Political discretion and corruption: the impact of institutional quality on formal and informal entrepreneurship

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Abstract: This paper analyses the impact of political discretion and corruption on firm creation rates, distinguishing between formal and informal entrepreneurship. The results show that political discretion discourages the creation of formal enterprises as fewer restrictions on the government's opportunistic behaviour increases uncertainty and risks for entrepreneurial activities. Corruption also has a negative influence on formal entrepreneurship, as it increases the costs of the procedures required to create and manage the company with no assurance that the other party will fulfil the agreement. Regarding informal entrepreneurship, our results show that the negative impact of corruption also applies to non-formalised firms.

Keywords: institutional quality; political discretion; corruption; firm creation; formal entrepreneurship; informal entrepreneurship; new venture creation; political constraints; political risk; rule of law.

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1   Introduction

Entrepreneurship has been pointed out by several authors as one of the key components in economic growth and development at the macro level (Agarwal et al., 2007; Baumol, 2004; Baumol and Strom, 2007; Carsroud and Cucculelli, 2014), and closely linked to innovation, productivity growth, competitiveness, employment creation and personal success at the more micro level (Grilo and Thurik, 2005).

While micro studies of entrepreneurs proliferate, Dreher and Gassebner (2013) point out that cross-country differences in entrepreneurship rates at the national level have received relatively less attention in the literature. At the national level, much of the variation in entrepreneurial activity remains unexplained if only economic variables are considered (Freytag and Thurik, 2007; Uhlaner and Thurik, 2007). As Acs et al. (2008) and Urbano and Alvarez (2014) emphasise, the role of institutions is a critical area of study to understand entrepreneurship across countries. Institutions interact with individuals and organisations by providing the rules of the game and by signalling which actions and behaviours are acceptable (North, 1990; Peng and Heath, 1996).

Baumol (1990) and Sobel (2008) suggest that entrepreneurship greatly depends on the quality of institutions. However, as Dutta et al. (2013) argue, most studies analyse only government stability regarding which political party is in power when it is in fact the effectiveness and predictability of the judicial system, the enforcement of contracts, the protection of property rights, and the existence of limits to possible opportunistic behaviour by the government to transfer and appropriate wealth through regulation, which determine transaction costs and the level of uncertainty faced by entrepreneurs (Aidis et al., 2010). Using the terminology proposed by Acemoglu et al. (2001, 2002), these *institutions of private property* are essential for investment incentives and successful economic performance. When the institutions of private property are lacking, absent or concentrated in the hands of a small elite, they become extractive, rather than facilitative, and discourage investment with detrimental impact on aggregate performance.

Consequently, we contribute to the body of literature that focuses on the impact of institutions on entrepreneurship (Baughn et al., 2006; Anokhin and Schulze, 2009; Acs et al., 2008; Estrin et al., 2013; Yu et al., 2013; Moore et al., 2015) by investigating the impact of two types of *extractive institutions*, namely political discretion and corruption, on entrepreneurial rates, both formal and informal. As Anokhin and Schulze (2009) claim, the impact of corruption and cross-national rates of entrepreneurship has received scant attention in the literature. Moreover, while previous studies have analysed the effect on entrepreneurship of several institutional indicators such as the economic freedom or the protection of property rights (see for instance Aidis et al., 2010 or Urbano and Alvarez, 2014), to the best of our knowledge no study has previously analysed the specific role of political discretion.

Further, in order to offer a finer-grained analysis of the importance of institutions on entrepreneurship, we aim to disentangle the effects on formal entrepreneurship, comprising legally-registered firms in a country (Klapper et al., 2007), and informal entrepreneurship, comprising non-formalised firms that largely remain outside regulation (Nyström, 2008). Given that entrepreneurs in developed countries tend to operate mainly within the formal economy, and taking into account the difficulty of obtaining data and calculating variables to reliably quantify the weight of the informal economy, most studies have focused so far on formal entrepreneurship (Ahlstrom and Bruton, 2006; Bruton et al., 2008; Dau and Cuervo-Cazurra, 2014). Nevertheless, it must be

acknowledged that the informal economy exists and plays a relevant role virtually everywhere (Webb et al., 2013), especially in developing countries (Fiess et al., 2010).

Informal entrepreneurship is precisely one of the factors of greatest weight in the informal economy (ILO, 2002). Formal and informal entrepreneurship often have distinct characteristics and institutional determinants (Webb et al., 2009; Jimenez et al., 2015). Thus, this work also contributes to the literature on entrepreneurship by distinguishing between the impact that political discretion and corruption have on formal and informal entrepreneurship. In particular, our results show that both political discretion and corruption increase the potential for opportunism by government officials, thereby adversely affecting costs and uncertainty, and discouraging formal entrepreneurship. In addition, our analyses demonstrate that corruption has a negative influence on informal entrepreneurship as well, showing that the pernicious effects of corruption apply to both the formal and informal sectors.

The remainder of the paper is organised as follows. The second section includes the literature review and develops the hypotheses about the impact of political discretion and corruption on the rates of both formal and informal entrepreneurship. The third section describes the methodology used in the empirical part of the paper, detailing the dependent, independent, and control variables, as well as the models and their empirical properties. The fourth section presents the results and describes the robustness tests. Finally, the fifth section draws the main conclusions and discusses limitations and possible future lines of research.

2   Literature review and hypotheses

2.1   The impact of political discretion and corruption on the rates of formal entrepreneurship

Political discretion refers to the ability of the government to unilaterally modify the "rules of the game": that is, the rules governing the various aspects that affect the behaviour and performance of firms, such as tariffs, conditions for entry into the sector, taxes, etc. (Henisz, 2000; García-Canal and Guillén, 2008; Fernández-Méndez et al., 2015). When political discretion is high, *rule by law* is substituted for *rule of law*. Political discretion often translates into political risk. Political risk maybe manifested indirectly though, for example, forced renegotiation of previously agreed conditions.[1] Lately, however, some governments have returned to direct measures in the form of nationalisation or expropriation, such as the expropriation of YPF to the Spanish company Repsol by the Argentine government, or that of the subsidiary of Red Eléctrica de España in Bolivia (Jimenez et al., 2014).

According to the bargaining power approach, a company enjoys its most advantageous position in dealing with the local government when it negotiates the terms of entry before the investment is materialised. Nevertheless, once the investment takes place, an important shift occurs in the relative bargaining power between the company and the government owing to the existence of sunk costs or the obsolescence of their technological or managerial capabilities (Vernon, 1971; Kobrin, 1987). Depending on the evolution of relative bargaining power of the firm and the needs of the government, the latter may decide to appropriate the revenues generated by the company. Therefore, firms tend to avoid investing in those locations with higher political discretion, where the

authorities find few or no obstacles to unilaterally modify the terms agreed with the company (Henisz 2000; Henisz and Zelner, 2001; Henisz and Zelner, 2002).

While most studies have examined the influence of political discretion in foreign investment decisions (García-Canal and Guillén, 2008; Jimenez, 2010; Jimenez and Delgado, 2012; Jimenez et al., 2014; Fernández-Méndez et al., 2015), the threat of opportunistic behaviour by the government also extends to domestic and entrepreneurial firms in the country. Sometimes, when the government aims to target a few companies only to blame for the country's economic problems, local firms may be less exposed because subsidiaries of foreign companies are typically used as "scapegoats" (Davies, 1981). However, when the government actions affect the whole sector, local companies can be even more disadvantaged by not being able to resort, as foreign multinational companies can, to the governments of their countries of origin to solicit support and diplomatic pressure to compensate for damages. Furthermore, given their size and international flexibility (Kogut and Kulatilaka, 1994; Song, 2013), foreign companies may rely on instruments of protection that are not within the reach of the majority of local businesses, such as insurance, transfer pricing, or even the development of political capabilities that allow them to gain competitive advantages in environments characterised by high levels of political risk (Baron, 1995; Wan, 2005; Lawton et al., 2013).

Weingast (1995) and Estrin et al. (2013) underline the relevance of government constraints on entrepreneurship by ensuring the protection and stability of property rights. Accordingly, political discretion can be considered a deterrent to the creation of new formal business since it increases the unpredictability of applicable regulations thereby pushing up compliance costs and impacting negatively profitability (Levie and Autio, 2008, p.13). It also reduces potential entrepreneurs' trust as the credibility of policies and commitments made by governments diminishes (Webb et al., 2013). The higher level of arbitrariness discourages entrepreneurship and innovation (Aidis et al., 2010). Besides, the negative repercussions on the fulfilment of contracts, the appropriation of returns, the security of property rights and the protection of investors increase the cost of capital (Estrin et al., 2013), transaction costs and uncertainty (Baumol, 1990; Dutta et al., 2013). Since these weaker and more unreliable institutions may influence the expected return of entrepreneurial activities, potential entrepreneurs are less likely to undertake them and may instead channel their efforts toward other types of activities (Hodler, 2009; Aidis et al., 2010). These arguments lead us to formulate the following hypothesis:

H1: "Greater political discretion has a negative impact on the rate of formal entrepreneurship."

Another fundamental aspect of the institutional quality of a country that may play a critical role in its rates of entrepreneurship is the level of corruption (Dreher and Gassebner, 2013; Estrin et al., 2013). As Anokhin and Schulze (2009) emphasise, corruption plays a pivotal role on the relationship between entrepreneurship, innovation and economic prosperity. Corruption may be defined as the abuse of power for private gain, and it includes the payment of bribes, favouritism or improper use of influence, or irregular payments in public contracts (World Bank, 2000). While corruption may have a "greasing" effect (Cuervo-Cazurra, 2008) by avoiding costs and speeding up procedures in environments where the institutional quality is poor (Leff, 1964; Olson, 1993; Egger and Winner, 2005), most of the literature emphasises that corruption increases the costs and uncertainty for companies (Mauro, 1995; Wei, 2000a; Wei, 2000b; Brouthers et al., 2008). Thus, corruption is a sort of an informal tax for the entrepreneur. In addition,

Mauro (1998) points out that a higher level of corruption causes public spending to be used inefficiently, resulting in public investment in unproductive sectors that do not favour the growth and efficiency of the productive sectors. Similarly, Méon and Sekkat (2005) highlight the negative impact of corruption on economic growth, especially in those countries where governance quality is poor.

Corruption discourages entrepreneurship and investments in innovation as it increases the risk that entrepreneurs will not be able to appropriate the profits or rents to which they are entitled (Anokhin and Schulze, 2009). In addition, corruption may also be detrimental for entrepreneurship as it reduces growth aspirations (Vorley and Williams, 2015) and discourages potential entrepreneurs unwilling to engage in corrupt behaviour (Aidis et al., 2010). As a shared informal social norm, corruption makes entrepreneurs operate at a disadvantage compared to established incumbents who have already implemented strategies and contacts to mitigate its negative effects (Estrin et al., 2013).

The use of corruption does not ensure total protection for the one who pays a bribe. Given that this is an illegal activity, it may be difficult to ensure that the agreed conditions are fulfilled (Méon and Weill, 2010). Since no competent authority exists to enforce the fulfilment of what has been agreed upon, opportunistic behaviour is encouraged, especially in the case of the one who receives the bribe. In fact, and contrary to the argument of corruption as a "greasing" effect, Bardhan (1997) points out that the existence of corruption does not necessarily mean that costs can be avoided or that required procedures to create and set up a formal business can be accelerated. For instance, he cites the case of an Indian official who claims that he is unsure whether he can speed up a procedure, but who is certain that he can stall it. This example illustrates that corruption simply brings uncertainty and additional risk to transactions required for a formal entrepreneurship. Accordingly, we formulate the following hypothesis:

H2: "A higher level of corruption has a negative impact on the rate of formal entrepreneurship."

2.2 The impact of political discretion and corruption on the rates of informal entrepreneurship

Entrepreneurship has attracted scholarly interest for decades, but recently studies have started to pay attention not only to formal but also to informal and illegitimate activities as these other types of entrepreneurship do also play a crucial role in multiple sectors and economies (Webb et al., 2009; Fiess et al., 2010, ILO, 2002). As previously stated, informal entrepreneurship refers to firms that are not registered and largely remain outside regulation (Nyström, 2008). It is important to underline that informal entrepreneurship refers to illegal (as specified by laws and regulations) but not illegitimate (as specified by norms, values and beliefs) entrepreneurial activities.[2] As Webb et al. (2009) point out, means and ends in the informal economy may be illegal, but they are considered legitimate by large groups in the society. According to these authors, illegal and illegitimate entrepreneurial activities belong to the "renegade economy", not to the informal economy. Informal entrepreneurial activities exist in what is considered the *grey economy* and, while illegal, maybe tolerated by government officials as they provide jobs and stability to low income families.

Despite having some factors in common, such as fulfilling a market need or requiring entrepreneurial personalities, formal and informal entrepreneurship are different and have some different determinants (Webb et al., 2009; Jimenez et al., 2015).

As noted earlier, political discretion increases the risk for entrepreneurs as officials may act opportunistically. As uncertainty increases, incentives for creating formal enterprises are reduced, which can lead to entrepreneurial activities being conducted outside the law. By doing so, entrepreneurs can reduce their exposure to the risk of harmful policy changes or expropriation from governments (Feige, 1999; Webb et al., 2013).

While private property institutions should provide stability and support for entrepreneurs and their business, extractive industries do the opposite, encouraging entrepreneurs to go underground. Political discretion weakens the third-party enforcement of formal institutions (North, 1990). When formal institutions are weak, entrepreneurs are encouraged to exploit recognised opportunities in the informal economy (Webb et al., 2009).

When political discretion represents a serious threat to formal activities, the informal sector may be a strategy of last resort for entrepreneurs to start a business that would otherwise not be created (Günther and Launov, 2012). By carrying out the activity on an informal basis, the company is less subject to changing regulations, it can modify its operations with greater flexibility and adapt to new circumstances without the needed permits or other requirements. The company can also be easily dissolved, lowering the exit costs. Taking into account these advantages of informal entrepreneurship over formal enterprise in the light of political discretion, we formulate the following hypothesis:

H3: "Greater political discretion has a positive impact on the rate of informal entrepreneurship."

Following a similar logic, it is possible to devise a possible positive impact of corruption on the rates of informal entrepreneurship. By carrying out the activity in an informal manner, entrepreneurs can avoid, to some extent, the higher costs that paying bribes entail and keep flexibility to adapt, relocate or close down (Mauro, 1995; Wei, 2000a; Wei, 2000b; Brouthers et al., 2008). Uncertainty regarding whether the necessary official permits will be obtained to start running a formal activity are also avoided (Bardhan, 1997). As in the case of political discretion, the deterrent that corruption means for formal entrepreneurship can transform into an incentive for informal entrepreneurship as an alternative to conduct an entrepreneurial activity that would not otherwise be started (Günther and Launov, 2012). Thus, despite many entrepreneurs favouring the formal economy owing to the security of property rights, the costs imposed by corruption, both in terms of money, time and managerial resources, may force them to operate informally as the only option for earning a livelihood (Webb et al., 2013).

The informal economy may also require corruption. Corruption may actually be needed to maintain informal activities. As Webb et al. (2009) underline, bribery affects the self-interest of formal institutional agents and, as a consequence, undermines the efforts to control deviant behaviours. Countries where corruption is relatively common or accepted may allow the underground economy to flourish as long as they pay the required bribes to the interested parties (for example police, civil workers, regulatory authorities, etc). By contrast, this will be not possible in "cleaner" countries where the authorities will not tolerate illegal activities and where offering a bribe may even result in even bigger problems (such as criminal penalties). Therefore, we formulate the following hypothesis:

H4: "A higher level of corruption has a positive impact on the rate of informal entrepreneurship."

3 Methodology

3.1 Dependent variables

We use the entry density rate from the World Bank Group Entrepreneurship Snapshots (WBGES) as the dependent variable for formal entrepreneurship. This measure is calculated for 93 countries as the number of newly registered firms as a percentage of the population of a working-age in thousands. Furthermore, we show the results when using the entry per capita rate as an alternate dependent variable as a robustness test. This measure is calculated as the percentage of new companies registered over the total population in thousands.[3] Data for both variables is collected by the World Bank through surveys of company registers as well as other governmental sources in each country. These measures are therefore specifically designed to capture formal entrepreneurship, by recording "*any unit from the formal sector incorporated as a legal entity in a public register*" (Klapper et al., 2007, p.4).

Given its particular unregistered nature, studying informal entrepreneurship is always subject to great difficulties to find reliable and comprehensive data sources. We use the recently released Informal Entrepreneurship Index (IEI) calculated by Dau and Cuervo-Cazurra (2014) and also used by Jimenez et al. (2015). The former authors calculate the index by "*subtracting the ratio of new total (formal and informal) businesses as a percentage of the working-age population (using GEM data) minus the ratio of new formal businesses as a percentage of the working-age population (using WBGES data)*" (Dau and Cuervo-Cazurra 2014, p.674).[4] We include in our sample 43 countries for which at least two observations of the index[5] as well as data for the other explanatory variables are available.

Table 1 shows the countries included in each sample for the analysis of formal and informal entrepreneurship. Given data availability, we analyse the period 2002–2007 for both samples.

Table 1   List of countries in the formal and informal entrepreneurship samples

1. Albania	2. Algeria	3. Argentina*
4. Armenia	5. Australia*	6. Austria*
7. Azerbaijan	8. Bangladesh	9. Belgium*
10. Bolivia	11. Bosnia Herzegovina	12. Botswana
13. Brazil*	14. Bulgaria	15. Burkina Fasso
16. Canada*	17. Chile*	18. Colombia*
19. Congo	20. Costa Rica	21. Croatia*
22. Czech Republic	23. Denmark*	24. Ecuador
25. Egypt	26. El Salvador	27. Finland*
28. France*	29. Georgia	31. Germany*
32. Ghana	33. Greece*	34. Guatemala
35. Haiti	36. Hong Kong*	37. Hungary*
38. Iceland*	39. India*	40. Indonesia
41. Ireland*	42. Israel*	43. Italy*
44. Jamaica*	45. Japan*	46. Jordan

Table 1   List of countries in the formal and informal entrepreneurship samples (continued)

47. Kazakhstan	48. Kenya	49. Kyrgyz Republic
50. Latvia*	51. Lebanon	52. Lithuania
53. Luxembourg	54. Madagascar	55. Malawi
56. Malaysia	57. Mexico*	58. Moldova
59. Morocco	60. Netherlands*	61. New Zealand*
62. Nicaragua	63. Norway*	64. Oman
65. Pakistan	66. Peru*	67. Philippines
68. Poland*	69. Portugal*	70. Romania
71. Russia*	72. Senegal	73. Serbia
74. Singapur*	75. Slovak Republic	76. Slovenia*
77. South Africa*	78. Spain*	79. Sri Lanka
80. Sweden*	81. Switzerland*	82. Syria
83. Tajikistan	84. Tanzania	85. Thailand*
86. Tunisia	87. Turkey*	88. Uganda*
89. Ukraine	90. UK*	91. USA*
92. Uzbekistan	93. Yemen	93. Zambia

Note: Countries with * are included in the informal entrepreneurship sample.

3.2   *Independent and control variables*

The Political Constraint Index (POLCONV) devised by Henisz (1998)[6] is used to measure the degree of political discretion. This index measures regulatory discretion by taking into account the number of independent authorities with veto power in each country (for example executive, legislative, judiciary, and administrative). The score is later modified depending on possible alignments between powers, such that the model approaches the actual restrictions to which the government is subject. As the number of veto points increases, the likelihood of changing the *status quo* decreases since there is a drop in the range of public policies to implement that the different powers can agree upon. Conversely, where the authorities face lower constraints as a result of the absence, insufficiency or ineffectiveness of other independent political institutions, public policies are easily modified in the event of changes in political preferences. The index, which oscillates between values of 0 and 1, is designed so that higher scores imply greater regulatory stability and lower scores reflect greater discretion.

The Corruption Perceptions Index prepared by Transparency International (www.transparency.org) is used to measure the level of corruption in a country. This index measures corruption perceived by experts from each country, and ranges between 0, representing an absolutely corrupt state, and 10 for a corruption-free state (Pournarakis and Varsakelis, 2004; DiRienzo et al., 2007).

Following previous works on entrepreneurship (Klapper and Love, 2011; Dutta et al., 2013), control variables include macroeconomic indicators such as the logarithm of GDP per capita, the growth of GDP and the logarithm of inward foreign direct investment. *Ex-ante*, we expect that a greater amount of resources facilitates the creation of new companies, and higher growth rates offer a greater number of investment opportunities. Regarding inward foreign direct investment, its impact on entrepreneurship may be

negative as the level of competition increases in the market, but also new foreign companies can revitalise associated sectors (suppliers and/or customers), thus exerting a positive impact on firm creation. A series of year dummy values are included to control for the impact of historical events. Finally, unobserved country-specific factors are controlled by using panel models that account for the country. In the robustness tests we include a number of additional control variables such as gross and net educational enrolment rates (secondary or tertiary), whether the country is developed or developing and dummy variables to control for regional effects.

The sources consulted were Henisz (1998), Transparency International, the World Bank and UNCTAD. Table 2 shows the descriptive statistics for the dependent, independent and control variables included in the model.

Table 2 Descriptive statistics

Variable	Average	Standard Deviation	Min.	Max.
Entry density	2.476	3.535	.001	27.033
Informal entrepreneurship	3.431	3.329	0	17.96
POLCONV	.542	.284	0	.9
Corruption	4.591	2.393	.4	10
Per Capita GDP	5.55	.70	4.144	6.954
GDP growth	4.41	3.403	−18	34.5
Inward FDI	6.092	29.729	−15.713	564.933

3.3 Model

We rely on the statistical technique of cross-sectional time series to appropriately take into account the longitudinal nature of the sample. Following the recommendation of Greene (2000) and Dau and Cuervo-Cazurra (2014), a *Generalised Least Squares* (GLS) estimation with corrections for heteroscedasticity and autocorrelation was conducted.

As is standard practice in the literature (Bevan and Estrin, 2004), lags of one year were taken for all the explanatory variables of the models (both independent and control variables) in order to analyse their impact in the following year on the dependent variable. By following this procedure we not only take into account the time that institutions take to affect entrepreneurship (Anokhin and Schulze, 2009), but also reduce any potential problem of simultaneity bias.

Therefore, our empirical analysis is based on the estimation of the following main model:

$$ENTREPRENEURSHIP \text{ (formal or informal)}_t = \gamma_0 + \gamma_1 \, POLITICAL$$
$$CONSTRAINTS_{t-1} + \gamma_2 \, CORRUPTION_{t-1} + \gamma_3 \, GDP \text{ per } C\acute{A}PITA_{t-1}$$
$$+ \gamma_4 \, GDP \, GROWTH_{t-1} + \gamma_5 \, INWARD \, FDI_{t-1} + \varepsilon_{ij}$$

3.4 Multicollinearity diagnosis

Table 3 offers the matrix of correlation coefficients and the Variance Inflation Factors (VIFs) for the independent and control variables. As it can be observed, all values are below the limit of 10 recommended by Neter et al. (1985), Kennedy (1992) and Studenmund (1992), and even the stricter limit of 5.3 proposed by Hair et al. (1999), which serves to affirm that there are no serious problems of multicollinearity.

Table 3   Correlation matrix and VIFS

	1	*2*	*3*	*4*	*5*	*VIFs*
1. POLCONV	1					1.34
2. Corruption	.481	1				3.98
3. Per Capita GDP	.463	.454	1			3.87
4. GDP growth	−.184	−.220	−.195	1		1.10
5. Inward FDI	.046	.137	.133	.068	1	1.03

4   Results and discussion

Table 4 shows the results obtained when the entry density rate for formal entrepreneurship ("a" models) and the first estimation of the IEI for informal entrepreneurship ("b" models) are taken as the dependent variables in the models. The first column shows the model including the control variables only. Then political discretion and corruption are each incorporated in turn. Finally, both variables are simultaneously included in the same model.

In the case of formal entrepreneurship, the results in models 2a and 4a show that the POLCONV variable has a positive and significant coefficient. Since the index is devised so that lower scores reflect countries with a greater political discretion and vice versa, this result implies that political discretion exerts a negative impact on the creation of formal enterprises. Therefore hypothesis H1 is supported. Similarly, the results in models 3a and 4a also show a positive and significant coefficient for the corruption variable. Since this index is also constructed so that lower scores reflect a higher level of corruption, this result denotes that corruption exerts a negative impact on the creation of formal enterprises. Therefore hypothesis H2 is also supported. Regarding informal entrepreneurship, models 2b and 4b show a non-significant coefficient for the political discretion variable. H3 is, therefore, not supported. Models 3b and 4b show a positive and significant coefficient for the corruption index. This means that, contrary to what it is was anticipated in H4, corruption discourages the creation of informal firms too.

To test the validity of the model we followed Dau and Cuervo-Cazurra (2014) and performed a Wald test. The coefficient is highly significant in all models, confirming that the inclusion of the explanatory variables leads to a statistically significant improvement in the fit of the model (Chi-Square = 821.82*** in the full formal entrepreneurship model and 62.52*** in the informal entrepreneurship one).

According to the previously described results, it can be affirmed that political discretion has emerged as a critical factor for formal entrepreneurship. Fewer restrictions to the discretional and opportunistic behaviour of the governments make entrepreneurs not trust the policies and commitments adopted by the government, increasing uncertainty and risks for formal entrepreneurial activities. It is therefore essential that if a country desires to foster entrepreneurship and to increase its rates of firm creation, then it must ensure the fulfilment of contracts, promote the stability and predictability of policies (Levie and Autio, 2008) and the protection of property rights (Aidis et al., 2010; Estrin et al., 2013). Furthermore, the government must strive to gain credibility even if this involves limiting its own ability to manoeuvre and tolerating the existence of independent political powers. As Anokhin and Schulze (2009, p.466) underline, "*institutionalized trust plays a key role in creating an institutional context in which entrepreneurship and innovation can flourish*".

Table 4 Table of results: entry density rate and informal entrepreneurship index

VARIABLE	Formal entrepreneurship				Informal entrepreneurship			
	Model 1a	Model 2a	Model 3a	Model 4a	Model 1b	Model 2b	Model 3b	Model 4b
POLCONV		.204* (.133)		.384** (.136)		-.501 (1.137)		.101 (.980)
Corruption			.460*** (.041)	.430*** (.041)			.338** (.142)	.337** (.142)
Per Capita GDP	1.382*** (.129)	1.307*** (.131)	1.076*** (.121)	1.061** (.120)	-1.206 (.776)	-1.116 (.789)	-2.603*** (.739)	-2.642*** (.751)
GDP growth	-.002 (.003)	-.002 (.003)	.001 (.005)	-.002 (.005)	-.116*** (.039)	-.117*** (.038)	-.113*** (.038)	-.111*** (.038)
Inward FDI	.001 (.001)	.001 (.001)	.002** (.001)	.002** (.001)	-.005 (.014)	-.006 (.013)	-.011 (.014)	-.011 (.014)
Year dummies	Included	Included	Included	Included	Included	Included	Included	Included
Constant	-5.886*** (.706)	-5.601*** (.708)	-5.939*** (.557)	-5.950*** (.553)	10.690** (4.986)	10.524** (4.957)	20.047*** (4.647)	20.138*** (4.599)
N	558	558	558	558	187	187	187	187
Countries	93	93	93	93	43	43	43	43
Wald	208.01***	199.22***	852.80***	821.82***	16.29**	17.82**	55.99***	62.52***

Notes: Standard errors in parentheses.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.
Coefficients of the year dummies not included for parsimony reasons.

The impact of political discretion on informal entrepreneurship is ambiguous. While we expected a positive impact as a result of entrepreneurs choosing not to formalise their ventures to avoid being subject to the discretionary power of authorities and as a strategy of last resort, it may also be the case that the risk of expropriation affects not only formal but also informal entrepreneurial activities. As an anecdotal example, we could mention the events in Tunisia that preceded the Arab Spring that started in 2010. Mohamed Bouazizi, a young informal entrepreneur making a living and supporting a family of eight people with just a wheelbarrow of produce, decided to burn himself as a protest against the government after his wares were confiscated. These actions fuelled the protests that eventually overturned the government of former President Ben Ali and ignited the turmoil in several other countries in the region. In addition, higher political discretion may also indirectly affect informal firms by increasing the risk of unilateral modifications of key policy issues that crucially hurt suppliers and/or clients.

Our results also emphasise corruption as a factor with a negative effect on the creation of not only formal but also informal enterprises. The higher costs and uncertainty about the profit appropriation in highly corrupted countries discourage potential formal entrepreneurs from starting their business project (Anokhin and Schulze, 2009; Estrin et al., 2013). These higher costs also affect informal entrepreneurs who, despite not formalising their ventures, may be forced to use bribes to ensure their survival by being away from the officers' radar. Corruption therefore reduces the appeal of all types of entrepreneurship as some entrepreneurs may be unwilling to engage in such a behaviour (Aidis et al., 2010) and it reduces growth aspirations (Vorley and Williams, 2015). It also puts new ventures at a disadvantage compared to established incumbents (Estrin et al., 2013). Yet, it does not offer guarantees that the agreed conditions will be fulfilled (Méon and Weill, 2010).

Regarding the control variables, the results show that GDP per capita has as expected a positive effect on formal entrepreneurship, which demonstrates that a greater amount of resources facilitates the creation of formal enterprises. Meanwhile, the impact of GDP per capita and GDP growth on informal entrepreneurship is negative, which indicates that the lack of resources and economic opportunities can drive entrepreneurs into keeping their business not formalised in order to avoid requirements and bureaucracy. Furthermore, inward foreign direct investment also has a positive impact on formal entrepreneurship due to the revitalising effect that foreign companies can bring into certain industries and their related sectors.

4.1   Alternative explanations and robustness tests.

We conducted extensive additional analyses to check the robustness of the results to alternative explanations.[7] First, there is an extensive literature on the relationship between corruption and the shadow economy. For instance, Choi and Thum (2005), Dreher et al. (2009) and Dreher and Schneider (2010) show that corruption and the underground sector influence one another. That raises the question of a potential reverse causality so that the informal economy exerts an influence on corruption. To address this issue, we first need to recall that while informal entrepreneurship is a component of the informal economy, the latter is a broader concept encompassing multiple dimensions. In fact, a country can have low levels of informal entrepreneurship despite the existence of a large informal economy, for the simple reason that there might already be many informal companies in existence. Although studying all the determinants of the informal sector is

beyond the scope of this paper, as it would require data and variables that, given their informal nature, are not always easy to collect, we can try to minimise the likelihood of reverse causality in our models. To do so, our explanatory variables are lagged one year, so we can assess their impact in the subsequent year, thereby reducing the potential problem of simultaneity (Anokhin and Schulze, 2009). We also performed the analyses using a lag of two years instead of one, and obtained similar results.[8] In addition, we checked whether corruption (and political discretion) has a different impact on entrepreneurship depending on the level of development of the country. To do so, we entered a dummy variable distinguishing between developed and developing countries according to the UNCTAD classification. The results are largely consistent with those of the main models. We also split the sample according to the level of development to run different models for each sub-sample. While the results are quite similar, we warn that these results must be interpreted with caution given the reduced size of the sub-samples.

Second, Tonoyan et al. (2010) found that entrepreneurs will engage in corruption if banks and other money lenders are perceived as bureaucratic and less business-friendly. While again studying the determinants of corruption is beyond the scope of this paper, we added to the models the number of days required to start a new business to account for the business-friendliness of the home country environment. While the size of the formal and informal entrepreneurship samples drops a little, the results confirm again the same hypotheses and, interestingly, show that the number of days required to start a new business has no significant impact on formal entrepreneurship but it is a very significant predictor of informal entrepreneurship ($p < 0.001$). Thus, longer procedures to start a new business reflect a more unfriendly environment for the creation of firms, which leads some entrepreneurs to opt for a quicker and simpler option by not registering their ventures.

As additional robustness tests, we used the per capita entry rate as an alternate dependent variable for formal entrepreneurship. The results, however, do not differ substantially from those described above and verify that both greater political discretion and a higher level of corruption exert a significant and negative impact on the creation of formal enterprises. In addition, we replaced the Index of Corruption from Transparency International with the corruption measure included in the World Governance Indicators (Control of Corruption). The results do not present significant changes compared to the main models.[9]

We also tested models including additional control variables. First, we added variables related to human capital. Specifically, we alternatively included the rates of gross secondary and tertiary education from the World Development Indicators database of the World Bank. Unfortunately, these variables are not available for all the countries in the samples so we chose to use these models for robustness purposes only. The results obtained remain unchanged across all the model specifications. Regarding the educational variables, and consistent with the results previously obtained in the literature (Jimenez et al., 2015), both secondary and tertiary education show a consistent positive and significant impact on formal entrepreneurship, while only tertiary education exercise a significant negative impact on informal entrepreneurship.

We also controlled for the possible existence of effects arising from the respective regions where the countries are located. Thus, mutually exclusive dichotomous variables were introduced into the models in order to control for the effect of belonging to the European Union, North America, Latin America, Asia, Africa, or the Middle East (keeping the rest of the world as reference category). Nevertheless, the results obtained

do not present significant changes compared to those presented previously. Finally, we ran the models using the same subsample of observations for formal and informal entrepreneurship and confirmed that results remain basically unchanged.

5   Conclusions

The purpose of this paper is to study the impact of two relatively under-studied institutional variables, political discretion and corruption, on formal and informal entrepreneurship. To this end we analyse the influence that the POLCONV political constraints index and the Corruption Perceptions Index exert on the rates of formal and informal firm creation. The results confirm that both political discretion and corruption have a negative effect on the rates of formal entrepreneurship. This is due to the low credibility of the government's policies and commitments when there is a high political discretion, as well as the higher costs and the difficulty of enforcing the other party to fulfil the agreement in the case of corruption. Both circumstances increase the uncertainty and transaction costs that potential entrepreneurs face, thus discouraging the creation of new firms.

In the case of informal entrepreneurship, we found no significant effect for political discretion. We interpret this finding as the result of two contradicting forces. On the one hand, when political discretion is high, entrepreneurs may resort to informal entrepreneurship to circumvent being subject to regulations. On the other hand, the risk of expropriation or policy modification may also affect informal enterprises either directly or in a more indirect way by hurting suppliers and/or clients. By contrast, the creation of informal firms decreases as the level of corruption in the country becomes greater. This result demonstrates that the additional costs and uncertainty that a corrupted system imposes on firms affect both types of entrepreneurship.

Regarding the control variables, the results confirm that a greater amount of available resources facilitates the creation of new formal enterprises. Resource scarcity and lower economic growth, however, encourage entrepreneurs to opt for informal firms. Moreover, formal entrepreneurship is also affected positively by the revitalising impact that direct investment from abroad has on some sectors.

We believe that important implications can be extracted from our results that highlight the contributions of this study. First, with regard to the academic implications, we contribute to the body of literature on the institutional determinants of entrepreneurship by demonstrating that the quality of the institutional environment plays a key role in the creation of businesses, with different effects on the formal and informal sectors. While corruption has been analysed in previous studies, we show that political discretion, a common concept in the non-market strategy literature, also exerts a relevant impact on entrepreneurship. Specifically, these two types of *extractive institutions* (Acemoglu et al., 2001; Acemoglu et al., 2002) have a significant effect on firm creation as a result of the increase in costs and risks that comes from the greater uncertainty that they impose on entrepreneurial activities.

By disentangling the distinct effect that political discretion and corruption have on formal as well as informal entrepreneurship, this study provides a granular understanding of the causal patterns of different types of entrepreneurial activities. This highlights the need for future research to take into account the different natures of these two types of entrepreneurship, both in terms of their determinants and their consequences and

repercussions (Jimenez et al., 2015). By using a cross-country sample, the study provides more generalisable results from the ones obtained from a single country. This is particularly relevant in the case of informal entrepreneurship, a field where researchers usually face the challenge of finding reliable measures.

Second, as implication for policy-makers who wish to encourage the creation of new formal enterprises, these results underscore the need to create an environment where *institutions of private property* (Acemoglu et al., 2001; Acemoglu et al., 2002) are protected and enhanced in order to offer guarantees to potential entrepreneurs. This includes ensuring the protection of investors, providing a relatively stable and predictable regulatory framework and increasing the credibility of the government by adopting a political system that avoids discretionary and opportunistic behaviour. Furthermore, it is also necessary to combat corruption. The negative impact of corruption extends not only to formal but also informal firms, so policy-makers should make the reduction of corruption a priority if they want to foster entrepreneurship and enjoy its numerous advantages related to employment creation, innovation, economic growth and development (Agarwal et al., 2007; Baumol, 2004; Baumol and Strom, 2007; Grilo and Thurik, 2005; Carsroud and Cucculelli, 2014).

Third, as practical implications for entrepreneurs, this study highlights the importance of political discretion and corruption in business creation through their impact on uncertainty and on the risk of governmental opportunistic behaviour. It is therefore critical that entrepreneurs not only appropriately assess the risks arising from the market but also the non-market environment (Hillman et al., 2004; Doh et al., 2012), and that they include specific actions to analyse, understand and, if possible, interact effectively with political and regulatory authorities.

Lastly, it should be recognised that this work is subject to some limitations. First, and due to the difficulties to collect reliable data about informal activities, the sample analysed for informal entrepreneurship is significantly smaller than the sample for formal entrepreneurship. While this limitation is mitigated by the fact that we obtained consistent results when we performed a robustness test for formal entrepreneurship using the same sample available for informal entrepreneurship, future studies could try to collect data of a larger number of countries whenever reliable sources become available. Second, this work only considers whether the firm created is formalised or not, despite the fact that formal firms can perform informal activities as well. Subsequent studies could expand this line of research by considering the informal activities performed by formal firms and the formal activities performed by informal firms. Third, our study analyses the impact of political discretion and corruption on a single specific aspect of entrepreneurship that is rates of firm creation. Disentangling the impact of institutional quality on other aspects related to formal and informal entrepreneurship represents, in our view, a very promising line of future research. Finally, in this paper we study the impact of institutional quality on formal and informal entrepreneurship, but we acknowledge that the reverse relationships represent challenging and interesting future avenues for research. While we have taken various measures to minimise the potential reverse causality, there is no doubt that shedding light on the role of the formal and informal sector on the levels of corruption and political discretion of the country can widen our understanding of the complex interrelationships between entrepreneurship and institutional quality.

In conclusion, institutions matter for entrepreneurship, both formal and informal. Corruption and political discretion have an expected, negative impact on formal

entrepreneurship. Corruption is negative to both formal and informal entrepreneurship. But the impact of political discretion on informal entrepreneurship is veiled by countervailing forces, leading to no significant impact in either direction.

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Notes

1   A vice-president at Enron International claimed that governments tend to use indirect methods instead of direct expropriations: "*They are more likely to find ways to blame the Project sponsor, withhold or cancel key permits of approvals, and so forth, resulting in contract frustration rather than expropriation… The loss can even be worse than with (classical) expropriation, because it can be difficult or impossible for a project sponsor to obtain compensation for a contract frustration loss*" (Powers, 1998, pp.127–128).

2   Examples of illegitimate activities are drug trafficking or human smuggling. See Webb et al. (2009) for further discussion about informal and illegitimate entrepreneurship.

3   Available for 77 of the countries in the sample.

4   See Dau and Cuervo-Cazurra (2014) for a more detailed description of the procedure to calculate this measure and its validation.

5   The Informal Entrepreneurship index covers 66 countries with at least one observation. However, the statistical technique Generalised Least Square (GLS) panel model requires at least two year of data for a country to be included in the analysis.

6   The Political Constraint Index is available to download from Professor Henisz's personal website https://mgmt.wharton.upenn.edu/profile/1327

7   We are grateful to an anonymous reviewer for drawing our attention into these issues.

8   Results for all the robustness tests are available from the authors upon request.

9   We are grateful to an anonymous reviewer for this suggestion.