Determinants of New Firm Formation in Developing Countries: A Review

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Abstract. We address the question of what determines new firm formation in developing countries. Because of the influence that this may have on the design of firm entry policies, our main concern is whether the determinants of new firm formation are the same and/or have the same impact in developed and developing countries. We discuss arguments put forward in the literature that may support the existence of differences in the determinants of firm creation between developed and developing countries. We also analyse the results found on the determinants of formal firm entry in developing countries and compare these results with those found in developed countries. Our main conclusion is that policy makers in developing economies should be careful when using evidence from developed countries to design firm entry-promoting policies.

Keywords: firm entry, firm creation, firm dynamics, developing countries.

JEL: O1; O12; L26; M13

1. Introduction

The creation of new firms is a main driver of the growth and development of nations.[2] New businesses directly enhance economic performance by creating

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2. New firms can promote growth and development through a variety of channels (see, however, Naudé 2011 for a critical viewpoint). We should mention, among others, the role of new firms in enhancing regional job growth (Ghani et al., 2011), commercialising innovations (Audretsch et al., 2006), discovering the competitive advantages of a nation (Hausmann and Rodrik, 2003), increasing structural transformation by absorbing surplus labour from traditional sectors, providing innovative inputs, promoting specialization, raising productivity and employment (Gries and Naudé, 2010), and leading to gap-filling and input-completing activities (Acs and Amorós, 2008).

new jobs and/or products. However, they may also have important indirect effects: improvements in efficiency and productivity, price reductions, structural transformation, generation of new markets and innovations, increased division of labour, etc. Further, the impact of these entrants is generally not limited to the industry in which the new firm operates and/or to the region in which the entry occurs. Rather, the externalities associated with the formation of new firms spill over to close-by industries and regions (Acs and Amorós, 2008).

This has motivated a number of investigations on what determines new firm formation (see e.g. Parker, 2009; Arauzo-Carod et al., 2010). However, most of these studies provide evidence from Western Europe, North America and Japan. The determinants of firm entry in developing countries, on the other hand, have been studied much less. This contrasts with the role that these countries are to play in the world economy, since it is widely assumed that they will noticeably increase their share of output over the next decades (Wilson and Purushothaman, 2006).

One may argue, though, that little can be gained from studying developing countries because the economic mechanism behind the creation of new firms should not be substantially different from those observed in developed countries. Against this tenet, recent research indicates that the outcomes tend to be different when the same study is carried out in developed and developing countries.[3] Still, the extant evidence is very limited, probably because these (direct) comparative studies require data and representative samples across a number of countries, research inputs that are generally difficult to obtain.

In this paper we follow a more indirect approach: we analyse the results found in empirical studies on the determinants of new firm formation in developing countries and compare these results with those typically found in developed countries. Thus, in reviewing this literature we address the question of whether the determinants are the same and/or have the same impact in developed and developing countries. From a policy perspective, this may help to mitigate the risk of applying policies that may not be suitable for developing countries because they are based on evidence only from developed countries. In addition, because of the considerable regional differences that exist in developing countries, this review may provide insights into the formation of new firms in (the less developed regions of the) developed economies (Bruton et al., 2008; Naudé, 2011).

To perform our analysis, we first need to define what our measure of new firm formation is. However, to provide such definition is not a simple task. Several measures of new firm formation have been proposed in the literature and the same nomenclature is often used to refer to rather different phenomena (Marcotte,

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3. Ghani et al. (2014) and Glaeser and Kerr (2009), for example, built similar models with data from India and the US to explain the spatial distribution of entrepreneurship. They found that the variables that explain firm entry in the US can only account for about one-third of the spatial variation in new firm formation in India.

2013). Following the proposal of the World Bank Group Entrepreneurship Survey, here we concentrate on those studies analysing registered or formal firm entry. Despite the limitations of this measure for certain analyses of new firm formation (see e.g. Acs et al., 2008), it has the key advantage of allowing for comparisons "across heterogeneous legal regimes and economic systems" (Klapper et al., 2010: 130).

Also, given our interest in the determinants of new firm formation, we have concentrated on those studies that report some sort of regression analysis. This means that, interesting as they might be, descriptive and case studies are not covered.[4] In particular, we focus on those studies that analyse the creation of formal firms that employ paid workers (thus excluding studies on self-employment).[5] This helps to facilitate comparisons with developed countries' studies (which typically do not analyse the informal sector), although admittedly at the cost of misrepresenting countries in which the informal sector represents a substantial share of the economy (e.g, Sub-Saharan African and some Latin American countries, according to the estimates reported by Schneider et al., 2010).[6] Finally, we have excluded from our analyses studies of high-growth firms and venture capital markets,[7] since the sectors in which these entries usually occur are typically of minor importance in developing countries.[8]

The outline of the paper is as follows. In Section 2 we address the question of whether there should be any differences in the determinants of new firm formation between developed and developing countries. We provide supportive descriptive statistics on the existence of differences in the levels of new firm formation and in some of its determinants, and discuss arguments put forward in the literature to explain such differences. In Section 3 we analyse the empirical evidence on the determinants of formal firm entry in developing countries and compare this evidence with that from developed countries. Section 4 concludes

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4. See e.g. the 2008 special issue of Entrepreneurship, Theory and Practice, 32(1).
5. Self-employment studies have recently been surveyed by Simoes et al. (2016) and Van Stel and De Vries (2015). An empirical approach to a developing country can be found in Goedhuys and Sleuwaegen (2000). See also Burke (2015) for an introductory research agenda on this topic.
6. We have also excluded transition economies from our analyses because their peculiarities make them very different from other developing countries -see e.g. Alexandrova (2004) for Bulgaria, Roberts and Thompson (2003) for Poland, and Rinaldi (2008) and Yang and Temple (2012) for selected industries of Russia and China, respectively.
7. See e.g. the 2010 special issue of Small Business Economics, 34(1).
8. It is important to stress from the outset that some of the studies included in this review may not completely fulfill all these requirements. In particular, Naudé (2009) and Naudé et al. (2008) do not satisfy our criteria of formal firms employing paid workers but use an internationally comparable source (the Global Entrepreneurship Monitor), Ozturk and Kilic (2012) and Karahasan (2015) use official data on registered entries but do not indicate whether they are formal, and Wang (2006) analyses formal entry but does not indicate whether these new firms have paid employees. However, we have decided to include them for the sake of completeness and because this did not alter our main conclusions.

with a summary of our main findings and a brief discussion of which policy implications may be extracted.

2. The Determinants of New Firm Formation in Developing Countries: Theoretical Arguments

Differences in the levels of firm entry between developed and developing countries are difficult to assess empirically.[9] First, there are different economic, statistical and legal definitions. Second, even within a common definition, there are significant differences in the quality of information records across countries.

Table 1: Business density and determinants of new firm formation by income level

| | | Income level | | | |
	High	Upper middle	Lower middle	Low	World
New firm formation					
New Business Density (Number of newly registered companies with limited liability per 1,000 people aged 15-64)	6.95	3.32	0.94	0.21	3.57
Industrial structure					
GDP per capita, PPP (constant 2005 international $)	32,041	6,713	2,607	936	8,809
Agriculture, value added (% of GDP)	1.56	8.20	18.15	29.70	3.19
Industry, value added (% of GDP)	25.77	37.23	32.50	23.23	27.51
Services, etc. value added (% of GDP)	72.65	54.57	49.35	47.08	69.27
Employment in agriculture (% of total employment)	3.97	36.82	51.01	s/d	33.78
Employment in industry (% of total employment)	25.37	23.90	17.97	s/d	22.04
Employment in services (% of total employment)	70.36	39.21	30.28	s/d	43.92
High-technology exports (% of manufactured exports)	20.86	19.83	12.82	2.90	20.30
Research and development expenditure (% of GDP)	2.37	0.84	0.52	s/d	2.09
Infrastructure					
Access to electricity (% of population)	99.17	74.13	81.59	22.99	67.27
Road density (km of road per 100 km^2 of land area)	55.99	16.81	48.92	na	30.93
Cost of doing business					
Cost of business start-up procedures (% of GNI per capita)	14.43	19.89	67.37	225.83	68.95
Time required to start a business (days)	23.94	48.09	46.56	51.73	42.21
Population					
Literacy rate, adult total (% of people aged 15 and +)	98.31	92.10	69.13	59.41	82.74
Population density (people per sq. km of land area)	32.13	40.89	100.29	47.78	49.85
Population growth (annual %)	0.71	0.76	1.59	2.16	1.20
Urban population (% of total)	76.42	54.02	37.45	26.29	48.75
Age dependency ratio, old (% of working-age population)	21.92	11.02	7.62	6.31	11.29

Source: mean values constructed by the authors using data from the World Bank Group Entrepreneurship Survey (2004-2012 means) and World Development Indicators Database (2001-2010 means). The World Bank classifies countries into four groups according to 2010 GNI per capita: low income, $1,005 or less; lower middle income, $1,006-$3,975; upper middle income, $3,976-$12,275; and high income, $12,276 or more.

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9.   There are three major sources of (roughly) comparable data on firm dynamics around the world: the World Bank Group Entrepreneurship Survey (WBGES, Klapper et al., 2010), the Global Entrepreneurship Monitor (GEM, Reynolds et al., 2005) and the distributed micro-data base built by the World Bank from business registers and surveys from different countries (Bartelsman et al., 2004).

Bearing in mind these caveats, Table 1 shows that there are clear differences in the level of new business density (proxied by the number of newly registered companies with limited liability per 1,000 working-age people) between countries with different levels of income. If we compare the two extremes of the income distribution, for example, nearly seven less new concerns (per 1,000 adult population) are created per working-age population in low than in high income countries. But even if we compare more homogeneous countries, such as those with upper- and lower-middle levels of income, the differences in new firm formation are not negligible (2-3 new firms). Such differences suggest that the economic mechanism behind the creation of new firms in these countries is likely to have particular features: the determinants of new firm formation may simply have a lower (or higher) mean value, but they may also be different, or have a different impact.[10]

2.1. Determinants of New Firm Formation in Developing Countries

What are the determinants of firm formation? We use the eclectic theory of entrepreneurship as a guide to address this question. Admittedly, entrepreneurship and new firm formation do not always correspond to the same phenomenon. However, the eclectic theory has a number of features that make it extremely convenient for our purposes. In particular, it has proved to be a useful framework for analysing not only the determinants of new firm formation (Verheul et al., 2002), but also the differences in these determinants across countries (Wennekers et al., 2005, Freytag and Thurik, 2007; Van Stel et al., 2007).

According to the eclectic theory, the creation of new firms is the result of a complex individual decision based on both opportunities and personal characteristics. This decision involves assessing alternative types of employment (e.g., self-employment versus wage-employment) in a process mediated by the individual's risk-reward profile. Thus, given a particular institutional setting (defined essentially by macroeconomic conditions, government regulations and knowledge generation structures), the aggregate of these individual decisions results in a demand and supply function of entrepreneurship.

On the one hand, the demand for entrepreneurship arises from the opportunities of starting a firm, which in turn may originate from the consumer's side (demand characteristics such as size, stability and diversity) and/or the firm's side (e.g., barriers to entry and exit, size, age, technological regime and intensity, outsourcing, and the diversity and complexity of the productive structure [Porter,

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10. The convex relation between income and business density that emerges from Table 1 has been previously reported in a number of studies (Klapper and Love, 2011a and 2011b). Relatedly, Acs et al. (2008) find that the World Bank entry rate shows a positive linear relationship with economic development.

2003], including such business environment characteristics as the quality of input conditions, rivals' strategy, and the availability and quality of local suppliers and related industries). On the other hand, the supply is determined by the opportunity cost of starting a new firm and such characteristics of the population as age structure, resources and abilities of individuals, attitudes towards entrepreneurship, culture, individual skills, unemployment, income disparity, education, ethnic background, etc. (Simoes et al., 2016).

However, do these factors differ between developed and developing countries? In Table 1 we report, for different levels of income, the mean values over the decade 2000-2010 of a set of indicators related to the industrial structure and the infrastructure (supply factors) as well as the cost-and-time of doing business and the population (demand factors). These figures show that developed countries have a high-income level (their average GDP per capita is nearly 35 times the average GDP per capita of low income countries) and a highly educated population, which is growing slightly, ageing, and located mainly in urban areas. Also, the industrial structure shows a high share of services. Developing countries, on the other hand, are poorer and the demand for goods and services is weaker and less diverse. The population is growing, but it is more concentrated in rural areas (so the agricultural sector is larger). Lastly, they have worse infrastructures and both the time required to start a business and its costs are very high.

2.2. Why Should (Some of) the Determinants of New Firm Formation in Developed and Developing Countries Be Different?

All in all, we find notable differences in the mean values of (some of) the determinants of new firm formation in developed and developing countries. What remains to be analysed is whether these determinants and/or their impact are the same in developed and developing countries. Below we discuss a number of arguments in support of the existence of differences in the determinants of new firm formation between developed and developing countries. We first analyse the institutional setting (macroeconomic stability, public policies and knowledge) and then demand (industrial structure and income) and supply factors (income and financing).[11] We leave for Section 3 the analysis of the empirical evidence.

2.2.1. Macroeconomic Stability

Macroeconomic instability and the intense cyclical variations that characterize (most) developing countries may induce patterns of entry that are different from

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11. Notice that we have not considered cultural factors because they are generally not available for the empirical analysis (Verheul et al., 2002).

the ones observed in developed countries. Such macroeconomic volatility adversely affects investment projects because of the difficulties in anticipating the evolution of key variables (Katz and Bernat, 2011). Moreover, when uncertainty is high, decisions are taken on a shorter-term basis and firms demand a greater return on their projects. Economic downturns also have long-term consequences both in terms of the attrition of human capital, which may inhibit new firm formation in the following years (Stiglitz, 1998). Lastly, as Caballero and Hammour (2001) point out, recurrent crises are an obstacle to creative destruction because of the resulting tight financial-market conditions.[12]

2.2.2. Public Policies

New firm formation may be encouraged by public programs, but in developing countries these are usually under-developed and/or are quite inefficient (see e.g. Carbonell, 2005, for the case of Latin America). Governments also have a major role in providing basic infrastructures (roads, energy, water supply, ports, telecommunications, etc.), but these investments are usually insufficient in most developing countries (Alcorta and Peres, 1998). Yet when these infrastructures are provided, the effects over entries are quite important, as shown by Shiferaw et al. (2015) for the Ethiopian case. Lastly, because of the difficulties of establishing a long-term industrial policy (due e.g. to the political turmoil that many developing countries face), entries are expected to closely reflect the comparative advantage of the country, typically linked to natural resources or labour intensive industries.[13]

Public regulations also influence the choice between entering the formal or informal sector, since firms are likely to operate informally in order to avoid bureaucracy, taxes, and product, market and labour regulations (Gërxhani, 2004).[14] Notice, however, that the informal sector may also encourage formal entry by acting as a "stepping stone": firms may first enter the informal sector to "test the water" before deciding whether or not to enter the formal sector (Bennett, 2010). Thus, the relationship between the size of the shadow economy and the

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12. The origin of instability may also differ between developed and developing countries. In particular, financial crises and recessions in developing countries arise mostly from fluctuations in international demand and worldwide credit constraints (Heymann, 2010).

13. Macroeconomic instability may also affect public policies. For example, high macroeconomic volatility may undermine the institutionalization of industrial policies and prevent the consolidation of national firms, as the profitability of activities depends on the exchange rate, credit conditions, etc. Similarly, volatility may impact tax compliance, so the government may not have a stable base of resources to undertake public programs and/or provide public services.

14. Interestingly, Ghani et al. (2014) find that the variables that explain firm entry in the Indian organized manufacturing sector are not relevant in the informal sector and vice versa. Also, in the informal sector, population and agglomeration effects have a much greater role, whilst strict labour regulations discourage entrepreneurship in registered manufacturing.

entry rate may be either positive (as in the stepping stone argument, but also if there are complementarities via sub-contracting activities) or negative, if informal companies compete with formal firms on the basis of lower prices. In any case, the informal sector represents a considerably higher percentage of GDP in developing countries, where it is mainly a marginal activity with low income and little accumulation and characterised by labour intensity and low technology.[15]

Lastly, changes in the regulatory framework may have a different impact in developing countries. For example, as firms in poorer countries have fewer capabilities and resources, they derive less benefit from trade liberalization measures and are less able to capture the benefits of network operation. Moreover, liberalization measures may have unequal effects on regions and industries in a single country (see e.g. Aghion et al. 2005 for an analysis of the Indian reforms in 1991).

2.2.3. Knowledge

Knowledge systems in developing countries usually have acute deficiencies that prevent technology-based firms from emerging. In Latin America and the Caribbean, for example, science and technology institutions are weak, rigid and face severe financial restrictions; links and interactions between government support, organisations, firms and academia are tenuous; research and services do not match the demand; investment in human capital is low; and public policy is only partially effective (Alcorta and Peres, 1998). In particular, since only a few entrepreneurs have a college education, most do not start high-growth businesses (for Latin America, see Kantis et al., 2005).

Innovative entry may also be limited by the industrial structure (see below for a specific analysis). For example, in low- and middle-income countries, industry concentrates on activities characterized by routinised technological regimes, in which technical knowledge is carried by incumbent firms. Moreover, incumbents may enjoy advantages by incorporating technical progress regardless of whether the relevant knowledge is external or internal to the firm (Burachik, 2000). This contrasts with advanced countries, where small, new firms enjoy an innovative advantage if the relevant knowledge is codified and external to incumbent firms. Thus, firms mainly innovate by imitating or incorporating knowledge developed by other organizations, while innovative entry is an infrequent phenomenon. However, firms from these countries can also learn from the experience of developed ones. If this is the case, entry may be delayed and firms are more prone to copying practices adopted by others instead of relying on their own

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15. In 2005 the informal sector was about 13.5% for OECD countries; 17.5% for East Asia and Pacific; 20.8% for other high income countries; 25.1% for South Asia; 27.3% for Middle East and North Africa; 34.7% for Latin America and the Caribbean; 36.5% for Europe and Central Asia and 38.4% for Sub-Saharan Africa (Schneider et al., 2010).

innovativeness (Lévesque and Shepherd, 2004). Finally, the clusterisation of knowledge generation is greater in developing countries. As Aghion et al. (2005) show for India, innovation will increasingly be concentrated in regions that are initially better positioned and closer to the technological frontier.

2.2.4. Industrial Structure

Developing countries have an industrial structure that is usually less diversified, less dense, less sophisticated and more fragmented than in developed economies, while it is more specialized in natural resource-intensive goods and scale-intensive industrial commodities (Porter, 2003; Kuwayama, 2009). These features may affect entry rates and profiles in different ways.

Firstly, the lack of diversity generates fewer business opportunities for new firms based on knowledge and product differentiation. In particular, the type of professional experience, skills and networks of relations that individuals can build up before becoming entrepreneurs are conditioned by the industrial structure (Kantis et al., 2005). Secondly, a weaker and less dense industrial structure may constrain entries in some industries in which potential entries may act as clients, suppliers or competitors. It may also limit the benefits from agglomeration, for there may not be enough related firms to create the conditions required for external economies to arise. Thirdly, an incomplete economic structure raises high barriers to entry. For example, suppliers may not be willing to take the risk of specialising in specific inputs for a small number of customers, which forces firms to rely on foreign suppliers and/or enter into the market in a more integrated way. Barriers to exit may also be higher, since the chances of reselling specific assets in case of failure are lower. Finally, as the complexity of the productive structure decreases, the ability to reallocate resources to new activities diminishes in the face of a permanent shock, which can negatively impact on entry decisions.

2.2.5. Income

A lower GDP may influence new firm formation through both demand and supply. On the one hand, in poorer countries there are fewer business opportunities and the demand for goods and services is smaller, unstable and less diverse, so the entry rate is expected to be lower. Also, lower income not only discourages entry but also forces new ventures to be less complex, less knowledge intensive and less export-oriented (Kantis et al., 2005). On the other hand, the supply of entrepreneurs is lower, since the share of people with access to information, education, business networks and financial resources is limited. Moreover, although entrepreneurship may allow individuals to escape from

poverty, low-income people are less able to create formal, dynamic firms. Business projects are conceived in less fertile environments (family, education system and work experience) and contact with the business world is limited. Lastly, long-term unemployed individuals may not have the ability, financial resources and/or social capital to start a new business.

It is also interesting to note that both the level and the distribution of income may have effects on firm creation. In an analysis of developed countries, Reynolds et al. (1999) find that income disparity is strongly associated with higher levels of firm start-ups. The reason for this is that income disparity may give rise to more markets for unique goods and services as well as to pools of financial resources. However, this may not be the case in developing countries, where income disparities are indeed higher. A highly inequitable social structure may erode trust and communication between different population groups, affecting social networks and limiting social capital (Kantis et al., 2005). Moreover, the existence of a small elite may impede entrepreneurial initiatives that are external to it (Naudé, 2011).

2.2.6. Financing

Lower income levels in developing countries are also generally accompanied by lack of funding (both due to lack of personal savings and reduced access to external capital). In particular, firms in these countries have less access to credit and have to deal with a more limited financial system.[16] As Stiglitz (1998; 2010) points out, severe economic downturns can undermine the strength of the financial system and higher fluctuations can raise the cost of capital, while macroeconomic stability and long-term development require sound financial markets, since they contribute to a more efficient allocation of resources and boost productivity gains.

Moreover, in many developing economies there is a dualistic structure in which a sub-set of large firms makes considerable use of international and equity financing, while SMEs suffer from insufficient funding opportunities. In particular, formal financial systems generally fail to help most enterprises because of widespread informality and the fact that those firms that do have access to formal finance are heavily dependent on commercial bank financing. Bank financing is very short-term in nature and therefore not of great use for long-term investment projects (Peachey and Roe, 2004). In addition, banks usually do not lend money to start-up companies on the basis of a feasible work plan, but only if they can ensure the return of the credit through guarantees. Further, investment capital is usually scarce, due to the inadequacy of capital markets and

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16. In developed countries, each adult has an average of 3.2 accounts and 81% of adults are banked; in developing countries, there are 0.9 accounts per adult and 28% of adults are banked (Kendall et al., 2010).

the lack of venture companies. In addition, it is often more attractive for the banking sector to finance public deficits instead of private firms (see e.g. Günalp and Cilasun 2006 for Turkey).

In sum, financing constraints either deter entry or cause new firms to enter at suboptimal scales. They also limit the creative destruction process and encourage entries in more conservative sectors. Without adequate financial development, talented individuals may not be able to become entrepreneurs, leaving entrepreneurship for the untalented wealthy (Bianchi, 2010).

3. Determinants of New Firm Formation in Developing Countries: Evidence and Comparison with Developed Countries

Two types of empirical studies provide comparative evidence on the determinants of new firm formation in developed and developing countries. The first type seeks to assess the impact of the business environment on new firm formation using cross-country data. The second type consists of a set of studies that regress industry and/or regional variables on new firm formation measures using data from a single country. Below we discuss each group of studies in detail.

3.1. Cross-Country Analyses on the Determinants of New Firm Formation

Cross-country analyses on the determinants of new firm formation have focused on the impact of governance indicators (see, in particular, Klapper et al. 2006, Aghion et al. 2007, Naudé 2009, Klapper et al. 2010, and Klapper and Love 2011b).[17] The results from these studies are summarised in Table 2. Although the findings are not fully consistent, they tend to show that (formal) entry is hampered by bureaucratic barriers (costs, procedures and time required to start a business) and employment rigidity (especially in labour intensive industries). Also, better governance seems to encourage firms to enter markets formally. Lastly, entry regulations reduce firm creation and force new entrants to be larger.

In general, financial development has a positive impact on firm entry. However, this impact depends on the size of entering firms. Also, access to credit has a positive overall impact. Again, however, this differs across the size distribution: access to credit increases entry rates for small firms (especially in sectors which are more dependent on external finance), while it slightly reduces the entry rates of large firms.

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17. Governance indicators such as "voice and accountability", "political stability", "government effectiveness" "regulatory quality", "rule of law" and "control of corruption" are typically based on the Worldwide Governance Indicators Project (Kaufmann et al., 2006).

Table 2: Empirical studies using World Bank cross country data

				Klapper and Love (2011b)	Klapper et al. (2006)	Aghion et al. (2007)	Naudé (2009)
	Klapper et al. (2010)						
	Panel data (GLS) (country data)			OLS (country data)	Tobit and IV (country data)	Diff-in-diff (firm level data)	Panel data (RE GLS) (country data)
	76 countries WB Group Entrepreneurship Survey (WBGES)			95 countries (WBGES)	23 countries (Amadeus database)	16 countries (WB Distributed micro-data)	60 countries (GEM)
	Entry rate	Entry density	Business density	Entry density	Entry rate	Entry rate	Opportunity entrepreneurship
Entry costs and procedures	ns	-	-	-	-	weak	ns
Rigidity of employment	ns	ns	ns	ns	-	-	
Governance	+	ns	+	+			ns
Access to credit	ns	+	ns	ns	+	+	+
GDP per capita	ns	+	+	+			ns
Tax rate				-			

Source: authors. ns: non-significant.

Interestingly, these findings have laid the groundwork for the policy advice of the World Bank, the International Monetary Fund and donor agencies (Naudé, 2009). Yet they have also been questioned, among other things, because of their use of governance indicators (see Kaufmann et al., 2007 for a synthesis of the criticism and the authors' response). In particular, Naudé (2009) argues that the evidence on the relationship between these indicators and new firm formation is ambiguous and suffers from several methodological weaknesses. He thus concludes that firm creation in emerging countries can be more effectively enhanced by proactive policy measures.

3.2. Country-Specific Analyses on the Determinants of New Firm Formation

Country-specific analyses on the determinants of new firm formation tend to focus on medium/large developing countries with medium-high income. They usually take as their starting point a set of determinants that are generally found to be statistically significant in developed countries. However, the determinants considered may vary depending on the availability of data and disaggregation (by city, region, sector, etc.). Moreover, the proxy variables employed may be customised by the characteristics of the developing economies (Santarelli and Tran, 2012; Calá et al., 2016).

3.2.1. Macroeconomic Determinants

When macroeconomic factors are included among the regressors, they usually help to explain new firm formation. In Turkey, the real interest rate (Günalp and

Cilasun, 2006) and the inflation rate (Ozturk and Kilic, 2012) have been found to have a strong effect on deterring entrants. Interestingly, Günalp and Cilasun (2006) show that results concerning microeconomic variables (such as the minimum efficient scale, capital requirements, advertisement intensity, profit and growth rates, and the concentration ratio) are robust to the inclusion of macroeconomic variables. In particular, these microeconomic variables may have a negative impact on some industries and a positive impact on others (Wang, 2006).

3.2.2. Industry determinants

The studies that analyse the industry determinants of new firm formation (summarised in Table 3) usually use an Orr-Shapiro/Khemani type model (Shapiro and Khemani, 1987). This means that entry into an industry depends essentially on the barriers to entry and industry opportunities.[18] Also, the unit of analysis is the manufacturing industry.

Table 3 shows that the results are similar to those typically found in developed countries (see e.g. Manjón-Antolín, 2010). In particular, profit rates and industry growth rate impact positively on entries. Also, industries that export a higher share of their output are more attractive to entrants (Campos and Iootty, 2005; see, however, Ozturk and Kilic, 2012), especially when exports are sent to protected markets (as in the case of Brazilian exports to Mercosur countries) and in low-tech sectors (Ozturk and Kilic, 2012). On the other hand, concentration levels deter entry, thus enabling incumbent firms to collude and erect strategic entry barriers. Lastly, capital intensity and scale economies provide mixed results. Notice, however, that most regressors turn out to be statistically non-significant.

The relationship between entry and exit deserves particular attention. In particular, exit in one period has no significant impact on entry in the next in Taiwan and Turkey. This means that exit does not make room for new entrants, so the so-called replacement effect is rejected in these countries (Lay, 2003; Günalp and Cilasun, 2006).

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18. Among the control variables, the most commonly used are wages and labour productivity. However, none of them seem to have any significant impact as an input price indicator, probably because many formal firms initially do not have paid employees (Wang, 2006).

Table 3: Determinants of new firm formation at the industry level

		Ozturk and Kilic (2012)	Campos and Iootty (2005)	Kaya and Uçdogrük (2002)	Lay (2003)	Günalp and Cilasun (2006)	Wang (2006)
		Tobit model	GLS (Panel data)	Dynamic panel data (GMM)	SUR; 3SLS; FIML; GLS (Panel data)	Dynamic panel data (GMM)	OLS; Panel data (Pooled)
		Turkey	Brazil	Turkey	Taiwan	Turkey	Taiwan
Opportunity	Profit rate	+		+	ns	+	
	Industry growth rate	ns	ns	+	ns	+	+
	Export rate	-	+			ns	
	Import rate	+					
Barriers	Concentration	ns	ns	-		-	
	Sunk costs	ns				ns	
	Capital intensity		ns	-	+/-	ns	
	Advertisement intensity			ns		ns	
	Scale economies/MES		ns		-	+	
Controls	Wages			ns	ns		ns
	Entry/Exit	-				ns	
	Industry employment						+
	Labour productivity	+		-			
	Productivity differentials			+			
Macroec.	Inflation rate	-					
	Economic growth rate						ns
	Unemployment						+
	Real interest rate						ns
	Past entry			-		+	
	Past exit				ns	ns	

Note: ns: non significant

Source: authors.

3.2.3. Regional Determinants

In recent work, Ghani et al. (2014) compared estimations from a developing country (India) to those from a developed country (the US). They found that, for the US, existing city population levels, city-industry employment, and industry-fixed effects can explain 80% of the spatial variation in entry rates, while the comparable explanatory power for India is only about 30%. This suggests that determinants of entry for developed economies explain just a small part of regional firm dynamics in a developing country.

Bearing this limitation in mind, studies in developing countries that take regional dimensions into account (summarised in Table 4; see also Deichmann et

al., 2008) generally find a large concentration of economic activity in the capital city and a noticeable variation in both firm entries and stocks across regions (also a common finding in developed countries). In particular, several studies support the urban incubator theory, which maintains that urban centres are nurseries for new firms. For example, agglomeration economies are more important for India's entry patterns than for the US', not only because they provide a suitable labour force and proximity to customers, but also because of the higher availability of small suppliers ("Chinitz effect"). However, in highly populated countries like India and Indonesia, manufacturers avoid the high costs of urban areas, preferring locations near large population centres (Deichmann et al., 2008; Ghani et al., 2014). Congestion effects are also significant in South Africa and Argentina (Naudé et al., 2008; Calá et al., 2016; Calá, 2018).

Demand variables are usually significant and show the expected sign. Profits and economic growth rate encourage entry, while wages (which can proxy demand as well as input prices) have either a positive or insignificant effect. Industrial structure variables provide mixed results. Small suppliers are found to have a positive impact on firm entry ("Chinitz effect"), but evidence on the role of SMEs as seedbeds for future start-ups is weak. Lastly, studies that focus on net entry conclude that "the revolving door" effect may offset new entries with subsequent exits (Santarelli and Tran, 2012).

Socioeconomic variables tend to have a positive effect on the supply of potential entrepreneurs (e.g., age, population and availability of skilled workers). In particular, Ghani et al. (2014) conclude that the effect of the education of the workforce on entry rates in India is stronger than has been suggested in comparable studies in developed countries. In South Africa, both education and financial intermediation have a positive impact, but their combined impact is only half that of profits, which means that unless there is a change in the underlying structural factors that determine profit rates within regions (i.e. economic resources, worker productivity and infrastructure), the spatial patterns and inequalities in business start-ups and regional growth will persist (Naudé et al., 2008). Besides, Naudé et al. (2008), Santarelli and Tran (2012) Calá et al. (2016) and Calá (2018) find that the unemployment rate is not a statistically significant determinant of entry, probably because the unemployed may start new firms in the informal sector and this is not reflected in official firm entry registers.

Table 4: Determinants of new firm formation at the regional level

		Ghani *et al.* (2014) Weighted linear regression (Panel data) India		Calá *et al.* (2016) Panel count data models Argentina	Santarelli and Tran (2012) Panel data (FE;GMM) Vietnam	Naudé *et al.* (2008) OLS; Tobit South Africa	Karahasan (2015) Panel data (FE;RE;GMM) Turkey
		Organized*	Unorganized*				
Demand	Population	+	+				
	Economic growth rate			+	+		
	Profits					+	
	Per capita tax revenue						+
	Economic crisis dummy						-
	Wages			ns	+		
	Share of SME			+	ns		
Industrial Structure	Incumbents/ Incumb. Employment	ns	-	-			
	Industrial tradition			-			
Socio economic	Education	+	ns	ns	+	+	+
	Age profile	ns	+				
	Immigration/Migration			ns			
	Population	+	+			ns	
	Unemployment			ns	ns	ns	
Urbanizat./ Agglom.	Population density	-	ns	+	ns	ns	
	Population density^2			-			
	Share of urban population				+		
	Economic size (GVA)					-	
Agglom. economies	Labour market effect		+				
	Input/supplier strength	+	+				
	Output/customer strength	+	+				
	Small suppliers	+					
Credit	Banking environment	ns	+				
	Per capita credit usage						+
	Number of banks					+	
	Infrastructure	ns	+				
	Labour laws	-	ns				
	Distance to big cities	-	ns				
Other	Informal sector			+/-			
	Per capita public spending						ns
	Previous entry						+

Note: ns: non significant

Source: authors.

It is also interesting to note that the factors that promote new firm formation at the regional level may depend on the industry analysed. Ghani et al. (2014), for example, compare manufacturing to services and find that the strength of the household banking sector, the quality of infrastructure and educational level are more important for services. This means that the role of the existing incumbent employment is weaker for services, which suggests that Marshallian externalities are also weaker.[19] Relatedly, entry determinants also vary according to the technological level of the manufacturing activities. In Argentina, the evolution of regional demand is only relevant for low tech entries, while medium and high tech new ventures depend more on regional structural variables (such as the share of SMEs and the industrial diversification), cultural factors and the level of wages (Calá, 2018).

Lastly, the size of the informal sector has been found to have considerable explanatory power in entry regressions. In Argentina, for example, a small informal economy encourages formal entry, especially in low tech manufacturing. However, it becomes a barrier when it grows too much (Calá et al., 2016; Calá, 2018). Similarly, in India the variables that explain firm entry in the organized manufacturing sector are not always relevant to the unorganized sector and vice versa (Ghani et al., 2014).

4. Concluding Remarks

The determinants of new firm formation have been much less studied in developing countries than in their developed counterparts. The limited evidence available, then, should be borne in mind when using empirical results from these studies for policy purposes. Yet, given that firm creation seems to be particularly important for the growth and development of lagging countries, it is clearly worthwhile analysing the results found in the literature. In this paper we have addressed the question of whether there are differences in the determinants of new firm formation between developed and developing countries. In doing so, we have largely concentrated on the analysis of registered or formal firm entry.

Our review of the literature reveals that researchers in this area have considered the institutional setting (macroeconomic stability, public policies and knowledge) and certain demand (industrial structure and income) and supply

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19. By Marshallian externalities we refer to Marshall's (1890) idea that the agglomeration of economic activity has positive effects on the firms located in the area (via knowledge spillovers among competitors, the availability of specialised workers and the existence of a pooling of common production factors).

factors (income and financing) as the main drivers of new firm formation in developing countries. However, this does not mean that these are the only factors worth considering. In fact, the empirical evidence suggests that more attention should be paid to factors (such as the informal sector) that are usually not considered by studies that focus on developed countries.

This evidence consists essentially of a number of cross-country comparative studies on the determinants of firm entry and a few single-country studies focusing on industry and regional determinants. The former tend to conclude that the lower levels of (registered) firm creation in developing countries are largely explained by more bureaucracy and worse governance structures, whereas the latter are less consistent in their findings. Still, industry-specific determinants of new firm formation for developing countries largely replicate those found for high income countries (although the statistical significance of these variables tends to be weaker than in studies on developed countries). For example, profit rates and industry growth rates enhance entry, whereas barriers to entry tend to prevent it. Regional determinants, on the other hand, seem to provide mixed and often opposite effects to those found in developed countries. This is the case, for example, for the unemployment rate or the impact that the informal sector has on formal firm entry. Also, agglomeration economies seem to have a stronger impact on entries (which may be related to the substantial regional inequalities in developing countries). It remains to be determined whether this is due to the different quality of the data (possibly better for more aggregated units such as industries) or differences in the heterogeneity of the units (perhaps associated to the structural heterogeneity between core and peripheral regions, or simply reflecting the size of the administrative units).

Our findings suggest two issues for future research. First, improvements in the quality of the data may encourage more studies to be conducted on developing countries at geographical levels homologous to those used for developed countries. Second, comparable studies for developed and developing countries using an analogous set of regressors are also needed, particularly with firm-level data. All in all, a better understanding of the conditions that encourage new firm formation in developing countries probably requires detailed country studies using explanatory variables that reflect the specificities of these economies. In the meantime, policy makers in developing economies should be careful when using evidence from developed countries to design entry-promoting policies.

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