-owned firms in the same industry. Specifically, we run:

$$E_{ict} = \alpha Share\ of\ foreign\ firms_{ict} + \beta X_{ct} + \delta_i + \delta_c + \delta_t + \varepsilon_{ict} \quad (3)$$

where E_{ict} refers to the percentage of new domestic firms in sector i in country c in time t. The *Share of Foreign Firms$_{ict}$* in sector i is the number of foreign firms calculated as total firms in industry i in country c at time t. X_{ct} represents country-level controls.[39]

In Columns (1) and (4) of Table 9, we find the presence of foreign firms to have a positive effect on entrepreneurial activity by domestically-owned firms in the same industry. An increase in the share of foreign firms equivalent to moving from an industry in the 25th percentile of the distribution of foreign presence to an industry in the 75th percentile is associated with an increase in the percentage of new domestic firms in the industry by 1.7 points, or a 37 percent increase over an industry with mean levels of foreign firms. There is a large literature examining horizontal spillovers from FDI. Caves (1974), Blomstrom and Persson (1983), and Haskel, Pereira, and Slaughter (2002), for instance, find a positive correlation between foreign presence and sectoral productivity, and Haddad and Harrison (1993) and Aitken and Harrison (1999) find little evidence of horizontal spillovers to domestic firms. The positive effects of FDI are often attributed to the replacement effect of productive multinationals forcing domestic firms to exit. Both the positive and negative effects of FDI are consistent with industrial restructuring and, ultimately, firm turnover. We find evidence that the existence of multinational firms increases the rate of domestic firm

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[39] Note that in this case, both our variable of interest and the dependent variable are aggregated at the industry level. Regressions are weighted by number of firms.

creation. This might reflect changes in the industry resulting from large new entrants increasing their market share at the expense of some firms and creating new opportunities for others.

We also test whether our measures of domestic activity are correlated with the presence of multinational firms in upstream and downstream sectors. Given the difficulty of finding input and output matrices for all the countries in our data, we use U.S. input and output (IO) matrices from the U.S. Bureau of Economic Analysis following Acemoglu, Johnson, and Mitton (2005). As the authors explain, IO tables from the U.S. should be informative about input flows across industries in our different sample of countries as long as they are determined by technology. For example, in all countries, car makers use tires, steel and plastic from plants specialized in the production of these intermediate inputs. Hence, for industry i in country c we calculate the presence of foreign firms in all industries j in country c at time t which are downstream of industry i i, i.e., foreign firms which may be suppliers to new domestic firms, as:

$$Down\ Stream\ Presence_{ict} = \sum_j (Z_{ji\_US} \times W_{jct}) \quad (4)$$

where W_{jct} is the total number of foreign firms in industry j in country c as a percentage of the total number of firms in industry j in country c. Z_{ji} is an input-output coefficient—we use the ratio of the inputs in industry j sourced from industry i in the United States to the total output of industry i in the United States according to the BEA 4-digit SIC direct input output tables. Thus, the presence of foreign firms downstream from industry i is weighted by the volume of goods they purchase from industry j. We estimate the following relation:

$$E_{ict} = \alpha Downstream\ Presence_{ict} + \beta X_{ct} + \delta_i + \delta_c + \delta_t + \varepsilon_{ict} \quad (5)$$

We estimated as well a similar regression for upstream presence.

In Columns (2)-(3) and (5)-(6) of Table 9, we investigate the effect of forward and backward linkages on the creation of new domestic firms (domestic entry) and skewness of the firm-size distribution of domestic firms.[40] Columns (2) and (3) show positive and significant the effect of foreign presence on upstream and downstream sectors. In this case, the interquartile change in foreign ownership in upstream industries is associated with a 12% increase in entry and downstream is not significant. Columns (4) and (6) suggest the presence of foreign firms to have a significant and positive effect on the skewness of domestic downstream activities while the effect on upstream activities was not significant at standard levels. Overall, these results are broadly consistent with the evidence of vertical spillovers from FDI.[41] Overall, although our data do not

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[40] Note that for the industries upstream and downstream the variable is the number of foreign firms in the up/down industry weighted by the IO coefficient between the industries (which are in the range of 0.001-0.005). Hence, the coefficients between "same" (which is the number of domestic firms in the same sector) and "up" and "down" sectors are not directly comparable.

[41] Case study evidence from Hobday (1995) finds that foreign investments in East Asia encouraged hundreds of domestic firms to supply components or assembly services. Gorg and Strobl (2002) find that foreign presence encourages entry by domestic-owned firms in the high-tech sector in Ireland. Ayyagari and Kozová (2006) find that larger presence of FDI to be associated with higher entry in both horizontal and vertical industries in the Czech Republic. Javorcik (2004) finds that FDI fosters spillovers through backward linkages in Lithuania although her work does not analyze firm entry patterns.

permit to correct for some of the concerns associated with cross-section analysis, our results are consistent with our previous findings.

We also find evidence from firm level spatial analysis that foreign owned firms appear to create opportunities for foreign owned firms rather than crowd them out. Appendix C presents firm-level spatial analysis (for western European countries due to data limitations) to show that the geographic distribution of new firms is related to the distribution of foreign direct investments and that this pattern is significantly different from what we might expect of a random distribution. This effect is particularly strong between industry pairs where the foreign firms are 'upstream' of the new entrepreneurs suggesting that foreign investment may create opportunities for potential suppliers.

5 Conclusions

Using a new data set of 24 million firms in nearly 100 countries, we found a positive relation between measures of capital account integration and entrepreneurial activity in a country. Concerns related to the data set and estimation procedures notwithstanding, there is noteworthy consistency across our different specifications and robustness tests. We find evidence that entrepreneurial activity in industries which are more reliant on external finance is disproportionately affected by international financial integration, suggesting that foreign capital may improve access to capital either directly or through improved domestic financial intermediation. We also find evidence that FDI may create opportunities for new firms as potential suppliers to the foreign firms.

Capital market liberalization is unquestionably a controversial policy. Our results do not comment directly on the welfare issues associated with liberalization policies and are indeed consistent with many of the findings on capital account liberalization and growth. Our conclusion is strongest for direct investment and most robust in rich countries. At a minimum, the use of micro data should enhance our general understanding of the process by which the effects of liberalization are transmitted to the real economy.

Data Appendix A. Data Description

a. The Dun and Bradstreet Data Set: Final Sample

We use data for 2004 and 1999, excluding information lacking primary industry and year started. Our original data set included 118 countries. We excluded territories with fewer than 80 observations and those for which the World Bank provides no data (most were in Africa and had fewer than 20 firms). The final dataset covers all economic sectors (SIC) with the exception of Public Administration (Division J, group 9) and sector 43 (United States Postal Service). We also dropped all establishments for which year started preceded 1900. For 2004, the data includes 24,606,036 establishments in 98 countries. When we estimated mean, median, and skewness, we dropped 6 observations that were clearly outliers: a firm with sales of 648.7 trillions in Denmark, a firm with sales of 219.3 trillions in Spain, a firm with sales of 219.3

billions in Spain, a firm with sales of 32.7 trillions in Germany, a firm with sales of 5,6 trillions in Lithuania, a firm with sales of 4.9 trillions in United Arab Emirates, a firm with sales of 352 billions in Nigeria, a firm with sales of 291 billions in Chad, a firm with sales of 291 billions in Angola, a firm with sales of 121 billions in Congo, and a firm with sales of 99 billions in Haiti. For 1999 the data has close to 6 million observations. We retained data with certain information (e.g., employment) but missing other information (e.g., sales), which was the case mostly in less developed countries (Africa, in particular), our objective being to maximize the number of observations for these countries. The creation rate shows the number of establishments reporting starting year in 2003-2004 over all establishments. We define foreign firms as having an uppermost parent of a corporate family located in a country different from that in which the firm operates. In terms of sample biases, we discussed with Dun & Bradstreet the possibility of over-sampling in countries with lower levels of controls or higher capital mobility (such as foreign direct investment). The firm did not seem to believe this to be a bias in its sampling strategy. In the case of Czech Republic, a country with high sampling intensity, Dun & Bradstreet derives the bulk of its information from official registries.

b. Comparing Dun & Bradstreet Data and U.S. Census Data

To give some sense of the coverage of the Dun & Bradstreet sample used in this study, we compare our data with that collected by the U.S. Census Bureau, Statistics of U.S. Businesses. The U.S. 2001-2002 business census recorded 24,846,832 establishments.[42] Our data include 6,185,542 establishments (from which we exclude establishments in the total sample without the year started). About three quarters of all U.S. establishments have no payroll. Most are self-employed persons operating unincorporated businesses that might or might not be the owner's principal source of income. The U.S. census records 7,200,770 'employer establishments' with total sales of $22 trillion. Our data include 4,293,886 establishments with more than one employee with total sales of $17 trillion. The U.S. census records 3.7 million small employer establishments (fewer than 10 employees). Our data include 3.2 million U.S. firms with more than one and fewer than 10 employees. In our data, 6.1 percent of establishments are new.[43] The U.S. Census reported 12.4 percent of establishments to be new in 2001-2002, for firms with 1-4 employees this was 15.9 percent, for firms with more than 500 employees 11 percent.[44]

c. Variable Description and Sources

Dependent Variables

Firm Level Data: From Worldbase - Dun & Bradstreet. In the analysis, we use 2 digit SIC-1987.

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[42] The unit of record in the Dun & Bradstreet data is the "establishment" (a single physical location where business is conducted or services or industrial operations are performed) as opposed to a "firm" (one or more domestic establishments under common ownership or control). The U.S. census collects information on establishments as well as firms.
[43] We define as new an establishment having a year started date less than two years previous.
[44] Establishment and Employment Changes from Births, Deaths, Expansions, and Contractions, http://www.census.gov/csd/susb/usst01_02.xls.

Skewness: Skewness of the firm employment distribution for each country/industry pair.

Size: (Log) of the average number of employees for each country/industry pair.

Entry: Number new firms (less than two years) divided by the total number of firms in the country/industry pair. We also calculate domestic new firms (the ration of domestically-owned new firms to total domestic firms).

Age: Average age of the firms in each country/industry pair.

Vintage: Weighted average of the age of the firms in each industry/country pair, the weights being the total number of employees.

Independent Variables

IMF's Capital Account Liberalization Index: From the IMF's Annual Report on Exchange Arrangements and Exchange Restriction (AREAER). The index considers controls to: capital market securities; money market instruments; collective investment securities; derivatives and other instruments; commercial credits; financial credits; guarantees, securities and financial backup facilities; direct investment; real estate transactions; personal capital transactions. For each indicator, a corresponding dummy variable takes the value of one if the restrictions is present in the country. The index is the average of the dummies.

Capital Inflows/GDP: From the IMF, International Financial Statistics. Capital Inflows are the sum of FDI, equity portfolio, debt and derivative flows. FDI: direct investment in reporting economy (line 78bed). Portfolio equity investment: equity security liabilities (line 78bmd). Derivative flows: financial derivative liabilities (line 78bxd). Debt flows: debt security liabilities (line 78bnd) and other investment liabilities (line 78bid). Data is calculated as a percentage of GDP in U.S. dollars (taken from the World Bank, World Development Indicators).

Inflows of Foreign Direct Investment/GDP: From the World Bank, World Development Indicators. FDI to GDP are inet inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital.

Gross Capital Flows/GDP: From the World Bank, World Development Indicators. Gross private capital flows to GDP are the sum of the absolute values of direct, portfolio, and other investment inflows and outflows recorded in the balance of payments financial account, excluding changes in the assets and liabilities of monetary authorities and general government.

Stock of Foreign Liabilities: From Lane and Milesi Ferretti (2006). The authors estimate stocks of portfolio equity and FDI based on the IMF, IFS flow data. In order to estimate FDI stocks, the authors cumulate flows and adjust for the effects of exchange rate changes. For portfolio equity stocks, they adjust for changes in the end of year U.S. dollar value of the domestic stock market. Data is reported as percentage of GDP.

Equity Flows/GDP: From the IMF, International Financial Statistics. Sum of FDI inflows and portfolio equity investment inflows as a percentage of GDP.

Net Capital Flows/GDP: From the IMF, International Financial Statistics. Net capital flows are the sum of changes in assets and liabilities on FDI, equity portfolio and debt. FDI: direct investment abroad (line 78bdd) and direct investment in reporting economy (line 78bed). Portfolio equity investment: equity security assets (line 78bkd) and equity security liabilities (line 78bmd). Derivative flows: financial derivative assets (line 78 bwd) and financial derivative liabilities (line 78bxd). Debt flows: debt security assets (IFS line 78bld) and debt security liabilities (line 78bnd) and other investment assets (line 78bhd) and other investment liabilities (line 78bid). Data reported as a percentage of GDP. Coverage for this variable is more limited and is from the IMF, IFS statistics.

Macroeconomic Data: From the World Bank, World Development Indicators: (Log) GDP, (Log) GDP per capita, growth real GDP, volatility of growth (standard deviation of gdp growth for 2000-2004 divided by the period's mean), inflation (percent growth in the CPI), M3/GDP, domestic credit to GDP, stock market capitalization to GDP, trade (exports plus imports over GDP). From the Economist Intelligence Unit: growth forecasts. Size of the informal sector as percentage of GDP in year 2000, from Schneider (2002).

Institutional Quality: From the International Country Risk Guide (ICRG), a monthly publication of Political Risk Services. Non-corruption (assessment of corruption within the political system; average yearly rating from 0 to 6, where a higher score means lower risk). Law and order (the law subcomponent is an assessment of the strength and impartiality of the legal system; the order sub-component is an assessment of popular observance of the law; average yearly rating from 0 to 6, where a higher score means lower risk). Bureaucratic quality (institutional strength and quality of the bureaucracy; average yearly rating from 0 to 4, where a higher score means lower risk.).

Regulation: From the World Bank, World Development Indicators: number of days required to start a business; business disclosure index (0=less disclosure to 7=more disclosure); legal rights of borrowers and lenders index (0=less credit access to 10=more access).

Dependence on External Finance: Constructed by authors for 1999-2003 following Rajan and Zingales (1998). An industry's external financial dependence is obtained by calculating the external financing of U.S. companies using data from Compustat calculated as: (Capex-Cashflow)/Capex, where Capex is defined as capital expenditures and Cashflow is defined as cash flow from operations. Industries with negative external finance measures have cash flows that are higher than their capital expenditures.

d. Industry Codes: Standard Industrial Classification (SIC) - 1987 Version

A. Agriculture, Forestry, and Fishing: 01: Agricultural Production Crops; 02: Agriculture production livestock and animal specialties; 07: Agricultural Services; 08: Forestry; 09: Fishing, hunting, and trapping. B. Mining: 10: Metal Mining; 12: Coal Mining; 13: Oil and Gas Extraction; 14: Mining and Quarrying Of Nonmetallic Minerals, Except Fuels. C. Construction: 15: Building Construction General Contractors and Operative Builders; 16: Heavy Construction Other Than Building Construction Contractors; 17: Construction Special Trade Contractors. D. Manufacturing: 20: Food and Kindred Products; 21: Tobacco

Products; 22: Textile Mill Products; 23: Apparel and Other Finished Products Made From Fabrics and Similar Materials; 24: Lumber and Wood Products, Except Furniture; 25: Furniture and Fixtures; 26: Paper and Allied Products; 27: Printing, Publishing, and Allied Industries; 28: Chemicals and Allied Products; 29: Petroleum Refining and Related Industries; 30: Rubber and Miscellaneous Plastics Products; 31: Leather and Leather Products ; 32: Stone, Clay, Glass, And Concrete Products; 33: Primary Metal Industries; 34: Fabricated Metal Products, Except Machinery And Transportation Equipment; 35: Industrial And Commercial Machinery And Computer Equipment; 36: Electronic and Other Electrical Equipment And Components, Except Computer Equipment; 37: Transportation Equipment; 38: Measuring, Analyzing, and Controlling Instruments; Photographic, Medical And Optical Goods; Watches and Clocks; 39: Miscellaneous Manufacturing Industries. E. Transportation, Communications, Electric, Gas, And Sanitary Services: 40: Railroad Transportation; 41: Local and Suburban Transit and Interurban Highway Passenger Transportation; 42: Motor Freight Transportation and Warehousing; 44: Water Transportation; 45: Transportation by Air; 46: Pipelines, Except Natural Gas; 47: Transportation Services; 48: Communications; 49: Electric, Gas, and Sanitary Services. F. Wholesale Trade: 50: Wholesale Trade-durable Goods; 51: Wholesale Trade-non-durable Goods. G. Retail Trade: 52: Building Materials, Hardware, Garden Supply, and Mobile Home Dealers; 53: General Merchandise Stores; 54: Food Stores; 55: Automotive Dealers And Gasoline Service Stations; 56: Apparel And Accessory Stores; 57: Home Furniture, Furnishings, And Equipment Stores; 58: Eating And Drinking Places; 59: Miscellaneous Retail. H. Finance, Insurance, and Real Estate: 60: Depository Institutions; 61: Non-depository Credit Institutions; 62: Security and Commodity Brokers, Dealers, Exchanges, and Services; 63: Insurance Carriers; 64: Insurance Agents, Brokers, and Service; 65: Real Estate; 67: Holding and Other Investment Offices. I. Services: 70: Hotels, Rooming Houses, Camps, And Other Lodging Places; 72: Personal Services; 73: Business Services; 75: Automotive Repair, Services, and Parking; 76: Miscellaneous Repair Services; 78: Motion Pictures; 79: Amusement And Recreation Services; 80: Health Services; 81: Legal Services; 82: Educational Services; 83: Social Services; 84: Museums, Art Galleries, And Botanical And Zoological Gardens; 86: Membership Organizations; 87: Engineering, Accounting, Research, Management, and Related Services; 88: Private Households; 89: Miscellaneous Services.

Appendix B. Robustness Checks

We performed additional robustness checks on the regressions results in (1). Table B1 presents the results of equation (1) using skewness as proxy for entrepreneurship and the IMF index in columns (1) to (3) and capital inflows in columns (4) to (6), as measures of international financial integration. The table shows the coefficient of the capital mobility measures to be relatively stable across specifications which consider different main controls. We obtain similar results using the other measure of entrepreneurship and proxies for international financial integration.

As Table B2 shows, our main results are robust to controlling for other measures of regulation, financial development and macro economic conditions. In columns (1)-(3), we control for indices of borrowers' and lenders' rights and business disclosure from the World Bank as additional proxies for regulation, and stock market capitalization as proxies for financial development. Our results are also robust to controlling for M3/GDP as another proxy for financial development (not shown). Column (4) controls for inflation as a measure of macroeconomic instability while column (5) uses GDP volatility. In columns (6) we use the EIU growth forecasts as an imperfect measure of exogenous growth opportunities.[45] As shown in column (7), our results are robust to the inclusion of the value of the trade openness defined as the sum of exports and imports as a share of output. Column (8) controls for the share of the informal sector in the economy obtaining similar results (these data, however, were available for a wide range of countries for 2000 only). Controlling for the (the log) of population (as an alternative proxy for scale) and for education levels (share of primary school) yielded similar results (not shown).

Columns (1)-(2) in Table B3 show our results to be robust to using as additional proxies for entrepreneurship: firm age and firm vintage. An additional concern is that our results may be driven by considering establishments as the unit record. Column (3), however, shows our results robust to using only wholly owned firms when calculating our entrepreneurship measures (the table shows skewness results).[46] Our results are also robust to alternative measures of *de facto* financial integration such as net flows to GDP in column (4) and equity flows in column (5). Similar results stocks of foreign equity (non-shown).

Another concern is that our results may be driven by different sampling intensities in different countries. It might be the case, for example, that countries with higher sampling intensity have disproportionately more small firms. Column (1) in Table B4, which controls for the number of firms sampled in each country, suggests this not to be the case. As mentioned, our results are also weighted. In addition, table B4 shows our results to be robust to using only the manufacturing sector in column (2), only rich countries in column (3), excluding the United States from the sample in column (4), and adding regional dummies in column (5).

Appendix C. Firm Level Spatial Analysis

We investigate the relationship between foreign firms and entrepreneurs at the firm level using spatial analysis. We develop a distance-based test to determine whether foreign firms crowd out or create opportunities for new firms. Our methodology is based on the fact that domestic and foreign firms have

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[45] As another imperfect attempt to account for possible endogeneity biases, we used institution-based instruments for financial integration from La Porta et al. (1998) which have been used in the literature for international financial liberalization and domestic financial development, see Imbs (2004), Kalemli-Ozcan, et al. (2003). Criticism of these instruments notwithstanding, overall the IV regression did not contradict the conclusions drawn from the OLS regressions.

[46] That is, we exclude from the sample establishments that report to domestic parents. Our results were similar when considering domestic parents and subsidiaries as a single entity and using other the measures of entrepreneurship.

different characteristics which may differentially affect other firms in their region and second that the effect of those characteristics on other firms attenuates with distance.

A considerable literature has established that domestic and foreign firms are different and that they may exert different externalities on the firms around them.[47] Multinational firms may embody more technology than their domestic counterparts and are more likely introduce new products or processes which benefit the accelerated diffusion of new technology. If the benefits from foreign ownership are not entirely internalized then domestic firms stand to gain from the presence of foreign firms. Alternatively the entry of a multinational firm might simply crowd out national firms competing away their market shares and forcing them up their cost curves, or by bidding up the prices of inputs. A second literature in regional economics has recognized that strength of the interaction between firms is not neutral with respect to distance.[48] Combining the insight that foreign and domestic firms exert different externalities with the possibility that these externalities attenuate with distance gives rise to a spatial methodology with which to examine the effect of foreign firms on domestic entrepreneurship.

a. Construction of Variables and Significance Tests

For each industry s we classify our firms into three types: "foreign" firms if they report a foreign owner in 2004, "new" if they are less than two years old and do not have a foreign parent, and "domestic" if they satisfy neither of these criteria. We restrict our attention in this section to data for manufacturing industries in UK, Spain, France, and Germany due to limitations on our access to geocoded postcode information for a large number of countries at reasonable cost Western European countries. From the Dun and Bradstreet data, we have for each establishment a post code address which is the physical address of the business. We match the postcode information for each establishment[49] with latitude/longitude co-ordinates[50] enabling us to locate each establishment at the centre of each post code and also to describe the distance between establishments as the great-circle distance between postcodes.[51] Let the number of foreign firms in the industry be N_f. For new firm, i, in each industry, s, we calculate the bilateral distance d_{ijs} to every foreign firm, j. We calculate an average distance, d_{is}, for each new firm excluding distances over 100km.[52] In our furniture example the average distance between new and foreign firms is 25.6km.

A key requirement of spatial analysis is that we be able to say something about its statistical significance. We do this by testing how the average distance between new firms and foreign firms differs

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[47] For a survey see Barba-Navarett and Venables (2004).

[48] A number of studies have considered the effect of the geographic distribution of incumbents on the establishment and performance of new firms. Henderson (2003) finds that new firms are more productive when located near concentrations of firms in the same industry, and similarly Rosenthal and Strange (2003) find evidence that firm entry is more likely near concentrations of existing employment in the same industry, see also Ciccone and Hall (1996).

[49] Dun and Bradstreet reports the physical location of the establishment rather than a registered address.

[50] In the UK this comes from the All Fields Postcode Directory, for other countries it was supplied by MapMechanics. The maximum error is the distance from the centre of the postcode to its extremity, which in the UK is less than 100m for 99% of establishments, and a maximum of a few kilometers for other countries.

[51] The formula for the great-circle distances between the two points, i.e. the shortest distance over the earth's surface, using the 'Haversine' formula is distance(1,2) = acos(sin(lat1). sin(lat2) + cos(lat1). cos(lat2). cos(long2−long1)).

[52] For computational ease and since the effect of firms is expected to attenuate over distance.

from some counterfactual which we construct by considering the properties of a random entry pattern. In a random counterfactual our entrants would locate no differently whether the firms were foreign or domestically owned. To mimic this we create a control group of firms which includes all the foreign firms and a group of matched domestic firms in the industry. We randomly draw, without replacement, N_f firms from this control group. This is equivalent to randomly re-labelling all the firms as either domestic or foreign while holding the share of both groups constant.

Determining matching criteria for our control group requires us to consider which qualities of foreign firms we are analysing. As discussed above, foreign firms are different to domestic firms along various dimensions including size, productivity, innovation, wage rates, linkages with domestic suppliers, etc. Our method of constructing a counterfactual from a pool of foreign and domestic firms essentially involves differencing out the effect of one set of characteristics on which the matching is based, and identifying across the remainder. Our objective is to understand the aggregate effect of foreign firms so we use a parsimonious matching criteria which does not control for any firm characteristics except those required to ensure that our counterfactual pool has the same industry mix, size and age profile. Accordingly we match our firms only on three characteristics: SIC code (to control for differences across industries), age (to ensure that our results are not affected by endogenous time varying location characteristics), and size (to control for scale). We use exact matching techniques to match each domestic firm with one foreign firm. In order to qualify as a match the domestic firm must be in the same industry as the foreign firm, its year of establishment (the first date it operated under its current ownership in that location) must be within +/- two years and its number of employees must be no more than +/- 10 percent of its counterpart. Using these criteria we find an average of 2.7 domestic firms per foreign firm. This gives us a total pool across all our industries of 41,921 foreign firms and 155,108 domestic firms. Table C1 indicates that the differences between our foreign firms and control group are small (by construction).

Using these firms we run 1000 simulations, each time drawing N_f firms in each industry from the control group and calculating the average distance between new firms and these draws. Our confidence interval for the mean distance between new and foreign firms is constructed such that only 5% of our counterfactual mean distances between new firms and randomly selected control firms are above or below the upper and lower bound.

b. Spatial Results

Our question is whether the location patterns of new firms are essentially a random allocation with respect to the ownership of existing firms. We dropped 268 industries (out of 956 industries—239 industries in four countries) because they had less than 10 new firms or less than 10 foreign firms in any country. We find that the average distance from a new firm to a foreign firm in the same industry is 23.3 km. Several conclusions emerge with respect to four-digit industries: (i) our average distance between new firms and foreign firms in the same industry is 23.3 Kms, (ii) this is greater than the average distance from our Monte Carlo simulations drawing at random from a pool of foreign and domestic firms (25.2). (iii) The

5th percentile of the mean of these counterfactual draws is 24 Kms (the 8th percentile corresponds to 23.3). Thus for firms in the same industry we conclude that while the average distance between new and foreign firms is larger than the distance from counterfactuals, we cannot say that it differs from what might be produced from a random allocation at the 5% level of significance. However our results are stronger when we consider relationships between industries. Following our methodology in the previous section, for each industry we use input-output matrices to identify the 5 paired industries for which the input output coefficient is greatest. For example, SIC 2262 Finishers of Broadwoven Fabrics of Manmade Fiber and Silk is a key input of 2392 House furnishing, Except Curtains and Draperies. When considering these vertically industries we find that our mean distance between new firms (26.4) corresponds to the 2nd percentile in the counterfactual distribution. This is consistent with recent work has considered the positive effects of FDI on domestic enterprise through backward and forward linkages, showing that foreign firms may foster the development of domestic firms in the host country (see Javorcik, 2004). We find that the creation of new firms is particularly responsive to the geographic distribution of foreign firms in downstream industries, suggesting that foreign firms create opportunities for new firms in their supply chain and consistent with our previous findings.

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Table 1: Country Entrepreneurship Data: Summary Statistics—2004

Country	# Firms	Empl. Mean	Empl. Skewness	Age Mean	Entry	% Foreign Firms
Algeria	1,182	575	12	14	3.1	0.6
Angola	195	748	9	16	5.1	23.1
Argentina	8,627	107	17	17	4.7	8.3
Australia	653,466	28	191	18	0.2	0.5
Austria	207,939	11	84	18	5.5	1.6
Belgium	639,073	7	697	16	6.1	0.8
Bolivia	563	80	4	16	4.5	7.6
Bosnia-Herzegovina	170	89	4	17	2.6	1.8
Brazil	263,090	46	89	18	0.3	0.8
Bulgaria	2,196	169	19	9	6.6	3.0
Burkina-Faso	87	583	9	16	2.9	10.3
Cameroon	125	242	5	20	2.8	11.2
Canada	597,993	11	163	19	2.8	1.2
Chile	3,218	161	10	17	5.1	6.2
China	78,237	408	114	13	4.6	5.5
Colombia	2,898	147	8	21	3.3	7.5
Costa Rica	1,332	354	35	19	4.8	5.3
Croatia	979	106	11	17	1.8	1.3
Czech Republic	1,097,489	67	13	11	2.0	0.3
Denmark	404,637	4	335	12	13.0	0.7
Dominican Republic	1,536	177	13	19	2.7	2.9
Ecuador	1,024	147	8	19	4.4	6.9
Egypt	2,198	552	13	20	2.3	3.6
El Salvador	664	173	6	19	3.3	6.2
Estonia	1,383	87	8	11	2.2	18.7
Ethiopia	132	926	4	22	2.3	1.5
Finland	267,694	3	91	15	7.2	0.8
France	4,024,287	3	1,053	12	11.9	1.1
Gabon	76	139	4	21	3.3	11.8
Gambia	26	142	3	16	5.8	0.0
Georgia	106	205	7	9	5.7	1.9
Germany	1,228,884	17	502	19	5.4	1.0
Ghana	521	189	10	16	3.4	2.9
Greece	27,883	33	60	16	3.1	0.3
Guatemala	679	139	13	15	4.0	5.2
Honduras	450	163	5	19	3.3	7.6
Hungary	66,585	41	95	12	1.6	2.3
India	9,682	637	88	20	1.8	2.1
Indonesia	682	688	10	18	2.1	9.2
Iran	1,226	476	10	19	4.0	0.2
Ireland	17,429	60	36	23	1.7	5.8
Israel	68,164	25	62	19	0.9	0.0
Italy	1,181,012	6	374	18	1.6	0.2
Jamaica	424	153	6	21	2.6	5.9
Japan	1,356,841	20	650	26	5.9	0.2
Jordan	734	119	9	15	5.4	0.3
Kenya	1,111	266	13	21	1.5	4.3
Korea South	156,168	14	144	5	19.9	0.1
Kuwait	922	337	8	20	4.6	0.5
Latvia	1,386	110	18	9	9.1	15.9

cont.

Table 1: Country Entrepreneurship Data: Summary Statistics—2004 (*Continued*)

Country	# Firms	Empl. Mean	Empl. Skewness	Age Mean	Entry	% Foreign Firms
Lebanon	921	72	7	14	7.4	0.8
Lithuania	1,248	155	16	12	3.6	5.7
Madagascar	124	591	8	20	3.2	6.5
Malaysia	23,118	102	31	17	1.7	3.9
Mauritius	358	253	4	21	2.2	0.3
Mexico	23,817	123	23	17	2.9	8.1
Morocco	2,295	202	17	20	4.4	4.2
Mozambique	159	616	9	17	3.1	18.2
Netherlands	1,042,095	8	184	13	12.5	1.2
New Zealand	50,541	20	58	18	1.9	2.7
Nicaragua	213	104	3	19	2.6	7.5
Nigeria	1,088	254	11	19	2.3	3.3
Norway	168,981	10	114	14	10.8	3.3
Oman	405	806	8	17	4.0	0.7
Panama	1,250	125	16	18	5.1	7.9
Papua New Guinea	102	386	4	26	0.5	19.6
Paraguay	411	118	9	18	3.9	7.1
Peru	7,746	77	10	14	6.8	2.4
Philippines	1,718	303	6	17	6.1	6.1
Poland	4,619	114	16	13	1.2	15.2
Portugal	488,633	5	103	13	7.2	0.5
Romania	3,877	244	25	10	9.5	15.3
Saudi Arabia	1,850	935	12	20	3.4	0.8
Senegal	237	176	6	21	4.4	3.0
Singapore	63,277	30	38	13	9.1	3.9
Slovakia	4,466	164	17	12	4.4	19.4
Slovenia	3,265	73	15	18	2.5	2.8
Spain	320,577	7	96	11	10.5	0.1
Sudan	135	1,275	11	20	4.8	2.2
Sweden	825,988	4	247	13	9.3	1.0
Switzerland	271,689	30	160	16	6.7	2.7
Syria	441	456	13	21	2.8	0.2
Tanzania	179	257	5	15	2.0	6.1
Thailand	1,471	443	8	16	2.9	5.8
Togo	59	160	4	20	3.4	6.8
Trinidad & Tobago	563	176	12	21	2.2	3.4
Tunisia	2,289	225	33	15	4.3	1.5
Turkey	10,467	761	10	11	11.6	4.0
Uganda	154	480	6	19	2.3	7.8
United Arab Emirates	5,407	674	13	12	9.2	6.9
United Kingdom	893,589	19	424	19	3.3	1.7
Uruguay	934	107	12	20	3.7	10.0
USA	7,389,228	9	2,351	18	6.1	0.2
Venezuela	2,134	130	7	22	2.4	7.8
Vietnam	114	1,073	10	10	7.5	1.8
Yemen	189	981	4	23	1.1	1.1
Zambia	112	1,215	10	19	4.9	14.3
Zimbabwe	98	375	4	26	4.6	4.1

Notes: Summary statistics correspond to D&B Data Set of 24 million firms for 2004. Counts do not consider SIC 9 (public sector) and industry 43. Entry corresponds to the percentage of new firms to total firms. See Appendix A for detailed data description.

Table 2: Industry Entrepreneurship Data Summary Statistics—2004

SIC	# Firms	Sales Mean (U.S.$)	Employ. Mean	Employ. Skew.	Age Mean	Entry	% Foreign Firms	SIC	# Firms	Sales Mean (U.S.$)	Sales Skew.	Employ. Mean	Employ. Skew.	Age Mean	Entry	% Foreign Firms
01	713,580	371,031	3	435	20	3.26	0.02	46	3,402	112,349,111	17	59	7	14	2.59	0.38
02	428,394	354,196	2	105	20	3.95	0.01	47	213,269	4,307,284	90	14	92	13	7.11	1.13
07	295,844	526,947	5	120	15	6.90	0.03	48	79,048	20,836,546	81	49	158	10	12.26	0.98
08	128,309	431,695	3	178	11	8.96	0.04	49	94,020	26,437,706	65	52	59	17	6.38	0.86
09	27,370	1,070,338	8	53	16	5.41	0.15	50	1,145,973	6,793,763	823	14	465	16	6.02	1.26
10	6,630	36,115,356	176	28	17	2.29	1.61	51	939,051	8,613,254	220	15	453	16	4.83	0.69
12	2,219	37,816,832	768	12	20	2.66	1.01	52	181,317	1,855,490	255	7	252	19	4.41	0.17
13	22,876	54,532,790	106	88	19	4.08	1.29	53	59,883	25,936,266	179	34	112	15	8.78	0.22
14	19,904	7,361,145	34	121	22	4.09	1.45	54	510,605	3,017,759	136	9	418	15	6.84	0.25
15	696,335	1,901,223	8	650	18	6.40	0.05	55	393,621	4,342,818	131	10	366	19	4.98	0.32
16	206,270	4,971,769	23	267	24	4.32	0.22	56	394,170	1,116,349	242	5	126	16	7.75	0.29
17	1,765,406	137,907,664	6	473	17	6.50	0.07	57	406,919	1,608,978	444	6	271	18	6.13	0.26
20	208,737	12,668,835	40	126	19	6.12	0.62	58	987,537	661,171	241	8	176	13	8.33	0.19
21	1,009	129,953,155	380	11	21	5.15	6.10	59	1,284,587	431,245,780	728	4	830	15	7.55	0.23
22	70,833	4,910,092	68	37	20	3.65	0.57	60	60,375	54,469,078	132	85	43	26	5.39	1.85
23	127,738	2,907,002	32	48	16	5.00	0.22	61	82,477	12,645,087	142	18	176	12	9.52	0.84
24	165,074	3,159,681	16	162	17	3.54	0.16	62	101,485	7,669,455	112	19	146	12	13.15	0.69
25	93,738	2,704,394	18	42	18	4.45	0.30	63	44,338	438,666,659	169	99	78	20	5.69	1.86
26	30,691	21,072,167	74	45	22	3.66	2.08	64	217,775	2,285,519	367	7	210	17	5.24	0.24
27	240,919	3,598,782	18	453	18	5.85	0.36	65	1,147,555	1,103,200	515	5	822	16	9.93	0.21
28	72,077	29,874,511	89	60	19	5.48	3.31	67	556,167	13,814,174	258	35	205	14	8.91	0.65
29	5,344	188,566,761	320	66	20	4.02	2.78	70	237,768	1,444,980	116	15	148	17	5.12	0.24
30	72,595	9,534,537	57	55	20	3.51	1.81	72	897,896	325,497	263	4	177	14	7.19	0.07
31	29,394	3,203,448	49	24	19	3.41	0.55	73	1,878,877	4,724,003	1,175	11	236	11	9.22	0.47
32	91,907	6,933,111	39	91	20	4.41	1.29	75	503,720	778,447	289	5	219	17	4.78	0.21
33	46,587	24,965,634	120	49	20	4.03	1.65	76	317,479	578,566	348	5	314	16	6.14	0.16
34	279,551	4,085,868	24	82	19	3.48	0.55	78	112,650	1,455,396	177	6	123	12	9.10	0.21
35	227,043	9,654,378	38	75	20	4.65	1.42	79	576,247	1,212,539	332	10	667	14	9.34	0.04
36	150,398	40,090,440	84	42	16	5.32	1.66	80	866,390	1,617,395	314	16	82	16	5.42	0.03
37	56,890	65,109,353	103	61	19	5.75	1.93	81	244,511	597,825	298	6	162	18	4.09	0.02
38	72,627	9,876,270	40	241	17	5.50	1.54	82	310,302	2,755,343	175	27	111	19	6.43	0.06
39	130,857	2,160,329	16	59	16	5.54	0.32	83	318,884	911,584	84	16	161	17	5.71	0.03
40	1,894	96,294,822	417	19	19	5.86	2.11	84	18,920	907,950	18	10	23	21	5.26	0.06
41	150,949	1,710,587	31	349	15	6.71	0.23	86	627,854	1,017,928	275	8	387	24	4.08	0.01
42	372,994	2,402,695	12	287	16	6.34	0.29	87	1,571,535	1,530,838	419	8	284	12	8.43	0.30
44	35,435	8,918,267	29	89	18	6.34	0.88	88	3,757	392,338	23	2	31	6	22.85	0.00
45	18,339	41,512,170	94	50	15	5.27	1.70	89	131,361	771,817	79	8	182	12	10.67	0.18

Notes: Notes: Summary statistics correspond to D&B Data Set of 24 million firms for 2004. Counts do not consider SIC 9 (public sector) and industry 43. Entry corresponds to the percentage of new firms. See Appendix A for detailed data description.

Table 3: Summary Statistics for Capital Mobility—2004

Country	*De Jure* IMF Index	*De Facto* Capital Inflows/GDP	*De Facto* FDI Inflows/GDP	*De Facto* Foreign Liabilities/GDP	*De Facto* Gross Capital Flows/GDP	*De Facto* Net Capital Flows/GDP
Algeria	0.917		1.042	36.185		
Angola	0.846	6.983	7.409	138.803	25.735	-3.236
Argentina	0.615	-5.034	2.669	135.792	15.634	-12.983
Australia	0.769	11.092	6.664	145.651	32.016	8.592
Austria	0.308	20.562	1.376	205.214	41.900	-0.775
Belgium	0.154	37.291	11.376	394.311	73.485	-7.038
Bolivia	0.308	3.470	1.328	133.344	5.029	3.706
Bosnia-Herzegovina	0.462		7.181	82.474	21.790	
Brazil	0.538	1.432	3.008	77.587	8.788	-1.334
Bulgaria	0.462	17.730	8.310	110.525	29.591	12.081
Burkina-Faso	1.000		0.726	40.715		
Cameroon	0.923		0.002	56.257		
Canada	0.154	4.376	0.643	111.613	13.984	0.465
Chile	0.462	7.165	8.079	118.219	21.499	-6.122
China	0.923	5.387	2.844	47.403	9.985	6.751
Colombia	0.846	4.499	3.123	70.749	10.887	2.755
Costa Rica	0.000	4.475	3.350	68.744	12.316	3.976
Croatia	0.846	14.072	3.622	126.210	20.844	9.534
Czech Republic	0.385	11.785	4.162	98.606	19.622	8.884
Denmark	0.154	2.003	-3.647	207.762	37.962	-13.973
Dominican Republic	0.615	3.603	3.455	88.038	13.521	1.188
Ecuador	0.231	6.177	3.832	99.613	13.081	1.059
Egypt	0.462	1.602	1.591	77.683	13.258	-5.358
El Salvador	0.231	4.497	2.944	97.246	12.461	4.590
Estonia	0.308	28.934	9.330	194.070	51.933	21.678
Ethiopia	0.846	4.185	6.811	109.375	3.987	0.914
Finland	0.385	12.853	1.654	207.551	42.103	-12.821
France	0.154	19.763	1.198	206.368	26.102	-3.513
Gabon	1.000		4.465	66.398		
Gambia	0.154		14.455			
Georgia	0.167	10.138	9.595	93.503	12.359	8.958
Germany	0.077	6.444	-1.274	159.067	27.421	-4.765
Ghana	0.769	4.246	1.570	131.620	6.783	2.273
Greece	0.231	14.211	0.660	140.271	32.346	11.842
Guatemala	0.231	4.498	0.564	39.418	11.564	7.092
Honduras	0.615	9.382	3.975	115.248	7.986	9.764
Hungary	0.154	11.120	4.576	138.969	24.692	18.807
India	1.000		0.772	34.320		
Indonesia	0.846	1.163	0.397	76.452	4.564	2.414
Iran	1.000		0.306	12.325		
Ireland	0.154	134.261	6.079	949.880	314.072	-2.871
Israel	0.154	5.049	1.424	116.012	18.682	-3.192
Italy	0.154	6.432	1.000	123.625	10.430	2.403
Jamaica	0.417	28.593	6.786	146.729	45.506	14.784
Japan	0.154	4.733	0.169	50.989	14.374	0.983
Jordan	0.231	4.950	5.387	105.826	18.125	-5.595
Kenya	0.462	2.636	0.286	51.437	7.249	-0.166
Korea South	0.846	4.347	1.205	56.600	8.546	2.620
Kuwait	0.538	-0.018	-0.037	25.267	35.804	-60.182
Latvia	0.308	28.552	5.149	122.556	43.069	16.238

cont.

Table 3: Summary Statistics for Capital Mobility—2004 (*Continued*)

Country	*De Jure* IMF index	*De Facto* Capital Inflows/GDP	*De Facto* FDI Inflows/GDP	*De Facto* Foreign Liabilities/GDP	*De Facto* Gross Capital Flows/GDP	*De Facto* Net Capital Flows/GDP
Lebanon	0.615	31.954	1.323	243.293		32.373
Lithuania	0.385	10.095	3.473	71.972	19.420	6.075
Madagascar	1.000		1.031	119.808		
Malaysia	0.923	16.061	3.908	113.051		10.630
Mauritius	0.308	2.360	0.230	34.480	6.460	-0.466
Mexico	0.769	2.889	2.569	63.368	6.897	3.158
Morocco	0.846	1.087	1.537	80.127	7.558	1.282
Mozambique	1.000	1.110	4.021	108.767	7.919	-1.181
Netherlands	0.077	-6.413	0.065	408.345	66.604	-14.714
New Zealand	0.154	10.038	2.296	154.822	15.448	15.352
Nicaragua	0.231	1.570	5.489	132.920	6.088	1.339
Nigeria	1.000	0.000	0.000			
Norway	0.385	15.223	0.201	140.781	31.751	-19.622
Oman	0.333	6.836	-0.070	32.373	8.615	5.217
Panama	0.000	18.218	7.369	207.828	39.017	4.210
Papua New Guinea	1.000		0.651	128.898		
Paraguay	0.077	1.737	1.259	63.630	3.433	1.538
Peru	0.154	4.061	2.646	83.622	6.769	4.654
Philippines	0.923	1.075	0.555	97.969	13.703	-5.444
Poland	0.769	9.219	5.206	84.914	18.084	7.263
Portugal	0.385	15.907	0.492	245.704	37.566	6.307
Romania	0.385	15.857	7.435	65.314	14.225	13.982
Saudi Arabia	0.769	0.472		25.072	19.964	-29.567
Senegal	1.000		0.900	75.584		
Singapore	0.385	44.971	15.009	424.184	116.893	-22.673
Slovakia	0.231	0.000	2.731	97.037		
Slovenia	0.538	11.440	2.570	84.430	22.407	-0.154
Spain	0.154	18.345	1.596	174.532	30.793	13.366
Sudan	0.818	3.835	7.162	113.067	10.398	6.862
Sweden	0.462	-1.560	-0.170	222.986	44.801	-17.271
Switzerland	0.154	9.462	-0.223	421.277	54.774	-29.122
Syria	1.000	-0.250	1.145	142.015	1.561	-0.250
Tanzania	1.000	2.111	2.296	97.850	3.508	2.013
Thailand	0.846	0.196	0.873	74.153	7.945	0.945
Togo	1.000		2.911	131.259		
Trinidad & Tobago	0.308		7.983	108.609		
Tunisia	0.923	6.176	2.105	134.442	6.583	5.253
Turkey	0.769	8.797	0.903	72.875	12.838	8.277
Uganda	0.154	4.660	3.254	94.938	4.819	4.411
United Arab Emirates	0.385			20.581		
United Kingdom	0.154	46.156	3.416	373.679	91.744	-3.410
Uruguay	0.154	6.848	2.352	154.671	22.043	-3.353
USA	0.308	12.296	0.912	106.661	20.043	10.606
Venezuela		0.027	1.379	72.272	16.213	-9.681
Vietnam	1.000	6.131	3.561	85.403		6.209
Yemen	0.308	-0.287	1.119	49.923	1.563	-0.585
Zambia	0.077		6.183	134.320		
Zimbabwe	1.000		1.278			

Notes: The IMF index is the average of controls to: capital market securities; money market instruments; collective investment securities; derivatives and other instruments; commercial credits; financial credits; guarantees, securities and financial backup facilities; direct investment; real estate transactions; and personal capital transactions, from IMF, AREAER. Total Capital Inflows/GDP are the sum of inflows of foreign direct investment, portfolio, derivatives and debt flows, from IMF, IFS. FDI Inflows/GDP are foreign direct investment flows, net from WB, WDI. Gross Capital Flows/GDP are the sum of the absolute values of direct, portfolio, and other investment inflows and outflows excluding changes in the assets and liabilities of monetary authorities and general government from WB, WDI. Net Capital Flows are the sum of the inflows and outflows of foreign direct investment, portfolio, derivatives and debt flows, from IMF, IFS. Foreign Liabilities/GDP from Lane-Milesi Ferreti. See Appendix A for detailed data description.

Table 4: Summary Statistics for Main Control Variables by Country—2004

Country	Bureau. Qual.	Non-Corrup.	Law and Order	Country	Bureau. Qual.	Non-Corrup.	Law and Order
Algeria	2.00	1.50	2.00	Latvia	2.50	2.00	5.00
Angola	1.00	2.00	3.00	Lebanon	2.00	1.00	4.00
Argentina	3.00	2.50	1.50	Lithuania	2.50	2.50	4.00
Australia	4.00	4.50	6.00	Madagascar	1.00	4.00	2.50
Austria	4.00	5.00	6.00	Malaysia	3.00	2.50	3.00
Belgium	4.00	4.00	5.00	Mexico	3.00	2.00	2.00
Bolivia	2.00	2.00	3.00	Morocco	2.00	3.00	5.00
Bosnia-Herzeg.				Mozambique	1.00	1.50	3.00
Brazil	2.00	4.00	1.50	Netherlands	4.00	5.00	6.00
Bulgaria	2.00	2.00	4.00	New Zealand	4.00	5.50	6.00
Burkina-Faso	1.00	2.00	3.50	Nicaragua	1.00	2.50	4.00
Cameroon	1.00	2.00	2.00	Nigeria	1.00	1.00	1.50
Canada	4.00	5.00	6.00	Norway	4.00	5.00	6.00
Chile	3.00	2.50	5.00	Oman	2.00	2.50	5.00
China	2.00	2.00	4.50	Panama	2.00	2.00	3.00
Colombia	2.00	3.00	1.00	Papua New Guinea	2.00	1.00	2.00
Costa Rica	2.00	2.50	4.00	Paraguay	1.00	1.00	2.00
Croatia	3.00	3.00	5.00	Peru	2.00	2.50	3.00
Czech Republic	3.00	2.50	5.00	Philippines	3.00	2.00	2.00
Denmark	4.00	5.50	6.00	Poland	3.00	2.00	4.00
Dominican Rep.	1.00	2.00	2.00	Portugal	3.00	3.50	5.00
Ecuador	2.00	3.00	3.00	Romania	1.00	2.50	4.00
Egypt	2.00	1.50	4.00	Saudi Arabia	2.00	2.00	5.00
El Salvador	2.00	2.50	2.50	Senegal	1.00	2.50	3.00
Estonia	2.50	3.00	4.00	Singapore	4.00	4.50	5.00
Ethiopia	1.00	2.00	5.00	Slovakia	3.00	2.50	4.00
Finland	4.00	6.00	6.00	Slovenia	3.00	3.00	4.50
France	3.00	3.00	5.00	Spain	4.00	3.50	4.50
Gabon	2.00	1.00	3.00	Sudan	1.00	1.00	2.50
Gambia	2.00	3.00	4.00	Sweden	4.00	5.00	6.00
Georgia				Switzerland	4.00	4.50	5.00
Germany	4.00	4.50	5.00	Syria	1.00	2.00	5.00
Ghana	2.00	2.50	2.00	Tanzania	1.00	2.00	5.00
Greece	3.00	2.50	3.00	Thailand	2.00	1.50	2.50
Guatemala	2.00	1.50	1.50	Togo	0.00	1.50	3.00
Honduras	2.00	2.50	1.50	Trinidad & Tobago	3.00	2.00	2.00
Hungary	4.00	3.00	4.00	Tunisia	2.00	2.00	5.00
India	3.00	1.50	4.00	Turkey	2.00	2.50	4.50
Indonesia	2.00	1.00	2.00	Uganda	2.00	2.00	4.00
Iran	2.00	2.00	4.00	UAE	3.00	2.00	4.00
Ireland	4.00	3.50	6.00	United Kingdom	4.00	4.50	6.00
Israel	4.00	4.00	5.00	Uruguay	2.00	3.00	2.50
Italy	2.50	2.50	3.00	USA	4.00	4.00	5.00
Jamaica	3.00	1.50	1.00	Venezuela	1.00	1.50	1.00
Japan	4.00	3.50	5.00	Vietnam	2.00	1.50	4.00
Jordan	2.00	3.00	4.00	Yemen	1.00	2.00	2.00
Kenya	2.00	3.50	2.00	Zambia	1.00	2.00	4.00
Korea South	0.00	1.00	5.00	Zimbabwe	2.00	0.00	0.50
Kuwait	2.00	2.00	5.00				

Notes: Days to start a business data are from World Bank, World Development Indicators. The indices of Bureaucratic Quality (institutional strength and quality of the bureaucracy, 0-6) Non-Corruption index (assessment of corruption within the political system, 0-6), Law and Order (law: assessment of the strength and impartiality of the legal system; order: assessment of the popular observance of the law; 0-6) from the International Country Risk Guide, PRS Group. See Appendix A for detailed data description.

Table 5: Correlation for Main Variables—2004

	Entry	Age	Empl.	Skew. Empl.	IMF Index	FDI Inflows	Gross Capital Flows	Capital Inflows	Foreign Liabilities	Net Capital Flows	Log GDP	Log GDPpc	GDP Growth	Bureau. Qual.	Non-Corrup.	Law and Order	Domestic Credit
Entry	1.0000																
Age	-0.4193	1.0000															
Empl.	-0.1815	0.2149	1.0000														
Skew. Empl.	0.0803	-0.0388	-0.4118	1.0000													
IMF Index	-0.0898	-0.0246	0.4159	-0.2298	1.0000												
FDI Inflows/GDP	-0.0576	-0.1032	0.1187	-0.1203	0.0486	1.0000											
Gross Capital Flows/GDP	-0.0030	0.0637	-0.1914	0.1217	-0.3033	0.3065	1.0000										
Capital Inflows/GDP	-0.0426	0.0420	-0.1320	0.1090	-0.2788	0.4153	0.9294	1.0000									
Foreign Liabilities/GDP	0.0373	0.0527	-0.3032	0.1909	-0.3712	0.2488	0.9400	0.8341	1.0000								
Net Capital Flows/GDP	-0.1273	-0.0922	0.1624	-0.0841	0.0650	0.1848	-0.2145	0.0286	-0.2719	1.0000							
Log GDP	0.0612	0.0793	-0.3440	0.4761	-0.1613	-0.2773	0.1573	0.1162	0.2050	-0.1671	1.0000						
Log GDPpc	0.1211	0.0207	-0.5533	0.4073	-0.5279	-0.1114	0.4366	0.3522	0.4834	-0.3211	0.6434	1.0000					
GDP Growth	-0.0080	-0.0771	0.4345	-0.2921	0.4001	0.3825	-0.0826	-0.0408	-0.1945	0.0573	-0.3198	-0.4566	1.0000				
Bureaucratic Quality	0.0604	0.0367	-0.5310	0.3695	-0.4168	-0.0909	0.4394	0.3505	0.5132	-0.2153	0.5993	0.8552	-0.4611	1.0000			
Non-Corruption	0.1096	0.0275	-0.5527	0.3495	-0.4233	-0.1503	0.3216	0.2071	0.4345	-0.3078	0.4499	0.7394	-0.4076	0.7845	1.0000		
Law and Order	0.1496	-0.0530	-0.3874	0.2962	-0.3302	-0.0298	0.4090	0.3556	0.4483	-0.2137	0.3747	0.6848	-0.2444	0.6638	0.6857	1.0000	
Domestic Credit/GDP	0.0796	0.0676	-0.4417	0.4537	-0.3916	-0.1898	0.4251	0.3278	0.5255	-0.1788	0.6327	0.6708	-0.3814	0.6611	0.5944	0.6181	1.0000

Notes: See Appendix A for detailed data description.

Table 6a: Entrepreneurship and Capital Mobility I—1999 & 2004 (Tobit/Weighted)
Dependent Variable: Entrepreneurship—Entry

	Capital Mobility measured as				
	De Jure IMF Index	*De Facto* Capital Inflows/GDP	*De Facto* FDI Inflows/GDP	*De Facto* Foreign Liabilities/GDP	*De Facto* Gross Capital Flows/GDP
	(1)	(2)	(3)	(4)	(5)
Capital Mobility	-1.415	0.080	0.158	0.010	0.154
	[0.711]*	[0.022]***	[0.017]***	[0.003]**	[0.004]***
Log GDP	0.594	0.775	0.838	0.983	1.323
	[0.108]***	[0.158]***	[0.158]***	[0.157]***	[0.156]***
Log GDP per capita	1.923	0.821	1.855	1.753	-0.005
	[0.238]***	[0.245]***	[0.215]***	[0.232]***	[0.267]
GDP Growth	0.180	0.192	0.089	0.553	0.016
	[0.067]***	[0.068]**	[0.067]	[0.085]***	[0.088]
Bureaucratic Quality	-0.556	-0.830	-1.483	-0.155	-1.067
	[0.271]*	[0.423]*	[0.274]***	[0.455]	[0.424]***
Non-Corruption	-0.061	0.245	0.426	0.693	0.234
	[0.180]	[0.204]	[0.189]*	[0.248]***	[0.185]
Law and Order	0.577	0.963	0.856	0.615	0.905
	[0.155]***	[0.162]***	[0.159]***	[0.180]***	[0.167]***
Domestic Credit/GDP	0.000	0.008	-0.002	-0.002	-0.004
	[0.005]	[0.002]***	[0.002]	[0.006]	[0.005]
# Observations	7107	6137	7348	5280	5852

Notes: All regressions include, country, industry dummies, and time dummies and are estimated using Tobit. Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. The dependent variable corresponds to the number of new firms relative to all firms in the country/industry pair. The capital mobility variable corresponds to IMF index in (1); Capital Inflows/GDP in (2); FDI Inflows/GDP in (3); Foreign Liabilities/GDP in (4); and Gross Capital Flows/GDP in (5). GDP data, Domestic Credit/GDP come from WB, WDI. Bureaucratic Quality, Non-corruption and Law and Order from ICRG. See Appendix A for detailed description of the data.

Table 6b: Entrepreneurship and Capital Mobility II— 1999 & 2004 (OLS/Weighted)
Dependent Variable: Entrepreneurship—Size (Log of Employment)

	Capital Mobility measured as				
	De Jure IMF Index	*De Facto* Capital Inflows/GDP	*De Facto* FDI Inflows/GDP	*De Facto* Foreign Liabilities/GDP	*De Facto* Gross Capital Flows/GDP
	(1)	(2)	(3)	(4)	(5)
Capital Mobility	0.461	-0.051	-0.018	-0.016	-0.068
	[0.229]*	[0.013]***	[0.064]	[0.002]***	[0.010]***
Log GDP	0.045	0.106	0.242	-0.102	0.067
	[0.069]	[0.085]	[0.123]*	[0.078]	[0.093]
Log GDP per capita	-0.098	-0.677	-1.982	-0.423	-1.648
	[0.102]	[0.209]***	[0.420]***	[0.156]***	[0.426]***
GDP Growth	0.156	0.158	0.080	0.154	0.045
	[0.040]***	[0.048]***	[0.077]	[0.045]**	[0.071]
Bureaucratic Quality	0.002	0.569	1.753	0.158	1.646
	[0.152]	[0.267]**	[0.452]***	[0.167]	[0.488]***
Non-Corruption	-0.456	-0.456	-0.248	-0.267	-0.185
	[0.083]***	[0.156]***	[0.188]	[0.093]***	[0.185]
Law and Order	0.062	0.148	-0.153	0.154	0.015
	[0.079]	[0.154]	[0.202]	[0.067]*	[0.367]
Domestic Credit/GDP	-0.005	-0.005	-0.003	-0.002	-0.004
	[0.002]**	[0.002]**	[0.003]	[0.002]	[0.001]**
R^2	0.39	0.40	0.42	0.53	0.47
Observations	7312	6737	7232	5643	6318

Notes: All regressions include country, industry, and time dummies and are estimated by OLS with White's correction of heteroskedasticity and corrected at the country level (clustering). Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. The dependent variable corresponds to the skewness of the employment distribution. The capital mobility variable corresponds to IMF index in (1); Capital Inflows/GDP in (2); FDI Inflows/GDP in (3); Foreign Liabilities/GDP in (4); and Gross Capital Flows/GDP in (5). GDP data, Domestic Credit/GDP come from WB, WDI. Bureaucratic Quality, Non-corruption and Law and Order from ICRG. See Appendix A for detailed description of the data.

Table 6c: Entrepreneurship and Capital Mobility III—1999 & 2004 (OLS/Weighted)
Dependent Variable: Entrepreneurship—Skewness of Employment

	Capital Mobility measured as				
	De Jure IMF Index	*De Facto* Capital Inflows/GDP	*De Facto* FDI Inflows/GDP	*De Facto* Foreign Liabilities/GDP	*De Facto* Gross Capital Flows/GDP
	(1)	(2)	(3)	(4)	(5)
Capital Mobility	-7.154	0.195	3.796	0.059	0.167
	[1.311]***	[0.075]**	[1.552]**	[0.015]***	[0.051]***
Log GDP	6.224	5.233	12.185	3.998	4.613
	[0.692]***	[0.674]***	[3.426]***	[0.367]***	[0.614]***
Log GDP per capita	-0.813	0.933	22.832	0.698	0.422
	[0.898]	[1.223]	[12.613]*	[0.512]	[1.723]
GDP Growth	-1.521	-1.229	-5.822	-0.673	-0.858
	[0.424]***	[0.402]***	[2.718]**	[0.226]***	[0.456]**
Bureaucratic Quality	-3.055	-4.013	-45.127	-2.459	-2.880
	[1.281]**	[1.613]**	[13.109]***	[0.906]***	[1.539]*
Non-Corruption	3.756	3.169	6.778	3.653	3.164
	[0.801]***	[0.944]***	[5.830]	[0.648]***	[0.659]***
Law and Order	-0.102	-0.571	4.560	0.045	-0.694
	[0.583]	[0.900]	[6.150]	[0.547	[0.804]
Domestic Credit/GDP	0.091	0.089	0.003	0.043	0.083
	[0.045]**	[0.048]*	[0.001]**	[0.016]**	[0.040]**
R^2	0.48	0.40	0.42	0.53	0.45
Observations	7770	7179	7684	6165	6558

Notes: All regressions include country, industry, and time dummies and are estimated by OLS with White's correction of heteroskedasticity and corrected at the country level (clustering). Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. The dependent variable corresponds to the skewness of the employment distribution. The capital mobility variable corresponds to IMF index in (1); Capital Inflows/GDP in (2); FDI Inflows/GDP in (3); Foreign Liabilities/GDP in (4); and Gross Capital Flows/GDP in (5). GDP data, Domestic Credit/GDP come from WB, WDI. Bureaucratic Quality, Non-corruption and Law and Order from ICRG. See Appendix A for detailed description of the data.

Table 7: Entrepreneurship and Capital Mobility—Benchmark - U.S. 2004 (Rajan and Zingales Methodology)
Dependent Variable: Entrepreneurship—Various Measures

Dependent Variable	Entry Tobit (1)	Skew. OLS (2)	Entry Tobit (3)	Skew. OLS (4)	Entry Tobit (5)	Skew. OLS (6)	Entry Tobit (7)	Skew. OLS (8)	Entry Tobit (9)	Skew. OLS (10)
New Firms in US x IMF Index	-0.183 [0.042]***									
Skewness Firms in US x IMF Index		-0.149 [0.011]***								
New Firms in US x Inflows/GDP			0.006 [0.003]**							
Skewness Firms in US x Inflows/GDP				0.001 [0.000]***						
New Firms in US x FDI Inflows/GDP					0.019 [0.011]*					
Skewness Firms in US x FDI Inflows/GDP						0.002 [0.001]**				
New Firms in US x Foreign Liabilities/GDP							0.065 [0.014]***			
Skewness Firms in US x Foreign Liabilities/GDP								0.091 [0.009]***		
New Firms in US x Gross Flows/GDP									0.006 [0.001]***	
Skewness Firms in US x Gross Flows/GDP										0.003 [0.004]
R^2	0.09	0.23	0.26	0.38	0.19	0.40	0.26	0.47	0.24	0.40
# Observations	6091	4774	4737	4029	5728	4564	4054	2723	4852	3911

Notes: All regressions include country and industry dummies and are estimated by OLS with White's correction of heteroskedasticity. Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. In (1), (3), (5), (7) the dependent variable is entry of new firms; in (2), (4), (6), (8) the skewness of the employment distribution. See Appendix A for detailed description of the data.

Table 8: Channels I—Financial Dependence 2004 (OLS/Weighted)
Dependent Variable: Entrepreneurship—Various Measures

Dependent Variable	Entry Tobit (1)	Skew. OLS (2)	Entry Tobit (3)	Skew. OLS (4)	Entry Tobit (5)	Skew. OLS (6)	Entry Tobit (7)	Skew. OLS (8)	Entry Tobit (9)	Skew. OLS (10)
External Fin. Dep. x IMF Index	-4.840 [0.059]***	-5.270 [1.572]**								
External Fin. Dep. x Inflows/GDP			0.334 [0.021]***	0.110 [0.032]**						
External Fin. Dep. x FDI Inflows/GDP					1.420 [0.211]***	-0.049 [0.034]				
External Fin. Dep. x Foreign Liabilities/GDP							0.050 [0.020]**	-0.041 [0.003]***		
External Fin. Dep. x Gross Flows/GDP									0.050 [0.001]***	0.027 [0.039]
R^2		0.69		0.40		0.40		0.40		0.41
# Observations	5083	4629	4382	4102	5730	4533	4054	3146	4724	3903

Notes: All regressions include country and industry dummies and are estimated by OLS with White's correction of heteroskedasticity. Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. In (1), (3), (5), (7) the dependent variable is entry of new firms; in (2), (4), (6), (8) the skewness of the employment distribution. See Appendix A for detailed description of the data.

Table 9: Channels II—FDI:
Effects of Foreign Firms' Activity on Same, Upstream, and Downstream Industries 2004 (OLS/Weighted)
Dependent Variable: Domestic Entrepreneurship

	Entrepreneurial Activity in					
	Same Industry	Upstream Industries	Downstream Industries	Same Industry	Upstream Industries	Downstream Industries
Dependent Variable:	Domestic Entry (Tobit)			Domestic Skewness (OLS)		
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign Firms	0.270	3.060	3.555	0.523	2.009	2.595
	[0.027]***	[3.169]***	[2.475]	[0.116]***	[0.193]***	[8.264]
Log GDP	1.468	0.420	0.510	4.518	5.052	4.994
	[0.080]***	[0.062]***	[0.095]***	[0.650]***	[0.853]***	[0.846]***
Log GDP per capita	1.207	0.246	-0.054	1.611	0.476	0.346
	[0.146]***	[0.213]	[0.175]	[0.917]*	[1.272]	[1.236]
GDP Growth	0.198	0.082	-0.072	-0.389	1.352	1.306
	[0.044]***	[0.039]**	[0.059]	[0.333]	[0.386]***	[1.375]***
Bureaucratic Quality	1.041	1.672	1.113	1.003	0.387	0.073
	[0.209]***	[0.183]***	[0.278]***	[1.239]	[1.909]	[1.823]
Non-Corruption	1.200	0.625	0.996	1.010	1.460	1.583
	[0.122]***	[0.081]***	[0.127]***	[0.961]	[0.936]	[0.871]*
Law and Order	0.388	-0.095	-0.239	0.564	0.867	0.813
	[0.109]***	[0.094]	[0.147]	[0.775]	[1.000]	[0.983]
Domestic Credit/GDP	0.005	0.013	0.012	0.055	0.091	0.093
	[0.003]*	[0.002]***	[0.003]***	[0.019]***	[0.042]**	[0.042]**
R^2				0.35	0.38	0.38
# Observations	7255	4244	4453	5866	4747	4384

Notes: All regressions include country, industry and time dummies and are estimated by OLS in columns (1)-(3) and Tobit in columns (4)-(6) with White's correction for heteroskedasticity. Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. In columns (1)-(3), the dependent variable is the skewness of the employment distribution of domestic firms; in columns (4)-(6) entry of new domestic firms. For the "same industry," foreign firms are the share of foreign firms to total firms. For the industries upstream and downstream the variable is the number of foreign firms in the up/down industry weighted by the I.O. coefficient between the industries. GDP data, Domestic Credit to GDP are from WB, WDI, Bureaucratic Quality, Non-corruption and Law and Order from ICRG. See Appendix A for a detailed description of the data.

Table B1: Robustness I—Entrepreneurship and Capital Mobility—1999 & 2004 (OLS/Weighted)
Dependent Variable: Entrepreneurship—Skewness

| | Capital Mobility measured as | | | | | |
| | IMF Index | | | Capital Inflows/GDP | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Capital Mobility	-9.214	-8.392	-7.154	0.218	0.204	0.195
	[1.273]***	[1.018]***	[1.311]***	[0.051]***	[0.038]**	[0.075]**
Log GDP		6.739	6.224		5.105	5.233
		[0.703]***	[0.692]***		[0.529]***	[0.674]***
Log GDP per capita		-0.855	-0.813		0.872	0.933
		[0.912]	[0.898]		[1.088]	[1.223]
GDP Growth		-1.320	-1.521		-1.538	-1.229
		[0.359]***	[0.424]***		[0.311]***	[0.402]***
Bureaucratic Quality			-3.055			-4.013
			[1.281]**			[1.613]**
Non-Corruption			3.756			3.169
			[0.801]***			[0.944]***
Law and Order			-0.102			-0.571
			[0.583]			[0.900]
Domestic Credit/GDP			0.091			0.089
			[0.045]**			[0.048]*
R^2	0.13	0.36	0.48	0.13	0.37	0.40
# Observations	7770	7770	7770	7179	7179	7179

Notes: All regressions include country, industry, and time dummies and are estimated by OLS with White's correction of heteroskedasticity and corrected at the country level (clustering). Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. The dependent variable corresponds to the skewness of the employment distribution. The capital mobility variable corresponds to IMF index in (1)-(3) and Capital Inflows/GDP in (4)-(6). GDP, Domestic Credit to GDP data come from WB, WDI. Bureaucratic Quality, Non-corruption and Law and Order from ICRG. See Appendix A for detailed description of the data.

Table B2: Robustness II—Entrepreneurship and Capital Mobility—1999 & 2004 (OLS/Weighted)
Dependent Variable: Entrepreneurship—Various Measures

Dependent Variable	Entry Tobit (1)	Size OLS (2)	Skewness OLS (3)	Skewness OLS (4)	Skewness OLS (5)	Skewness OLS (6)	Skewness OLS (7)	Skewness OLS (8)
IMF Index	-1.181	0.561	-4.613	-7.362	-6.924	-9.294	-7.124	-8.394
	[0.620]**	[0.123]***	[2.137]**	[2.771]***	[2.692]**	[3.296]**	[1.469]***	[2.167]***
Log GDP	0.523	0.050	4.800	5.430	5.358	5.980	5.196	5.667
	[0.151]***	[0.063]	[0.436]***	[0.694]***	[0.699]***	[0.745]***	[0.921]***	[0.690]***
Log GDP per capita	1/629	-0.273	0.267	-0.804	-0.609	-0.800	-0.900	-0.787
	[0.263]***	[0.135]**	[0.994]	[0.966]	[0.937]	[1.130]	[0.939]	[0.945]
GDP Growth	0.169	0.132	-1.247	-1.335	-1.358	-1.732	-1.356	-1.513
	[0.067]**	[0.043]***	[0.263]***	[0.369]***	[0.319]***	[0.393]***	[0.331]***	[0.326]***
Bureaucratic Quality	-1.394	0.153	-3.926	-2.948	-2.930	-3.402	-2.532	-2.993
	[0.380]***	[0.199]	[1.132]***	[1.302]**	[1.260]**	[1.293]***	[1.269]**	[1.290]**
Non-Corruption	0.443	-0.377	2.439	2.936	2.719	2.933	3.051	2.560
	[0.193]**	[0.130]***	[0.634]***	[0.934]***	[0.809]***	[0.969]***	[0.730]***	[0.927]***
Law and Order	0.711	0.043	0.396	-0.107	-0.193	-0.374	0.514	-0.105
	[0.150]***	[0.100]	[0.509]	[0.747]	[0.787]	[0.962]	[0.620]	[0.777]
Domestic Credit/GDP	-0.004	-0.004	0.023	0.109	0.109	0.101	0.043	0.105
	[0.004]	[0.002]	[0.043]*	[0.047]**	[0.047]**	[0.048]**	[0.025]*	[0.048]**
Market Capitalization/GDP	0.005	-0.004	0.045					
	[0.004]	[0.002]	[0.042]					
Rights Borrowers/Lenders	-0.220	0.021	0.996					
	[0.099]***	[0.042]	[0.278]***					
Business Disclosure Index	-0.092	-0.048	-0.004					
	[0.130]	[0.056]	[0.350]					
Inflation				0.109				
				[0.136]				
Volatility GDP					-0.105			
					[0.109]			
GDP Forecasts						0.102		
						[0.922]		
Trade							-0.004	
							[0.045]	
Informal Sector								0.043
								[0.069]
R^2		0.56	0.55	0.39	0.39	0.40	0.39	0.40
# Observations	7021	7083	5430	7076	7328	6292	6974	6868

Notes: All regressions include country, industry and time dummies and are estimated by OLS with White's correction for heteroskedasticity and corrected at the country level (clustering) except for entry regressions estimated by Tobit, which are not clustered. Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. The dependent variable is entry in (1); log of employment in (2); and skewness of employment in (3)-(9). GDP data, financial market indicators, and trade are from WB, WDI. Bureaucratic Quality, Non-corruption and Law and Order from ICRG. GDP Forecasts from EIU; informal sector from Schneider (2002). See Appendix A for a detailed description of the data.

Table B3: Robustness III—Entrepreneurship and Capital Mobility—1999 & 2004 (OLS/Weighted)
Dependent Variable: Entrepreneurship—Various Measures

Dependent Variable	Age	Vintage	Skewness-Wholly Owned Firms	Skewness	Skewness
	OLS	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)
IMF Index	1.060	1.221	-9.150		
	[0.504]**	[0.671]*	[3.102]***		
Log GDP	0.230	1.190	5.963	9.159	11.223
	[0.104]**	[0.131]***	[0.929]***	[4.263]**	[3.728]***
Log GDP per capita	-0.923	-0.933	-0.693	23.994	17.456
	[0.192]***	[0.396]**	[0.990]	[15.556]*	[14.925]
GDP Growth	-0.337	-0.999	-1.351	-2.517	-5.453
	[0.056]***	[0.100]***	[0.373]***	[2.513]	[2.939]*
Bureaucratic Quality	0.596	9.480	-3.516	-35.604	-42.536
	[0.243]**	[0.355]***	[1.539]**	[14.348]**	[15.669]***
Non-Corruption	0.163	0.051	2.109	3.206	9.324
	[0.160]	[0.166]	[0.943]**	[5.935]	[7.300]
Law and Order	-0.583	-2.044	-0.042	-2.594	2.666
	[0.093]***	[0.190]***	[0.803]	[9.092]	[5.516]
Domestic Credit to GDP	0.043	-0.029	0.092	0.109	0.145
	[0.012]***	[0.002]***	[0.047]*	[0.094]	[0.094]
Net Flows/GDP				0.148	
				[0.029]***	
Equity Flows/GDP					3.293
					[1.563]**
R-squared	0.13	0.56	0.35	0.43	0.42
Observations	7326	7239	5610	7217	7262

Notes: All regressions include country, industry, and time dummies and are estimated by OLS with White's correction for heteroskedasticity and corrected at the country level (clustering), except for entry regressions, which are estimated by Tobit and are not clustered. Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. The dependent variable is age in (1); vintage in (2); skewness of employment of wholly owned firms in (3); skewness of employment in (4)-(6). Column (6) reports the two-stage least square estimates, instrumenting the international financial integration measure with LLSV variables. GDP data, Domestic Credit to GDP come from WB, WDI, Bureaucratic Quality, Non-corruption, and Law and Order from ICRG. See Appendix A for a detailed description of the data.

Table B4: Robustness IV—Entrepreneurship and Capital Mobility—1999 & 2004 (OLS/Weighted)
Dependent Variable: Entrepreneurship—Skewness of Employment

	All	Only Manufacturing	Only Rich Countries	Non-U.S.	Regional Dummies
	(1)	(2)	(3)	(4)	(5)
IMF Index	-5.363	-4.199	-8.126	-7.162	-4.434
	[1.983]***	[1.694]**	[2.192]***	[2.770]**	[2.639]*
Log GDP	5.293	3.430	5.777	4.962	5.151
	[0.334]***	[0.405]***	[0.735]***	[0.663]***	[0.604]***
Log GDP per capita	-0.904	-0.922	1.339	-0.440	-0.330
	[0.993]	[0.512]*	[1.293]	[0.993]	[1.051]
GDP Growth	-1.109	-0.539	-1.321	-1.471	-1.150
	[0.320]***	[0.196]***	[0.325]***	[0.299]***	[0.335]***
Bureaucratic Quality	-3.199	-0.996	-3.801	-2.535	-3.042
	[1.199]***	[0.745]	[1.506]**	[1.251]**	[1.294]**
Non-Corruption	2.420	1.405	2.244	2.933	2.622
	[0.922]**	[0.459]***	[1.048]**	[0.734]***	[0.933]***
Law and Order	-0.580	-0.294	-0.634	0.443	-0.674
	[0.733]	[0.485]	[0.906]	[0.604]	[0.747]
Domestic Credit/GDP	0.096	0.059	0.100	0.045	0.105
	[0.047]**	[0.025]**	[0.044]**	[0.020]**	[0.040]***
Sampling Intensity	0.001				
	[0.0004]***				
R^2	0.440	0.440	0.400	0.390	0.400
# Observations	6870	2233	5950	6753	6853

Notes: All regressions include country, industry, and time dummies and are estimated by OLS with White's correction for heteroskedasticity and corrected at the country level (clustering). Robust standard errors are in parentheses denoting *** 1%, **5%, and *10% significance. Regressions are weighted by the number of firms in each industry used to calculate the entrepreneurship measure. The dependent variable corresponds to the skewness of the employment distribution. The capital mobility variable corresponds to the IMF index. Regression (1) controls for sampling intensity; (2) is for the manufacturing sector only, (3) is for industralized countries only, (4) excludes the United States from the sample, (5) includes regional dummies (not shown). GDP data, Domestic Credit to GDP come from WB, WDI, Bureaucratic Quality, Non-corruption, and Law and Order from ICRG. See Appendix A for a detailed description of the data.

Table C1: Spatial Analysis—
Summary Statistics for New, Foreign, and Counterfactual Samples

Country	New firms	Foreign firms	Counterfactual Sample
Firms	87549	41921	155108
Year started	2003	1983	1982
Employees	6	61	63

Note: Data is for UK, Spain, France, and Germany. Foreign firms are those firms which report a foreign owner, and the counterfactual sample is made of foreign firms and matched domestic firms. The matching criteria is that the domestic firms be in the same 4-digit industry, its year of establishment (the first date it operated under its current ownership in that location) must be within +/- two years and its number of employees must be no more than +/- 10 percent of its counterpart.
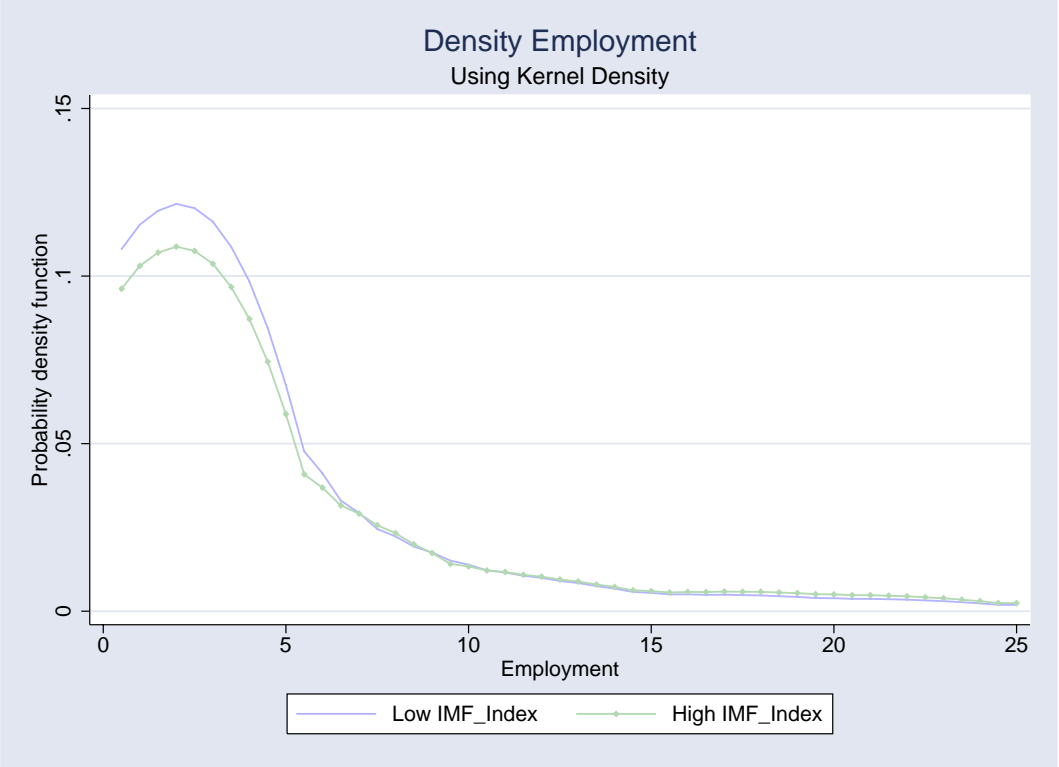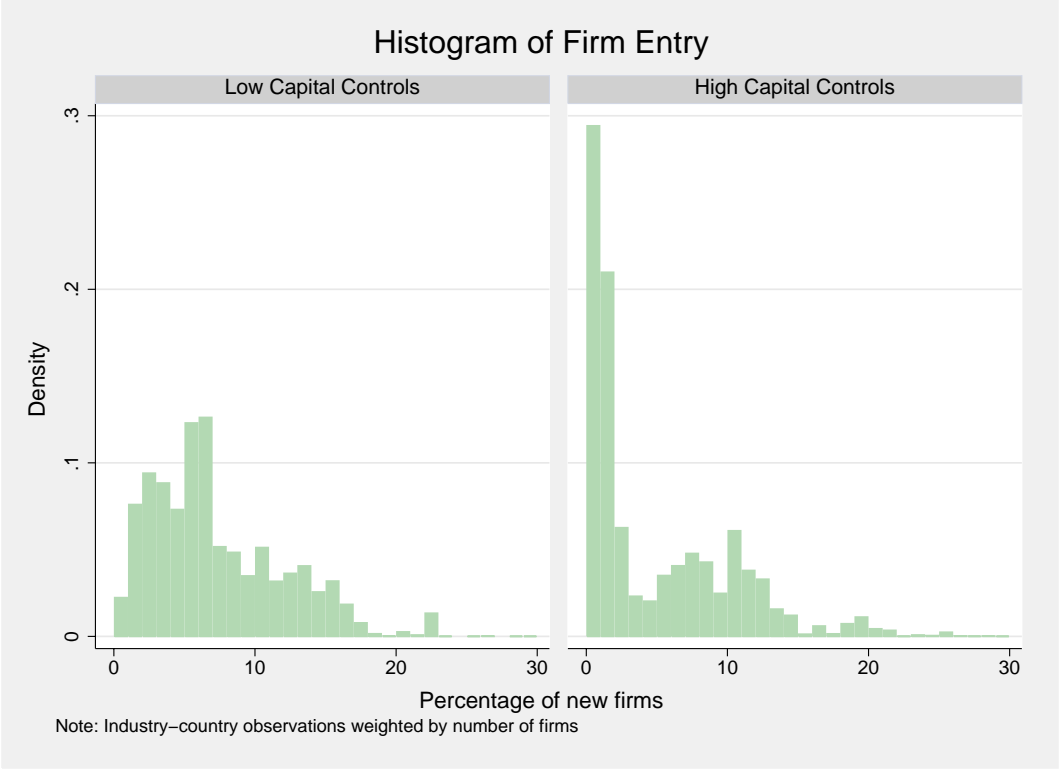
Figure 1

Figure 2