Foreign direct investment, institutional quality, economic freedom and entrepreneurship in emerging markets

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ABSTRACT

This study investigates the relationship between foreign direct investment, institutional quality, economic freedom, and entrepreneurship in emerging markets. The research compares the capacity and appetite for business creation among high-income, low-income and emerging countries. The results are based on a panel study of data, from 2004 to 2009 for 87 countries, using as its source "The World Bank Entrepreneurship Snapshots" to look at the connection between business creation, institutional quality, market freedom and foreign direct investment (FDI). The findings reveal a strong positive relationship between institutional quality and business generation in all three of the above categories. The freedom to create businesses and invest has an impact on business generation in emerging countries, while the influence of international trade appears more important as a spur to the genesis of business in low-income countries. Finally, there is a direct and significant relationship between FDI and business development in emerging countries. This result is consistent with "the spillover theory of entrepreneurship" (Acs et al., 2009; Ayyagari and Kosová, 2010; Görg and Strobl, 2002).

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1. Introduction

Few studies are available on the relationship between entrepreneurship and factors ancillary to a free market (including freedom to trade and invest). In the available research, the results are inconclusive and do not allow for a consensus on whether these factors, in fact, stimulate business development.

The majority of studies look at the relationship between institutions and entrepreneurship and whether institutional quality spurs would-be entrepreneurs to create businesses (Aidis, Estrin, & Mickiewicz, 2008; Desai, Gompers, & Lerner, 2003; Spencer & Gómez, 2004) and, therefore, whether or not a direct relationship occurs between entrepreneurship and institutions. However, findings are not yet exhaustive or conclusive in this area, making the correlation between institutions and entrepreneurship difficult to assess, particularly in relation to emerging countries.

This study employs a panel study from 2004 to 2009 for 87 countries. Utilizing the registry of new companies on "The World Bank Entrepreneurship Snapshots", the study tracks the relationships among company creation, institutional quality, a free market and FDI. To allow for comparative analysis, the 87 countries are split into three groups. The first group comprises countries of high and middle income; the second group comprises countries of low income (both groups

selected according to the proposed classifications by the Atlas method of The World Bank); and, the third group comprises emerging or frontier emerging countries (these countries do not figure in previous groups and are grouped according to classifications from *The Financial Times* and The London Stock Exchange (FTSE) Index).

This study makes four contributions to the canon of work on the subject. First, the study here analyzes the relationship between institutional strength and business creation in emerging countries, shedding light on the impact of institutional quality on business creation and how outside influences affect institutional quality. Second, it evaluates the relationship between entrepreneurship and aspects of the free market (in particular relative aspects such as financing, foreign trade, flow of capital and conditions for starting up, and operating and winding down a business over the lifespan of an enterprise), while considering which factor has the greatest influence and how gradations in the factors impact business creation.

Third, the study examines the impact of FDI in assisting business development in emerging countries. This work considers whether FDI facilitates business creation in the host country or, actually, deters domestic company development. Fourth, the study looks at the interplay between FDI, institutional quality and the free market and how they combine to lay the groundwork for business development in emerging countries.

This article continues as follows. The second section reviews recent literature and considers the rationale for the study; the third part presents the chosen econometric model; the fourth section details the

data and sources while the fifth section offers the results and how they stand up to testing. The final section has conclusions, considers limitations of the research, and suggests opportunities for further research.

2. Literature review

2.1. Business creation and institutional quality

To measure how the quality of institutions impacts startups, researchers aim to show the impact on entrepreneurs, property rights protection, the quality of legal services, law enforcement and corruption control. Studies charting the relationship between property rights and business creation have already established the significance of property rights in promoting economic development (Mauro, 1995; Svensson, 1998) and innovation (Broberg, McKelvie, Short, Ketchen, & Wan, 2013). Strong property rights protection prompts economic growth as businesses consider and take advantage of the significant benefits. Conversely, it has been shown that weak property rights protection increases the perception of risk for would be entrepreneurs, deters individuals from starting up a business and reduces their involvement in future development projects (Claessens & Laeven, 2003; Demirgüç-Kunt and Maksimovic, 1998; La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997; Parker, 2007).

Protection of property rights is fundamental to the entrepreneurial process because it allows entrepreneurs to enjoy the fruits of their labor and, at the same time, losing out to public or private theft of property (Hodler, 2009). The guarantee of secure property protection rights is even more critical to the relationship between investor and entrepreneur as the risks they shoulder and fears of losing out are reciprocal. On one hand, investors may have a legitimate fear they may not recover anything if an entrepreneur acts opportunistically. On the other hand, the entrepreneur may fear that their idea could be stolen by an investor, who may have the financial means and motivation to develop the concept without their participation.

Researchers show how entrepreneurship fails to flourish where inadequate legal quality, poor law enforcement and high levels of corruption proliferate. This phenomenon disadvantages entrepreneurial activity in several ways. First, where there is low legal quality and high corruption, entrepreneurs find political support is crucial to their survival and entrepreneurial development. Consequently, there is no incentive to an honest entrepreneur—one who is not open to corruption (Aidis & Adachi, 2007; Aidis et al., 2008; Aidt, 2009). Second, an environment that fosters those kind of designs does not promote loyalty and encourages dishonest practices—deterrents to new entrants to the business arena (Aidis & Mickiewicz, 2006; Barkhatova, 2000). Third, where law enforcement falters and there is a lot of corruption, this can taint the entrepreneurial experience (Glaeser, Scheinkman, & Shleifer, 2003; Hodler, 2009) and, in turn, create prejudicial views of entrepreneurial activity (Aidis, Estrin, & Mickiewicz, 2010).

To conclude, the scope of entrepreneurial activity is influenced by how much confidence stakeholders have in institutions and how willing they are to abide by the law. What also matters are the police, courts and government are and how they promote laws to help the private sector develop and create conditions in which contracts are honored and corruption is not tolerated.

2.2. Business creation and free market economies

Kirzner (1992) considers a free market as the legal, political, constitutional, and economic principle most likely to encourage entrepreneurship. Studies for emerging countries like Okoroafo (1993) confirm that liberalized environments in improving business climates. In a free market economy, supply and demand determine which goods and services must be produced and the price for which they are sold. Although an entirely free market does not exist, the degree of freedom is measured through reference to existing intervention mechanisms. The

most common among these are: price controls; taxes; import and export tariffs; monetary control; subsidies and state monopolies. Some of these are considered in this study as instrumental to entrepreneurial activity:

2.2.1. Freedom to start and close business

Researchers advocate one of two views on how the relationship between entrepreneurship and the regulatory framework operates in practice. The first belief posits that tight regulatory control acts to impede chaos within the marketplace, undermining confidence in the market and thereby engendering entrepreneurship (DiTella & McCulloch, 2006; Djankov, Glaeser, La Porta, Lopez-de-Silanes, & Shleifer, 2003; Glaeser & Shleifer, 2003). The counterargument is that too stringent a regulatory system goes hand-in-hand with higher levels of bureaucracy, paves the way for corruption, and impedes new business creation and expansion of existing ones. Studies support the notion that regulation favors fledgling businesses (Stigler, 1971), and the regulators themselves (Krueger, 1974; Shleifer & Vishny, 1998). Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) confirm that in countries where regulation inhibits entry to new businesses, there also happens to be higher levels of corruption. Desai et al. (2003), Klapper, Laeven, and Rajan (2006), and Parker (2007) have found that industries that are generally attractive to would-be entrepreneurs across the board are less appealing in countries where the system is more bureaucratic and the regulatory costs more significant.

2.2.2. Fiscal freedom

The findings in McMullen, Bagby, and Palich (2008) indicate tax hikes have a direct impact upon entrepreneurial activity, as potential entrepreneurs weigh the risks in setting up a business and regard this as a further impediment. Complex tax structures deter entrepreneurial activity even for those who are risk-averse as they will eventually feel the effect of continuing tax hikes (Gentry & Hubbard, 2000; Kanbur, 1980). But, Feldstein and Slemrod (1980), Gordon (1998), and Cullen and Gordon (2002), highlight that fiscal systems are complex and their interrelationships cannot be easily predicted; and for that reason, the relationship between fiscal freedom and entrepreneurship can vary depending on existing factors such as capital gains tax, income tax and corporate tax.

2.2.3. International trade freedom

Some studies mention how international markets benefit larger companies while smaller companies are disadvantaged by fixed costs, their limited knowledge of international markets, and limited skills and wherewithal to negotiate with other governments (Gomez-Casseres, 1997; Vernon, 1970). It has been stated also that intensified international competition induces many firms to seek government protection but pressures to employ protectionist measures may result in net welfare losses (Zhou & Vertinsky, 2002). Other studies contend that business creation and free international trade enjoy a symbiotic relationship (Bartlett & Ghoshal, 1999; Sobel, Clark, & Lee, 2007). The last conclusion supports the World Bank's thesis (World Bank, 2005) indicating that protectionist limitations to international trade impede specialization and free market participation, favor known products over innovation, and limit entrepreneurship activity because new opportunities to make money are excluded from local entrepreneurs' alternatives.

2.2.4. Freedom to invest

The importance of sourcing capital as a prerequisite to starting a business is no secret. Many researchers have suggested that restrictions on the flow of capital inhibit the growth rate of business formation (Blanchflower & Oswald, 1998; Di Patti & Dell'Ariccia, 2004; Holtz-Eakin, Joulfaian, & Rosen, 1994). There is also extensive research asserting that the availability of financial resources, especially venture capital, is vital to entrepreneurial development (Gompers & Lerner, 2001; Henderson, 2002). Investment freedom provides fertile ground

for the creation of a variety of instruments and mechanisms that finance entrepreneurship, paving the way for investment at home and abroad. Research which investigates more closely the relationship between investment freedom, FDI and business creation is analyzed in the next section.

2.3. Business creation and foreign direct investment

A raft of research suggests that entrepreneurs benefit from the presence of FDI in three main ways. The first, to which this paper alluded above, is that in undeveloped and developing countries financial sources fill the risk capital gap financing innovative ideas while foreign investors, pursuing greater gains, assume greater risk (White & Fan, 2006). In second place, Alfaro, Kalemli-Ozcan, and Sayek (2009) and Alfaro and Charlton (2008) have indicated that economic activity and entrepreneurship flourish where there is international financial investment in those industries that have a greater dependency on foreign financial investment. The third factor is referred to as the spillover phenomenon, which has been identified by several researchers (Acs, Braunerhjelm, Audretsch, & Carlsson, 2009; Ayyagari & Kosová, 2010; Görg & Strobl, 2002). Their research reveals that FDI can have an exponential effect stimulating multiple business entry within the same industry ("horizontal spillovers") and within related industries up and down in the same production chain ("vertical spillovers").

A second body of research claims that FDI can expedite an entrepreneur's exit. Some studies (Aitken & Harrison, 1999 in Venezuela; and Konings, 2001 in Bulgaria, Romania and Poland) conclude that, at best, the positive impact of FDI is minimal and the benefits limited to firms that have the highest foreign investment and dependency. Barbosa and Eiriz (2009) show that in the case of Portugal the impact of FDI is at first, positive; but long-term it has a negative impact upon business creation. Finally, De Backer and Sleuwaegen (2003) established that, in Belgium, the presence of FDI discourages new entrepreneurs from setting up businesses and hastens the demise of existing ones. However, the results can be less severe or even helpful if local and foreign companies can learn from the experience.

3. Challenges in estimating the effects of FDI, the quality of institutions and a free market upon business formation: model development

The objective of this research is to measure how the quality of institutions, FDI and a free market interact to promote business creation and to compare how the behavior of these variables changes among emerging, high-income and low-income countries. We then proceed to build three different models, one for each data set. To this end, we use the data panel technique. In each regression, a test is applied to establish the significance of variables that control temporal and spatial effects. The results indicate the significance of temporal effects alone for high-income countries. We use the Hausman Specification Test to establish if unseen characteristics are fixed or random. Test results indicate random effects. The Breusch and Pagan's Test (the Lagrange multiplier to prove random effects) confirms the models used which appear in Eq. (1) for countries of high-income and in Eq. (2) for low-income and emerging countries:

$$Y_{it} = \nu_i + \beta_1 \chi_{it} + \beta_2 \gamma_{it} + \beta_3 \delta_{it} + \beta_4 \phi_{it} + y'\partial_t + \varepsilon_{it} \qquad (1)$$

$$Y_{it} = \alpha_i + \beta_1 \chi_{it} + \beta_2 \gamma_{it} + \beta_3 \delta_{it} + \beta_4 \phi_{it} + \varepsilon_{it} \qquad (2)$$

$$\alpha_i = \alpha + \vartheta_i \qquad (3)$$

Where Y_{it} denotes a business creation measure in an i country and during a year t. χ_{it}, γ_{it}, δ_{it} and ϕ_{it} denote the associated variables to institutional quality, free market, FDI and control variables respectively to each country in a year. ∂_t is a "dummy" yearly dimension vector t x

1(t times one). Eq. (3) allows us to control the "individual" characteristics for each country, α_i is a random order variable with a median value α and a random deviation ϑ_i. Heteroscedasticity and cross sectional problems were found and corrected in some models. Finally, to mitigate endogenous problems between FDI, the indicators of economic freedom or FDI and the quality of institutions, we distinguish the differences in time of the variables (Kamal-Fatehi & Safizadeh, 1994)

Finally, predictive validity estimates for the models that were made using Woodside (2013). A cross validation was made splitting each country group samples into two sub-samples. Each country group sub-sample was modeled empirically; the model from the first sub-sample was used to predict the scores for the second sub-sample and the model from the second sub-sample was used to predict the scores for the first sub-sample. The independence hypothesis between predictions and real scores was rejected with Spearman's correlation test in all sub-samples.

4. Variables and data description

Degree of business creation, dependent variable: entrepreneurship levels are measured in terms of the number of companies created (an ecological approach, used by Armington & Acs, 2002; Bartelsman, Haltiwanger, & Scarpetta, 2004; Klapper et al., 2006; Klapper & Love, 2010; Verheul, 2009). The rate of entry of new companies (entry density) is the dependent variable. Entry density is calculated as the number of new companies registered by each 1000 people of working age (using a standard range of 15 to 64 years of age). Data on new business registration in 87 countries from 2004 to 2009 comes from the *World Bank Entrepreneurship Snapshots* (Appendix A). In order to conduct a comparative analysis, we classify the 87 countries into three separate groups according to their respective levels of prosperity. The first group comprises high- and medium-income countries; the second consists of countries which command low incomes. These two groups are categorized according to the proposed classification outlined in the *Atlas of the World Bank*. A third group comprising emerging countries or frontier emerging countries is identified with reference to *The Financial Times* and the London Stock Exchange (FTSE) Index. Table 1 show the countries included in each group.

Table 1
Sampled countries.

High income and mid-high countries	Low income countries	Emerging countries	Frontier emerging countries
Austria	Armenia	Czech Republic	Argentina
Finland	Bhutan	Hungary	Bulgaria
Belgium	Bolivia	Latvia	Croatia
Canada	Burkina Faso	Malaysia	Estonia
France	Cambodia	Poland	Kazakhstan
Denmark	El Salvador	Russian Federation	Lithuania
Gabon	Ethiopia	South Africa	Macedonia
Portugal	Guatemala	Turkey	Romania
Netherlands	Kosovo	Brazil	Serbia
Albany	Kyrgyzstan	Chile	Slovak Republic
Spain	Madagascar	Colombia	Slovenia
Algeria	Malawi	Mexico	Uruguay
Belarus	Maldives	Peru	Ghana
New Zealand	Moldova	Egypt	Jordan
Italy	Niger	India	Kenya
Azerbaijan	Philippines	Indonesia	Nigeria
Iceland	Rwanda	Morocco	Oman
Sweden	Senegal		Sri Lanka
UK	Tajikistan		
	Togo		
	Uganda		
	Ukraine		
	Uzbekistan		
	Zambia		

4.0.1. Institutional quality

The quality of institutions is determined according to the most recent version of "Worldwide Governance Indicators (WGI)" (Kaufmann, Kraay, & Mastruzzi, 2010). These indicators are available for 212 countries and record six dimensions of institutional quality for the years from 1996 to 2009: voice and accountability (Voi_Acc); political stability and absence of violence/terrorism (Pol_Sta); government effectiveness (Gov_Eff); regulatory quality (Reg_Qual); rule of law (Rule_Law); and control of corruption (Ctrl_Cor). The definitions and sources for the calculation of each one are found in Appendix A. The scale ranges from −2.5 to 2.5; the highest values corresponding to greater institutional quality for each factor where a positive impact on entry-density is expected.

When analyzing correlations between indicators of each dimension of the WGI, one notes they are high in countries of high income (0.80 up to 0.99), less high in emerging countries (0.52 up to 0.88) and more dispersed in low-income countries (−0.3074 up to 0.8092). In the first and second examples, this behavior demonstrates a relationship to common dimension dependency. In order to establish if there was dependency of a common dimension, a principal components analysis is made (Ledesma & Valero-Mora, 2007). The analysis reveals that one factor attracts the values of 91%, 70%, 46% from six indicators for high-income, emerging and low-income countries, respectively. Our study's focus (the emerging countries) confirms the dependency. The study creates a new variable measuring the quality of institutions quality (Inst_Qual), being the mean of six factors in one year. The use of averages to measure the institutional influences on entrepreneurship has already been adopted by McMullen et al. (2008), Van Stel, Storey, and Thurik (2007), and Wennekers, Van Stel, Thurik, and Reynolds (2005).

Free markets and foreign direct investment: no universally accepted method exists for measuring the propensity for a free market. The study here used the measures including the Index of Economic Freedom (IEF) of the Heritage Foundation (Beach & Kane, 2007). The index offers independent indicators associated with different categories relating to a free market. In this work, the indicators are: freedom to establish companies (Bus_Free); freedom to trade internationally (Tra_Free) and fiscal freedom (Fiscal_Free). Definitions and sources are found in Appendix A. These indicators are designed so that together they measure the main aspects of a free market in a country by reference to how the players respond to changing market conditions. Other studies that employ this methodology using IEF indicators are Aidis et al. (2010), Claessens and Laeven (2003), Haan and Sturm (2000), Klapper et al. (2006), and McMullen et al. (2008).

The correlations between the indicators of the four IEF dimensions included in this work are: in countries of high-income range from −0.6049 up to 0.6865, in emerging countries from − 0.0502 up to 0.4047 and in the countries of low-income from −0.1779 up to 0.5045. Principal Component analysis was used to review multicolinear conformity. Eigenvalues for the first four factors are 2.47796, 1.10683, 0.86338 and 0.73072, respectively.

In accord with standard practice the first two factors are retained. However, four variables to measure a free market are used in the model as two factors alone are insufficient to explain the existing relationship conclusively. This approach is justified for three reasons: (1) a steep fall in the magnitude of Eigenvalues is not observed; (2) to retain two factors would imply high costs of singularity for indicators like Bus_Free and Tra_Free (values of singularity of 0.6113 and 0.4219, respectively); and (3) Costello and Osborne (2005) mention that the orthogonal rotation does not use all the information available in these cases. Actually other investigators have identified the independent effects of Bus_Free (Claessens & Laeven, 2003; Desai et al., 2003; Klapper et al., 2006), Fiscal_free (Gentry & Hubbard, 2000; Kanbur, 1980; Parker, 2003) and Trade_Free (Bartlett & Ghoshal, 1999; Horst, 1972) on business creation. For these reasons, we consider each indicator separately in our model.

Finally, FDI is measured by the net flow of foreign investment divided by the gross domestic product, with data based on the *World Development Indicators* compiled by the World Bank. As discussed, to mitigate endogenous problems between FDI and any free market indicator or between FDI and measurements of institutional quality, temporal differences in the variables are introduced.

4.0.2. Control variables

A series of control variables are included to ensure that the relationship between the explanatory variables and dependent variables can be authenticated. Four control variables are included (see Appendix A for a detailed description of each variable). The first variable is the amount of domestic credit available to the private sector, represented as a percentage of GDP, (Blanchflower & Oswald, 1998; Di Patti & Dell'Ariccia, 2004; Holtz-Eakin et al., 1994). The second variable is GDP per capita (Klapper & Love, 2010; Lucas, 1978).

The third variable is the percentage of unemployed people in the total labor force (Blanchflower, 2000; Cowling & Mitchell, 1997).

The final control variable introduced is a trade of goods and services index, represented as percentage of GDP, the expectation here is that the amount of traded goods has an impact on the number of businesses created in any given period. Additional data details are reported in Table 2. Because the data for all variables is not complete for low-income and emerging countries, a non-balanced panel's method was used. A positive relationship is expected between the dependent variable and domestic credit availability, GDP per capita and trade. A negative relationship is expected with unemployment.

Correlation matrices appear in Table 3. Except in the case of high income countries all variables showed low correlation. Obviously a high correlation does not mean dependence. For example, a country may require few requirements to create a new company but has high restrictions on foreign investment. The level of correlation between some variables in high income countries obeys to a particular characteristic of this kind of countries: They had implemented several policies to promote the firm creation simultaneously.

5. Results analysis

5.1. New business registration determinants

Table 3 illustrates the relationship between each of the independent variables and the dependent variable, for each group of countries. The variable that measures the strength of governance is significant and positive in all the cases. Quality of institutions can explain the differences in rates of new business creation across the three groups of countries. In Eqs. (1), (2) and (3) the size of the associated coefficient to institutional strength is greatest in high-income countries, lower in emerging economies and smallest in low-income countries. The relative size of the coefficient measuring institutional quality may be due to institutional changes that are slow, incremental, continuous and show dependency patterns (DiMaggio & Powell, 1983; North, 1990).

Consequently, the variable reflects a cumulative effect most notably in high-income countries. This is borne out by contrasting these results with other indicators for institutional quality. Our research showed that, when contrasting four of the five countries that saw the largest number of new business formations on average per year over the past four years (the United Kingdom, 385,600; Canada, 194,750; France, 137,018; and, Japan, 122,816), they have consistently been in the top 25 countries in the world in terms of institutional quality rankings (Krause, 2010) (Table 4).

The freedom to form businesses is significant and positive in all three groups of countries. This is consistent with the view that rigid and expensive barriers to starting up businesses can impede entry density and deter entrepreneurs from formalizing existing businesses, across all three groups of countries.

Table 2
Sample characteristics for each group of countries.

High income countries						
Variable	Observations	Mean	Standard deviation	Minimum	Maximun	Kind of variable
Entry_density	107	4,94	5,41	0,16	25,07	Dependent
Ctrl_Cor	108	1,22	1,18	−1,02	2,56	Explanatory
Rule_Law	108	1,04	1,06	−1,29	2,00	Explanatory
Reg_Qual	108	1,01	0,96	−1,64	1,92	Explanatory
Gov_Eff	108	1,12	1,09	−1,17	2,34	Explanatory
Pol_Sta	108	0,63	0,66	−1,37	1,59	Explanatory
Voi_Acc	108	0,92	1,01	−1,77	1,83	Explanatory
Inst_Qual	108	0,99	0,95	−1,06	1,99	Explanatory
Bus_Free	108	79,71	14,73	40,00	100,00	Explanatory
Tra_Free	108	78,37	9,63	48,20	88,20	Explanatory
Fiscal_Free	108	58,78	14,77	32,00	92,80	Explanatory
FDI	108	5,18	6,62	−3,69	36,43	Explanatory
GDPP	108	27878,63	16836,70	2468,69	58009,79	Control
Unemploy	99	7,11	2,91	2,30	1,00	Control
Ltrade	108	4,15	0,41	3,58	5,22	Control
Dom_Cre	107	113,79	67,67	8,54	3,19	Control
Emerging countries						
Entry_density	219	2.13	2.05	0.03	9.81	Dependent
Ctrl_Cor	219	−0.03	0.59	−1.34	1.48	Explanatory
Rule_Law	219	−0.14	0.73	−1.64	1.28	Explanatory
Reg_Qual	219	0.29	0.66	−0.90	1.82	Explanatory
Gov_Eff	219	0.20	0.56	−1.24	1.31	Explanatory
Pol_Sta	219	−0.19	0.90	−2.76	1.08	Explanatory
Voi_Acc	219	0.08	0.71	−1.27	1.21	Explanatory
Inst_Qual	219	0.04	0.57	−1.04	1.25	Explanatory
Bus_Free	215	65.46	9.51	39.8	85.2	Explanatory
Tra_Free	215	71.54	12.98	23.6	87.8	Explanatory
Fiscal_Free	215	77.25	8.25	54.6	98.5	Explanatory
FDI	219	5.12	5.95	−4.54	52.13	Explanatory
GDPP	216	6483.54	5146.93	414.11	26987.49	Control
Unemploy	210	10.07	6.13	1.38	40	Control
Ltrade	214	4.19	0.5022605	2.90	5.23	Control
Dom_Cre	194	47.74	30.3723	−0.28	162.46	Control
Low income countries						
Entry_density	120	0,71	0,86	0,00	4,05	Dependent
Ctrl_Cor	120	−0,59	0,44	−1,26	0,84	Explanatory
Rule_Law	120	−0,37	0,51	−1,22	1,27	Explanatory
Reg_Qual	120	−0,41	0,43	−1,31	0,38	Explanatory
Gov_Eff	120	−0,54	0,39	−1,29	0,47	Explanatory
Pol_Sta	120	−0,49	0,67	−1,94	1,30	Explanatory
Voi_Acc	120	−0,62	0,51	−1,95	0,18	Explanatory
Inst_Qual	120	−0,50	0,28	−0,98	0,30	Explanatory
Bus_Free	110	57,69	11,43	28,80	86,60	Explanatory
Tra_Free	110	69,41	9,91	22,00	87,60	Explanatory
Fiscal_Free	110	80,28	9,21	59,50	95,80	Explanatory
FDI	120	4,29	3,67	−2,50	17,21	Explanatory
GDPP	118	1180,18	1042,91	137,95	4383,77	Control
Unemploy	60	8,00	10,21	0,10	77,00	Control
Ltrade	120	4,10	0,42	2,96	4,92	Control
Dom_Cre	93	22,11	16,48	6,04	100,72	Control

The chart shows the descriptive statistics of the variables used in the developed models. The unit of analysis is country and the unit of time is year. The first panel has information of 19 countries with high income, the second of 35 emerging countries and the third of 24 countries with low incomes. Countries with high and low income were categorized by the classification of The World Bank Atlas method[1]
[1] The definition of the World Bank Atlas Method may be found at: http://data.worldbank.org/about/country-classifications/world-bank-atlas-method.; on the other hand the emerging economies were categorized by *The Financial Times and the London Stock Exchange*: *FTSE index*.[2]
[2] The definition of the "Financial Times and the London Stock Exchange, FTSE Index" method may be found at: http://www.ftse.com/Indices/Country_Classification/index.jsp The period of time is 6 years (from 2004 to 2009). Variables definitions are explained in Appendix A.

Fiscal freedom has a positive impact but it is only significant in high and low income countries. In that groups, complex tax regimes discourage would be entrepreneurs. One reason their fiscal freedom does not seem to be as important in emerging countries is that their smaller companies cannot benefit from tax breaks or subsidies and are more susceptible than larger companies to the costs of bureaucracy cost, as the report *Doing Business*: *How to Reform* of the World Bank (2007) indicates.

Freedom to trade internationally is important for both high- and low-income countries. In the former, the coefficient shows negative impact; in the latter, it is positive. This indicates that a lack of regulation and the absence of barriers impeding free movement of goods and services have a negative impact on new business formation in high income countries but, conversely, a positive one on the same process in low-income countries.

According to the Organization for Economic Cooperation and Development (2007), companies in industrialized countries have been operating for decades in a largely globalized economy. Supply chains in industries have been globalized in a bid to reduce costs and increase productivity in order to be more competitive at a national and international level. One way of achieving this is to produce goods more efficiently

Table 3
Correlation matrix.

High Income Countries

	Entry_Density	Inst_Qual	Dom_cre	Fiscal_Free	Bus_Free	Tra_Free	Ltrade
Entry_Density	1,000						
Inst_Qual	0,454	1,000					
Dom_cre	0,469	0,745	1,000				
Fiscal_Free	0,063	−0,567	−0,346	1,000			
Bus_Free	0,514	0,835	0,647	−0,417	1,000		
Tra_Free	0,264	0,842	0,715	−0,443	0,752	1,000	
Ltrade	−0,3439	−0,0656	−0,2003	−0,2103	−0,0855	−0,0588	1

Emerging countries

	Entry_Density	Inst_Qual	Dom_Cre	Bus_Free	FDI	Unemploy
Entry_Density	1					
Inst_Qual	0,5042	1				
Dom_Cre	0,2361	0,3775	1			
Bus_Free	0,1683	0,3649	0,3059	1		
FDI	0,4836	0,2079	0,2316	0,0572	1	
Unemploy	−0,189	−0,0515	−0,2404	−0,107	−0,0465	1

Low income countries

	Entry_Density	Inst_Qual	Bus_Free	Tra_Free	Fiscal_Free	FDI	Ltrade	Ln_gdpp
Entry_Density	1							
Inst_Qual	0,3593	1						
Bus_Free	0,6616	0,4173	1					
Tra_Free	0,5123	0,3285	0,4575	1				
Fiscal_Free	0,5075	−0,1193	0,3204	0,3173	1			
FDI	0,6171	0,109	0,3232	0,2074	0,412	1		
Ltrade	0,3478	−0,1888	0,0805	0,1575	0,4495	0,4447	1	
Ln_gdpp	0,5248	0,4131	0,5117	0,4097	0,4246	0,0952	0,2041	1

and to use supplies from the most effective producers, national or international. This has led to fragmentation in several countries as businesses offshore processes. Offshoring allows businesses to buy goods or services from foreign suppliers or move parts of the process abroad.

In terms of business creation, this phenomenon can be detrimental to high-income economies but positive for low-income economies. That is because offshoring has resulted in the partial relocation of activities that have led to shrinkage in production in high-income countries as work moves to countries where wages are lower and public services or raw material cheaper. The study by the OECD shows the rate of imports over domestic production of intermediate goods has risen in all countries considered in this study, between 1995 and 2000.

Second, thanks to the relaxation of regulatory barriers to international trade and large increases in FDI, foreign branches of multinational companies have become more important to low-income countries where they represent increasing volume of businesses, jobs, and research and development. The aforementioned OECD study shows a 24% increase in labor forces for foreign subsidiaries from 1995 to 2001. The corollary is that multinational companies in developed countries have a competitive advantage derived from intellectual capital so they can take advantage of business opportunities by creating subsidiaries and affiliated companies abroad. Affiliated ones not only serve local markets but become essential links in the multinational's global supply chain.

The OECD report shows that exchange within the corporations has risen over the recent years, affecting the interpretation of commercial deficits between countries. Part of the commercial deficit between the United States and China relates to imports that North American companies bring from subsidiaries in China. For developed countries, competing in traditional industries based on low cost, is no longer an option; but businesses have moved up the supply chain, focusing on specialist areas of expertise. This process has led to "de-industrialization," accounting for a drop of between 5% and 20% in manufacturing jobs in all OECD countries, except Portugal, with those activities transferred to other countries.

All the previous issues presented generate challenges for small companies in high-income countries. Expanding activities internationally can be a difficult step for small firms. There is then a trend toward mergers and acquisitions to manage the volumes required to support the cost of research and development, training and business administration to lower down the supply chain, allowing enterprises to maintain productivity and retain high standards of quality.

Finally, FDI has a positive and significant impact on business creation in emerging and low income countries. This activity supports the hypothesis that FDI encourages entrepreneurial activity that countries. Specifically, emerging markets are by definition, undergoing accelerated growth and industrialization. The investment is a motor driving the industrialization process because it promotes multiple instruments and financing mechanisms, diminishing obstacles to cash flow and paving the way for local and foreign investors. The emerging countries in our list which registered the largest numbers of business formations over the period have been those that have been making reforms that support foreign investment for years. These include Indonesia and Romania which have since the 1970s and 1990s, respectively, introduced regulations specifically designed to open doors to foreign investment. In Brazil, Resolution No. 2689 of 26 January 2000, from the National Monetary Council, allowed foreign organizations to use all investment mechanisms available to Brazilian investors in Brazil financial markets. Meanwhile, in Colombia, since the 1990s pension fund (AFPs) regulation has evolved permitting foreign investment in the private capital fund. In this regard, this development outshines other reforms in Latin America.

Similarly, worldwide reports of foreign investment from the United Nations have, since 2005, shown that developing and emerging economies receive the largest proportion of worldwide FDI. Of the top 33 countries targeted for research and development funds from overseas in 2005, 17 are considered developing economies and 14 of them are in the mid-high segment of emerging countries in terms of their rates of entry density over this period. This would suggest that FDI not only has boosted business creation through offshoring of products and services in emerging countries but qualified functions such as research and development are also outsourced to companies in emerging markets.

The OECD report shows how internationalizing R&D in developing countries flourish as some countries offer a combination of low

Table 4
Firms creation determinants.

Firm creation determinants						
Dependent Variable New Firms Entry Density						
	High income countries		Emerging countries		Low income countries	
	(1)		(2)		(3)	
inst_qual	3.1190***	(0.9340)	0.8860***	(0.3220)	0.3640***	(0.0885)
dom_cre	0.0146*	(0.0084)	0.0191***	(0.0055)		
bus_free	0.0918**	(0.0413)	0.0193**	(0.0088)	0.0080***	(0.0020)
tra_free	−0.1390***	(0.0495)			0.00395*	(0.0021)
fiscal_free	0.1560***	(0.0315)			0.00920***	(0.0029)
$Fdi_{(t-1)}$			0.0589***	(0.00845)	0.0310***	(0.0058)
lngdp_pcu					0.2120***	(0.0000)
Unemploy			−0.0672**	(0.0300)		
ltrade−1	−1.3030**	(0.6600)			0.1930***	(0.0408)
Intercept			0.1970	(0.681)	−2.8510***	(0,2618)
R^2						
Within			0.5936			
Between			0.2645			
Overall	0.690		0.2775			
N	89		159		108	
	Test	p-Value	Test	p-Value	Test	p-Value
Wald chi^2	212.85	0.0000	179.20	0.0000	385.35	0.0000
Hausman	5.06	0.8871	9.85	0.0795	9.85	0.0003
Breusch–Pagan (LM)	86.37	0.0000	228.63	0.0000	78.46	0.0000

The dependent variable for country i at year t is the number of new companies registered per 1000 people of working age (age between 15 and 64). The regression (1) is done for high income countries group; The regression (2) is done for emerging countries group; and the regression (3) is done for low income countries group. Countries with high and low income were categorized by the classification of The World Bank Atlas method; on the other hand the emerging economies were categorized by *The Financial Times and the London Stock Exchange*: *FTSE index*. The period of time is 6 years (from 2004 to 2009). The independent variables definitions are explained in Appendix A. The static is specified in parentheses. The regression (1) contains temporal effects and the coefficients are based on the errors estimating. PCSE (*Panel Corrected Standard Errors*). Moreover the regression (2) and (3) the coefficients are based on the errors estimating GLS (*Randon effects GLS regression robust standard error*). ***, ** and *, means statistical significance at 1%, 5% and 10% respectively.

wages and good educational standards (one of the characteristics of emerging countries). The presence of multinational companies affects productivity in emerging economies. Although that prompts competition among domestic businesses, it also moves the technology and know-how to countries that can benefit from it, up and down the supply chain.

The models do not intend to predict the number of new firms that will be created. The central concern of this work is explaining the significance and the sign of the relationship between the independent and dependent variables. A great amount of real evidence was depicted above to support our conclusions. Additionally, to establish the robustness of the relationships found, a cross validation was made splitting randomly two sub-samples for each country group as were suggested in Woodside (2013). Each sub-sample was modeled empirically. The

model from the first sub-sample was used to predict the scores for the second sub-sample and a correlation test was run for the prediction obtained before and the real scores. The process was repeated for the second sub-sample.

Table 5 for low income; 6 for high income; and, 7 for emerging countries show the coefficients. Spearman's rho and independence test between results predicted for sub-samples in each country group. The signs of the coefficients in each sub-sample maintain its consistency. Spearman's rho and independence test indicate that the model does have acceptable predictive validity.

To confirm the result above, a second validation test was made. The coefficients of each country group model were used to predict the dependent variable of two sub-samples of each kind of country. A predictive validation test was made comparing the results obtained

Table 5
Cross validation test for low income countries.

Low Income Countries. Dependent Variable New Firms Entry Density							
First sub-sample				Second sub-sample			
Wald > chi2(7)	138.01	N = 60		Wald > chi2(7)	67.17	N = 54	
Prob > Chi2	0.00000			Prob > Chi2	0.00000		
Variable	coef.	Std. Error	T	variable	coef.	Std. Error	T
Inst_Qual	0.0023	(0.1290)	0.02	Inst_Qual	0.5490	(0.1650)	3.33
Bus_Free	0.0031	(0.0028)	1.12	Bus_Free	0.0003	(0.0019)	0.16
Tra_Free	0.0093	(0.0036)	2.60	Tra_Free	0.0014	(0.0017)	0.81
Fiscal_Free	0.0164	(0.0055)	3.01	Fiscal_Free	0.0044	(0.0042)	1.05
FDI	0.0163	(0.0065)	2.49	FDI	0.0068	(0.0053)	1.27
Ltrade	0.3120	(0.1110)	2.82	Ltrade	0.2060	(0.0739)	2.78
ln_gdp	0.1550	(0.0453)	3.42	ln_gdp	0.3890	(0.0832)	4.68
Constant	−3.9300	(0.4540)	−8.66	Constant	−2.708	(0.5220)	−5.19
N = 54				N = 54			
Spearman's rho = 0.7928				Spearman's rho = 0.7250			
Test of Ho: Entry_Density and Entry_Density stimation				Test of Ho: Entry_Density and Entry_Density stimation			
Are independent Prob > |t| = 0.0000				Are independent Prob > |t| = 0.0000			

The dependent variable for country i at year t is the number of new companies registered per 1000 people of working age (age between 15 and 64). Cross validation was made splitting randomly two sub-samples of low income countries. Each sub-sample was modeled empirically. First sub-sample model coefficients were used to predict New Firms Entry Density for the second sample. A correlation test was run for the real data and prediction New Firms Entry Density scores obtained before. The process was repeated for the second sub-sample. The signs of the coefficients in each sub-sample remain its consistent. Spearman's rho and independence test indicate that the model does have acceptable predictive validity.

Table 6
Cross validation test for high income countries.

High Income Countries. Dependent Variable New Firms Entry Density							
First sub-sample				Second sub-sample			
Wald > chi2(7)	215.19	N = 45		Wald > chi2(7)	215.19	N = 39	
Prob > Chi2	0.00000			Prob > Chi2	0.00000		
R-squared	0.7909			R-squared	0.6630		
variable	Coef.	Std. Error	t	Variable	Coef.	Std. Error	t
Inst_Qual	6.9560	(−1.2581)	5.53	Inst_Qual	2.0010	(−1.7750)	1.13
Dom_Cre	0.0005	(0.0119)	0.05	Dom_Cre	0.0154	(0.0079)	1.94
Fiscal_Free	0.1940	(0.0441)	5.75	Fiscal_Free	0.1630	(0.0217)	7.53
Bus_Free	0.0464	(0.0562)	0.95	Bus_Free	0.1640	(0.0985)	1.67
Tra_Free	−0.1520	(0.0645)	−1.75	Tra_Free	−0.0918	(0.1350)	−0.68
Ltrade	−0.7310	(−1.2150)	0.79	Ltrade	−3.4220	(−1.0680)	−3.21
N = 40				N = 39			
Spearman's rho = 0.3844				Spearman's rho = 0.6084			
Test of Ho: Entry_Density and Entry_Density stimation				Test of Ho: Entry_Density and Entry_Density stimation			
Are independent Prob > |t| = 0.0143				Are independent Prob > |t| = 0.0000			

The dependent variable for country i at year t is the number of new companies registered per 1000 people of working age (age between 15 and 64). Cross validation was made splitting randomly two sub-samples of high income countries. Each sub-sample was modeled empirically. First sub-sample model coefficients were used to predict New Firms Entry Density for the second sample. A correlation test was run for the real data and prediction New Firms Entry Density scores obtained before. The process was repeated for the second sub-sample. The signs of the coefficients in each sub-sample remain its consistent. Spearman's rho and independence test indicate that the model does have acceptable predictive validity.

with the real dependent variable of each sub-sample. Again, Spearman's rho and independence test indicate that the model does have acceptable predictive validity (Table 8).

5.2. FDI productivity in the creation of companies at emerging countries

In Table 9, Eq. (4) orders the 35 emerging markets examined as part of this study based on their institutional quality. The first independent variable measures institutional quality showing a direct and significant correlation with the dependent variable. The following independent variable multiplies FDI by one if the country's institutional quality is in the lowest quartile or zero if it is the reverse. The third independent variable does the same for the countries whose institutional quality is ranked in the first to the third quartiles. The fourth independent variable repeats the previous process with countries whose institutional quality is in the top quartile of emerging countries.

The main characteristic of this regression is the significance and size of coefficients used to represent the independent variables, identified above. The size of the coefficients for countries in the top quartile institutional quality is greater than others countries located below (0.0651 is greater than 0.0124 and 0.0013). In addition, the coefficient for countries in the low quartiles loses its significance. Only coefficient for

countries localized in the top institutional quality quartile maintain its significance. The conclusion is that size and significance of FDI coefficients depend on institutional quality. It should be then that FDI has a positive impact on business creation in emerging countries with better institutional quality.

In order to test the strength of the result in Eqs. (4), (5) in Table 9 divides the 35 emerging countries into two groups and repeats the process in Eq. (4) for both groups of countries. The first independent variable that measures institutional quality continues to show a direct and significant relationship with the dependent variable. The second independent variable, which multiplies FDI by one if that country's institutional quality is mid-to-high or by zero if the reverse, shows a significant coefficient with more than seven times the third coefficient's variable and does the same for those countries whose institutional quality is mid-to-low (0.0651 as opposed to 0.0089). Also, the coefficient associated with countries whose institutional quality is mid-inferior loses significance. Again, it is shown that FDI is only effective in spurring business creation in emerging countries with better governance and FDI is most effective in this regard in countries with high institutional quality.

This result shows how the characteristics of good governance – included in the indicator used in this work to measure governance – interact with FDI to promote business creation in emerging countries.

Table 7
Cross validation test for emerging countries.

Emerging countries. Dependent Variable New Firms Entry Density							
First sub-sample				Second sub-sample			
Wald > chi2(7)	19.43	N = 90		Wald > chi2(7)	160.41	N = 93	
Prob > Chi2	0.0016			Prob > Chi2	0.00000		
Within	0.3542			Within	0.6448		
Between	0.2595			Between	0.1872		
R-squared	0.2337			R-squared	0.2740		
variable	Coef.	Std. Error	t	Variable	coef.	Std. Error	t
Inst_Qual	0.7610	(0.2580)	2.94	Inst_Qual	0.1490	(0.4240)	0.35
Dom_Cre	0.0110	(0.0045)	2.43	Dom_Cre	0.0167	(0.0089)	1.87
Bus_Free	0.0143	(0.0067)	2.12	Bus_Free	0.0122	(0.0116)	1.06
FDI	0.0235	(0.0129)	1.82	FDI	0.0645	(0.0091)	7.12
Unemploy	−0.0063	(0.0139)	−0.45	Unemploy	−0.1330	(0.0603)	−2.12
Constant	−0.3030	(0.4350)	−0.70	Constant	2.0190	(−1.174)	1.72
N = 90				N = 91			
Spearman's rho = 0.3844				Spearman's rho = 0.1868			
Test of Ho: Entry_Density and Entry_Density stimation				Test of Ho: Entry_Density and Entry_Density stimation			
Are independent Prob > |t| = 0.0006				Are independent Prob > |t| = 0.0763			

The dependent variable for country i at year t is the number of new companies registered per 1000 people of working age (age between 15 and 64). Cross validation was made splitting randomly two sub-samples of emerging countries. Each sub-sample was modeled empirically. First sub-sample model coefficients were used to predict New Firms Entry Density for the second sample. A correlation test was run for the real data and prediction New Firms Entry Density scores obtained before. The process was repeated for the second sub-sample. The signs of the coefficients in each sub-sample remain its consistent. Spearman's rho and independence test indicate that the model does have acceptable predictive validity.

Table 8
Second cross validation test.

Countries	High income		Low income		Emerging	
	First sample	Second sample	First sample	Second sample	First sample	Second sample
N	84	84	54	54	91	91
Spearman's rho	0.6464	0.8626	0.8552	0.8526	0.4121	0.4848
Test of independence Prob > |t|	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000

The coefficients of each country group model were used to predict the dependent variable (number of new companies registered per 1000 people of working age country i at year t) of two sub-samples of each kind of country. A predictive validation test was made comparing the results obtained with the real dependent variable of each sub-sample. Spearman's rho and independence test indicate that the model does have acceptable predictive validity.

The factors, associated with good governance, determine how FDI can produce economic, technological and social development, and well-being through the creation of new businesses and, in turn, new jobs. So, the quality of institutions can make a difference, ensuring that FDI becomes a source of financing to assist new businesses and funding improvements to infrastructure that benefit local entrepreneurs and lead to horizontal or vertical spillovers. Unless this is so, FDI will not foster much business creation in a country.

5.3. The strength of the results

Table 10 shows the impact of the changes in institutional quality, FDI and freedom to start businesses over the entry density variation. In Eq. (6), all the variables behave as expected. Variations in institutional quality and freedom to start a business are significant and positive in relation to new firm creation. But, FDI fluctuation is more significant, recording a confidence level of 99%. This result is evidence that changes

in that variables affect the rate of new business creation in emerging countries, even in the short-term.

There are several methods for testing these results against reality. First, an alternate source that measures institutional quality and the free market in several countries around the world is the *Economic Freedom of the World Index*. The researchers use the results obtained by the countries in this index from 2005 to 2009 to determine the degree of improvement (variation) to institutional quality and the openness of the free market over this period. The researchers divide the countries into quartiles and analyzed the results for the 10 best

Table 9
FDI Productivity in firm creation at emerging countries.

FDI Productivity in firm creation at emerging countries

Dependent variable new firms entry density

	(4)		(5)	
Inst_qual	0.893*	(0.4639)	0.9875***	(0.4932)
$Fdi_{(t-1)}$*Ins_qual (Upper half)			0.0651***	(0.0082)
$Fdi_{(t-1)}$*Ins_qual (Lower half)			0.0089	(0.0129)
$Fdi_{(t-1)}$*Ins_qual (<1th quartile)	0.0013	(0.0204)		
$Fdi_{(t-1)}$*Ins_qual (1th–3th quartile)	0.0124	(0.0143)		
$Fdi_{(t-1)}$*Ins_qual (>3th quartile)	0.0651***	(0.0083)		
dom_cre	0.0240***	(0.0047)	0.0244***	(0.0046)
bus_free	0.0182**	(0.0085)	0.0178*	(0.0084)
Unemploy	−0.0671*	(0.0369)	−0.0659*	(0.0369)
Intercept	0.2139	(0.7733)	0.2009	(0.7729)
R²				
Within	0.6685		0.6315	
Between	0.3480		0.2034	
Overall	0.3485		0.2485	
N	170		170	
	Test	p-Value	Test	p-Value
Hausman	22.03	0.0025	25.51	0.0003
Breusch–Pagan (LM)	177.37	0.0000	186.81	0.0000
F	14.89	0.0000	17.20	0.0000

The dependent variable for country i at year t is the number of new companies registered per 1000 people of working age (age between 15 and 64). For emerging countries groups are categorized by the classification of the *Financial Times and the London Stock Exchange*: *FTSE index*. The period of time is 6 years (from 2004 to 2009). The independent variables are: Fdi*Int_qual (*upper half*): multiply the FDI by one if the institutional quality of the country is in the upper half or by zero in the contrary case. Fdi*Int_qual (*lower half*): multiply the FDI by one if the institutional quality of the country is in the lower half or by zero in the contrary case. Fdi*Int_qual (*upper quartile*): multiply the FDI by one if the institutional quality of the country is in the upper quartile or by zero in the contrary case. Fdi*Int_qual (*quartiles 2 and 3*): multiply the FDI by one if the institutional quality of the country is in the quartiles 2 and 3 or by zero in the contrary case. Fdi*Int_qual (*lower quartile*): multiply the FDI by one if the institutional quality of the country is in the lower quartiles or by zero in the contrary case. Other independent variable definitions are explained in Appendix A. The statistical T is specified in parentheses. The coefficients of the regression are based on the robust error estimation due to the countries aggrupation (*Random effects GLS regression robust standard error clusters in countries*). ***, ** and *, which means statistical significance at 1%, 5% and 10% respectively.

Table 10
Firm creation and changes in institutional quality, FDI, market freedom in emerging countries.

Firm creation and changes in institutional quality, FDI, market freedom in emerging countries

Dependent variable new firms entry density

	(6)		(7)	
$Inst\_qual_{(t)}-Inst\_qual_{(t-1)}$	1.0201*	(0.5633)	0.9498*	(0.5536)
$Dom\_cre_{(t)}-Dom\_cre_{(t-1)}$	0.0208**	(0.0097)	0.0197**	(0.0094)
$Fdi_{(t-1)}-Fdi_{(t-2)}$	0.0380***	(0.0138)		
$Fdi_{(t-1)}-Fdi_{(t-2)}$ (Emerging countries)			0.0297**	(0.0142)
$Fdi_{(t-1)}-Fdi_{(t-2)}$ (Frontier emerging countries)			0.0588***	(0.0210)
$Bus\_free_{(t)}-Bus\_free_{(t-1)}$	0.0128***	(0.0047)	0.0128**	(0.0051)
Unemploy	−0.0822*	(0.0386)	−0.0713*	(0.0384)
R²	0.3979		0.4173	
N	133		133	
	Test	p-Value	Test	p-Value
Hausman	2.89	0.7176	3.66	0.8181
Breusch–Pagan (LM)	0.00	1.0000	0.00	1.0000
F	6.77	0.0000	6.20	0.0000

At the regressions (6) and (7) the dependent variable for country i and the year t is the variation between t and t−1 in the number of new companies registered per 1000 people of working age (age between 15 and 64). For emerging countries are group categorized by *The Financial Times and the London Stock Exchange*: *FTSE index*. The period of time is 6 years (from 2004 to 2009). The independent variables are: $Ins\_qual_{(t)}-Ins\_qual_{(t-1)}$: is the variation between t and t−1, of the average of the institutional quality dimensions proposed by Kaufmann et al. (2010). $dom\_cre_{(t)}-dom\_cre_{(t-1)}$: is the variation between t and t−1, of the domestic credit to the private sector as a percentage of the gross domestic product. $Fdi_{(t-1)}-Fdi_{(t-2)}$: is the variation between t−1 and t−2, of the net flow of foreign investment divided by the gross domestic product. $Fdi_{(t-1)}-Fdi_{(t-2)}$ (*emerging countries*): multiplies by one the variation between t−1 and t−2 of the net flow of the foreign investment divided by the gross domestic product if the emerging country is not classify as frontier economy according to *The Financial Times and the London Stock Exchange*: *FTSE index*. $Fdi_{(t-1)}-Fdi_{(t-2)}$ (*Frontier emerging countries*): multiplies by one the variation between t−1 and t−2 of the net flow of foreign investment divided by the gross domestic product, if the emerging country is classify as frontier economy according to *The Financial Times and the London Stock Exchange*: *FTSE index*. $bus\_free_{(t)}-bus\_free_{(t-1)}$: is the variation between t and t−1, in the quantitative measure of the ease to start, operate and close a business (Beach y Kane: 2007). $Inv\_free_{(t)}-Inv\_free_{(t-1)}$ is the variation between t and t−1, the extended of any restrictions on the flow of investment capital in a given country (Beach y Kane: 2007). Other independent variables definitions are explained in Appendix A. The coefficients of the regression are based on the robust errors estimation due to the countries aggrupation (*Random effects GLS regression robust standard error clusters in countries*). ***, ** and *, which means statistical significance at 1%, 5% and 10% respectively.

performing countries in terms of entry density for the emerging markets reviewed in this study. Apart from Hungary, the other nine (Bulgaria, Macedonia, Romania, Latvia, Slovenia, Slovakia, Russia, Croatia and the Czech Republic) are in the second quartile.

Finally, "The Financial Times and the London Stock Exchange, FTSE Index" separates emerging markets into two groups, emerging and frontier emerging markets. According to the FTSE, frontier emerging markets are typically attractive to investors who look for high long-term returns and low dependency upon other markets. As the time goes by, a typical frontier emerging market will become a market which is similar in character, in terms of risk and return, to a more developed emerging country. The distinction between emerging and frontier emerging markets is important to this work, as the latter tend to demonstrate a greater openness to FDI and are not subject to extreme economic and political instability. If our results are representative in frontier emerging market, the value of FDI would have to be greater and significant than for the rest of emerging countries. This would be another method of corroborating existing results.

In Eq. (7) of Table 10, the impact on entry density variation by changes in several variables is analyzed. They are institutional quality, FDI and freedom to form business variables behave as expected and changes in standards of institutional quality and the freedom to form businesses are significant. The difference in this case is that the FDI variation is distributed in two mutually exclusive variables. The countries are classified as frontier emerging and emerging. In the first variable ($Fdi_{(t-1)} - Fdi_{(t-2)}$: Emerging countries), variation in FDI is multiplied by one if the country is only an emerging country or by zero if it is not. In the second variable ($Fdi_{(t-1)} - Fdi_{(t-2)}$: Frontier Emerging countries), variation in FDI is multiplied by one if the country is a frontier emerging or by zero if it is not. As can be seen, Eq. (7) is more illuminating in this regard than Eq. (6). In addition, although the two variables for FDI are still significant in explaining the variation in entry density in emerging countries, the coefficient for frontier emerging markets is almost double and shows greater levels of confidence (99%) than in the remaining markets within the group (95%). This result is consistent with the hypothesis raised at the beginning of this section and with the results of the previous tables.

6. Study limitations and further investigation

In this study, the relationship between the strength of governance, a free market, FDI and business creation is investigated. Although there are some obstacles that future research should be able to surmount, evidence exists that some regions with strong existing manufacturing industries make room for some business creation but to a lesser extent (Audrestsch and Fritsch: 1994). This seems to invite inquiry of a greater depth to determine why entrepreneurs in certain sectors are more likely to flourish in certain sectors in developing countries and not others.

The relatively small sample of emerging countries and limited duration of the analysis in this study limit the number of variables that can be included in the model. Additionally, by extending the number of countries and studying them for longer, socio-cultural variables could be factored in which shed more light on the model and how it works and further illuminate the results. Also entry density figures are available only for a few emerging countries so it is critical to develop models that combine economic and socio-cultural variables to explain how entrepreneurship works in developing countries.

Another challenge is measuring the relationship between a free market and the strength of institutional quality. The correlation is a complex matrix of factors. Averaging several factors associated with the strength of institutional quality supposes that those factors have equal weight, which is not necessarily so, begging the question: how else can the relationship be evaluated?

A next step may be to determine whether the factors that facilitate opportunities for business creation are the same as those that are needed to see businesses survive. Establishing determinants can assist nascent companies reach maturity and fulfill their social and economic potential. Also, it is opportune to determine how these environmental factors can affect particular industrial sectors differently to determine how policy is devised and the landscape for would-be entrepreneurs to create a level playing field. Finally, how the political and economic landscape influences entrepreneurial activity is ripe for further investigation.

7. Conclusions and the implications of public policy

This work contributes to a body of research on the determinants of company creation in emerging markets. Results show a strong positive correlation between institutional quality and the rate of business creation in all three groups of countries. They also demonstrate that the quality of institutions and fluctuations in this quality can continue to have an influence on the creation of new businesses for up to two years from the date at which that quality is measured, compounding the importance of the relationship. The relationship between the freedom to create businesses and the availability of investment has the most significant positive impact on company development in emerging countries. Likewise, access to international trade has the greatest impact in low-income countries.

Prior studies do not indicate that these factors are significant or that they have had an effect on latest levels of business development. Such non-relationships may indicate that the regulation of the free market has a short-term impact on business creation, and that the current prevailing regulatory climate affects whether or not an entrepreneur decides to start a business. However, entrepreneurs also pay heed to the stability and longevity of rules in terms of how these rules contribute to the quality of institutions

The study also indicates that the quality of institutions multiplies the effectiveness of FDI's contribution to business creation. The following points verify the strength of the relationship: (1) controlling the possible endogenous relationship between FDI and institutional quality; (2) establishing the significance between variations in FDI and business development; and (3) observing that the FDI coefficient is largest in the frontier emerging countries as opposed to other emerging countries. This last result is consistent with "the spillover theory of entrepreneurship" (Acs et al., 2009; Ayyagari & Kosová, 2010).

The results suggest that those who devise public policy must consider FDI as a catalyst to business creation, its impact compounded by the strength of governance. Good institutions, besides attracting FDI also create regulatory frameworks to attract desirable types of FDI. Emerging countries must make efforts to attract FDI that produces economic, technological and social gains and not only large amounts of FDI.

Additional indicators to channel efforts in such a way as to increase the effectiveness of FDI, creating businesses that last. These factors include job creation; value added by worker; capital expenses by employee; the use of local suppliers and other forms of relationship with the local economy. Factors relating to investment in training and technology have great importance too. FDI may generate high multiplier effects that can prompt domestic companies within the same industry to cross-pollinate (horizontal spillovers) and, within related industries, to have a positive effect on other businesses up and down the production line (vertical spillovers).

Finally, the study is but a first step into what promises to be a rich vein of investigation into how public policy can be devised to attract foreign investment, promote a free market, and create and maintain institutions that allow new businesses to enter the market and to succeed.

Appendix A. Variables' description and data source

Entry_Density	Entry_density: It is the number of new companies registered by each 1000 people in labor age (age between 15 and 64 years)	The World Bank Entrepreneurship Snapshots http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTFINRES/0,contentMDK:21454009~pagePK:64168182~piPK:64168060~theSiteP-K:478060,00.html Taken February 2/2011
Ctrl_Cor	Corruption control: It indicates the perception on magnitude in which the public power is exerted to obtain private gains; it includes great and small forms of corruption, as well as the use of the state to satisfy private interests. Upper values indicate greater corruption control.	World Wide Governance Indicators Daniel Kaufmann, Brookings Institution, AartKraay, World Bank Development Economics Research Group, Massimo Mastruzzi, World Bank Institute. http://info.worldbank.org/governance/wgi/index.asp
Rule_Law	State of right: It indicates the perception of agents about its confidence in the existing norms and the degree in which they can rely that the contracts will be fulfilled and the property rights will be protect by the courts.	Taken February 2/2011 The methodology for calculation of these indicators is available in: Kaufmann, Daniel, Kraay, Aart and Mastruzzi, Massimo, The Worldwide Governance Indicators: Methodology and Analytical Issues (September 2010). World Bank Policy Research Working Paper No. 5430. Available at SSRN: http://ssrn.com/abstract=1682130 Taken February 2/2011
Reg_Qual	Regulatory quality: It indicates the perception ability of a government to formulate and to implement political regulations that allow promoting development of the private sector.	
Gov_Eff	Effectiveness of the government: It indicates the perception of quality of public and civilian services and its independence degree of political pressure. It measures the quality in formulation and implementation and the commitment of the government with related policies.	
Pol_Sta	Political stability: It captures the perception of probability that the government is destabilized or overthrown by nonviolent or non-constitutional means.	
Voi_Acc	Voice and accountability: It captures the perception level in which the citizens of a country can also participate in the government selection. It reflects expression and association freedom.	
Dom_Cre	Domestic credit to the private sector (% of the GDP): it refers to financial resources provided to private sector, such as credits, bonds and other receivable accounts that establish a right of reimbursement of principal.	International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates http://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS Taken February 9/2011
Bus_Free	Freedom to make businesses: it is a quantitative measurement of the ability to begin, to operate and to close a business, the score goes from 0 to 100, 100 is equivalent to a country with a business atmosphere of maximum ability.	The Heritage foundation, index of economic freedom. http://www.heritage.org/index/explore?view=by-region–country–year Taken February 9/2011. La metodología de construcción de cada índice se encuentra disponible en http://www.heritage.org/index/PDF/2011/Index2011_Methodology.pdf Taken February 9/2011
Tra_Free	Trade freedom: it is a measurement composed of the absence of tariff and non-tariffs[1] barriers that affect the imports and exports of goods and services in each country.	
Fiscal_Free	Fiscal freedom: It is a measurement of the tax barriers imposed by the government. It is calculated by carefully examining the maximum rate of taxes on earnings (corporative and individual) and the total amount of taxes collected as percentage of the GIP of each country.	
GDP_PCU LGDP_PCU	Gross domestic product per capita in dollars to prices and current rates of change. LGDP_PCU it is the logarithm of GDP_PCU.	United Nations: UNCTAD, UNCTADstat. http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx Taken February 15/2011
Unemploy	Rate of unemployment: percentage of unemployed people of the total of the labor force available.	International Monetary Fund: world economic and financial surveys, world economic outlook database
Trade Ltrade	Merchandise traded as percentage of the GDP: it is the sum of the exports and imports divided by the value of the gross internal product in current dollars. Ltrade is the logarithm de trade.	http://www.imf.org/external/pubs/ft/weo/2010/02/weodata/index.aspx Taken February 16/2011
FDI	Direct foreign investment: net flow of foreign investment divided by the GDP.	The World Bank, world development indicators http://search.worldbank.org/data?qterm=trade%20in%20goods&language=EN&format=html Taken February 16/2011 The World Bank, world development indicators http://search.worldbank.org/data?qterm=foreign+direct+investment&language=EN&format=html Taken February 16/2011

[1] The barriers that do not include tariffs may include restrictions, such as quotas on imports or exports; price restrictions (for example the antidumping charges); regulatory restrictions, that imply obtaining licenses; restrictions on currency by change and other financial controls; or governmental monopolies, among others.

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