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How different formal institutions affect opportunity and necessity entrepreneurship

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Abstract The objective of this research is to deepen in the role played by formal institutions on the different types of entrepreneurship (opportunity and necessity) as well as in its relative importance. The institutions we analyze are property rights, business freedom, fiscal freedom, labor freedom, financial capital and educational capital. Our results show that, in general, opportunity entrepreneurship benefits from an improvement of these institutions, while necessity entrepreneurship is damaged. This will positively influence the relative presence of opportunity entrepreneurship that is usually considered to be of greater quality and is more clearly related to economic development in a country.

Introduction

Entrepreneurship research has traditionally argued that entrepreneurial activity promotes economic growth and development (Minniti, 2008). As a result, we can observe how public policies have devoted significant effort to promote entrepreneurship (Shane, 2009), especially since the beginning of the current economic crisis, as it is considered one of the drivers that can help improve this situation (Baumol and Strom, 2007; Bjornskov and Foss, 2013; Estrin et al., 2013). For instance, we can mention the European Commission's Entrepreneurship 2020 Action Plan, or, within the Spanish framework, Law 14/2013 to promote entrepreneurship and its internationalization as examples of increasing government concern.

The above context, together with the empirical evidence that shows considerable differences in both the levels and types of entrepreneurship (see, for example, http://www.gemconsortium.org), has opened a stream of literature that analyzes the factors that try to explain these differences (Parker, 2004; McMullen et al., 2008; Levie and Autio, 2011). One of the most common frameworks to study this phenomenon is institutional theory (North, 1990). This theory argues that the environment determines not only individual decision to become an entrepreneur, but also the characteristics of new ventures, with a subsequent effect on growth levels and country development (Baumol, 1990; Minniti and Lévesque, 2008).

One classification that has recently acquired some importance in categorizing the types of entrepreneurship

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distinguishes between necessity and opportunity (Reynolds et al., 1999). The former builds on a difficult environment that gives limited opportunities, while the latter is related to the identification of an attractive business opportunity. Recent studies have conducted a generic analysis of the influence of the institutional environment on these two types of entrepreneurship (McMullen et al., 2008; Valdez and Richardson, 2013) as also occurs with other taxonomies (Levie and Autio, 2011; Dau and Cuerzo-Cazurra, 2014). However, these studies do not assess the impact of formal institutions on the different types of entrepreneurship, which does not allow any conjecture on their relative importance.

This is particularly important when more entrepreneurship is not always necessarily considered to be better (Shane, 2009). Some entrepreneurial activities, for example, are not related to growth and economic development (Baumol, 1990; Wennekers et al., 2005). Acs (2006) and Acs et al. (2008) argue that a country's economic development will improve when more importance is placed on opportunity entrepreneurship rather than necessity entrepreneurship. This means that as agents adopt their decisions taking into account environmental factors, an institutional context encouraging *high-quality* entrepreneurship allows entrepreneurial behavior to veer toward activities leading to greater economic growth.

The main objective of this research is to analyze and to compare the influence that the formal institutions of a country have on the different types of entrepreneurship and on their relative presence. Our contribution in this paper is twofold. First, we add some empirical evidence on the discussion on how institutions affect the different types of entrepreneurship. We conclude that formal institutions play a role in understanding both opportunity and necessity entrepreneurship. Second, and more importantly, we argue that the relative presence of opportunity and necessity entrepreneurship is influenced by the characteristics of the institutional environment, as we will discuss in the final section of the paper.

This article is organized as follows. In *Literature review* section, we provide a review of the literature on the types of entrepreneurship as well as on formal institutions. We also develop the hypotheses of our study. In *Hypotheses* section, we describe the database, variables and the methodology, while *Research method* presents the empirical results. We close the paper by discussing its main findings and implications.

Literature review

Types of entrepreneurship

When the literature distinguishes between different types of entrepreneurship, it uses a wide variety of terms: innovators versus imitators (Schumpeter, 1934); productive and unproductive entrepreneurship (Baumol, 1990; Baumol and Strom, 2007; Minniti, 2008); entrepreneurs with growth aspirations or without them (Autio and Acs, 2010); entrepreneurship directed toward high-growth activities (Bowen and De Clercq, 2008; Shane, 2009); and formal and informal entrepreneurship (Dau and Cuerzo-Cazurra, 2014).

As previously mentioned, one taxonomy has gained credit in the last decade derived from the seminal studies of Shane et al. (1991), Reynolds and Miller (1992) and Krueger and Brazeal (1994) and was eventually consolidated in the work of Reynolds et al. (2003). This classification distinguishes between opportunity and necessity entrepreneurs. The first is linked to the identification of good business opportunities, while the second starts a new venture because of the lack of better job opportunities. Although it is true that both types refer to new entrepreneurial activities, their effects on development and economic growth are clearly different. In previous studies, and particularly in empirical analyses based on GEM data, Reynolds et al. (2003, p. 17) find evidence that both profiles differ systematically in (1) expectations of job creation, (2) projections for out-of-country export expectations, (3) intention to replicate existing business activities versus the creation of a new niche, and (4) market share in different business sectors. Similarly, Acs and Varga (2005) show that the impact on growth and economic development of both types of entrepreneurship varies widely whereas necessity entrepreneurship does not affect economic development, and opportunity entrepreneurship has a positive and significant effect.

Other studies have also taken into account this dichotomy between opportunity and necessity entrepreneurship. Jaén et al. (2013) analyze the relationship between necessity entrepreneurship and the economic situation of a country; when it is better, job opportunities rise and, consequently, the need to start new businesses is reduced; but the context is quite the opposite for opportunity entrepreneurship. In the same vein, McMullen et al. (2008) use this classification to show that certain institutions influence one of the two types of entrepreneurship, but not the other. Finally, Wennekers et al. (2005) conclude that while opportunity entrepreneurship shows a positive relation with a country's per capita GDP and innovative capacity, necessity entrepreneurship shows a negative relation between these variables.

Other research, rather than assessing opportunity and necessity entrepreneurship separately, analyses them jointly. Acs (2006) or Acs et al. (2008) conclude that the more important opportunity entrepreneurship is in relation to necessity entrepreneurship, the larger per capita GDP and other indicators are (the percentage of exports over GDP, expenditure on R&D, or expenditure on education, to name a few examples). These indicators characterize the most developed countries, leading us to conclude that the relative level of opportunity entrepreneurship can be a good indicator of a country's economic and productive development (Acs, 2006). Liñan et al. (2013) insist on this idea, finding a positive relationship between the opportunity entrepreneurship/necessity entrepreneurship ratio and per capita GDP. In short, the larger the population involved in opportunity entrepreneurship (usually of a higher quality) rather than necessity entrepreneurship (which is often self-employment), the higher the level of the economic development of a country.

A review of the previous literature raises two interesting implications. On the one hand, when comparing the differences in entrepreneurship levels between geographic areas, it is important to separate it into its two components

(opportunity versus necessity), as this facilitates the monitoring of opportunity entrepreneurship, usually considered more attractive. In line with this argument, a second implication is that for a given entrepreneurship rate, the analysis of the relative importance of both dimensions can be seen as an indicator that approximates the level of economic development of a country or a region.

Formal institutions

From an overall perspective, entrepreneurship has been enriched by four big approaches (Verheul et al., 2002; Veciana, 1999): economic, psychological, organizational and sociological or institutional. The latter approach argues that the social and cultural environment determines the individual decision to start a business (Bruton et al., 2010). Following this approach, most extant research has taken institutional theory as the theoretical framework to explain the differences in entrepreneurship levels between countries, (North, 1990; Fritsch and Storey, 2014; Urbano and Alvarez, 2014; Dau and Cuerzo-Cazurra, 2014). Most of this research understands institutions as the rules of the game regulating political, social and economic relationships in a society, providing the structure and order for exchanges to take place, reducing risks and providing human interaction (North, 1990). These institutions not only influence the level of entrepreneurship, but also the characteristics and quality of entrepreneurship initiatives, by making them more or less productive (Bruton et al., 2010; Baumol, 1990).

A well-established distinction differentiates between formal and informal institutions (North, 1990). The formal ones refer to the political, legal and economic rules designed to limit individual behavior and facilitate exchanges, while informal institutions include behavior, values or beliefs in a society.

Formal institutions can be understood in a very broad sense. In this paper, we closely follow Gnyawali and Fogel (1994).[1] These authors identify a series of environment dimensions that are important from the point of view of entrepreneurship: (1) government policies and procedures; (2) socioeconomic conditions; (3) entrepreneurial and business skills; (4) financial and non-financial assistance. The purpose of government policies should be to guarantee that the mechanisms of the market work efficiently by eliminating market failures and possible administrative rigidities, all with the goal of creating a context that allows companies to assume reasonable risks in the running of their business. In this first dimension, we identify three relevant institutions: property rights, business freedom and labor freedom. As regards socioeconomic conditions, the work mentioned above includes the attitudes of society and governments toward entrepreneurial activities, a necessary aspect to motivate people to start a new business. An important factor in this second block refers to the level of taxes entrepreneurs sustain. This element can be approached through fiscal freedom. Technical and business education, entrepreneurial training programs or the availability of information in a society are included in entrepreneurial and business skills. It is, therefore, a set of indicators clearly linked to this society's educational capital. Finally, concerning financial and non-financial assistance, we emphasize access to credit in an economy, which is much needed to both initiate an entrepreneurial activity and to make it grow or expand. Financial freedom is an institution clearly related to credit availability.

[1] This classification has been used recently, for example by Álvarez et al. (2014), in a study that tries to systematize the whole investigation performed with GEM data.

Hypotheses

Property rights

A key element for effective business transactions is property rights. This is one of the fundamental institutions of any government because it guarantees appropriate incentives for entrepreneurs by compensating them for the positive benefits they generate for society (Baumol, 1990). The so-called *rule of law* would be included in this regulatory protection; it includes not only regulation, but also effective enforcement (North, 1986; Bowen and De Clercq, 2008). Levie and Autio (2011) underline that the rule of law is the factor that prevents any potential expropriations that entrepreneurs may suffer; otherwise existing regulations would be simply ignored.

In this spirit, North (1986) and Bjornskov and Foss (2013) argue that a well-defined legal system, a judiciary system that implements these laws impartially, and a set of attitudes toward hiring and commerce that encourage people to hire and perform transactions at a reasonable cost are essential for the economic growth of a country. Therefore, it seems reasonable to assume that more regulatory protection will promote all types of entrepreneurship, since it will allow businesses to operate more safely and better calibrate the expected profit as a result. Both opportunity and necessity entrepreneurship will obtain advantages from an environment that provides an appropriate protection of property rights.

If we distinguish the consequences of this institution in the different types of entrepreneurship, we can see that opportunity entrepreneurs, by having more growth or employment aspirations (Reynolds et al., 2003; Hessels et al., 2008), risk more capital (Levie and Autio, 2011; Estrin et al., 2013). These investments (whether in machinery, patent development or other assets) are at risk without a good protection of property rights (Aidis et al., 2008). In this context, a potential opportunity entrepreneur has more to lose than an entrepreneur who only seeks survival (Levie and Autio, 2011). Similarly, a good system of protection of property rights will promote innovative behaviors and risk-taking (Bjornskov and Foss, 2013), behaviors that are more generally present in opportunity entrepreneurs (Hessels et al., 2008). As a result, the relative presence of opportunity entrepreneurship will benefit more than necessity entrepreneurship in this context. The above considerations lead us to propose the following hypotheses:

H1a. A higher level of protection of property rights has a positive effect on opportunity entrepreneurship.

H1b. A higher level of protection of property rights has a positive effect on necessity entrepreneurship.

H1c. A higher level of protection of property rights has a positive effect on the relative presence of opportunity entrepreneurship in comparison with necessity entrepreneurship.

Business freedom

Another key element that facilitates entrepreneurship is business freedom, which makes reference to the simplification of all the administrative processes that entrepreneurs have to face, not only to begin their activity, but also throughout the life of the business (OECD, 2001; Heckelman, 2000). Previous studies have argued that regulatory complexity damages business freedom and is an additional obstacle at the beginning of a business (Spencer and Gómez, 2004; Levie and Autio, 2011). Grilo and Thurik (2005) show that the perception people have of administrative complexity reduces the likelihood of embarking on a business activity. Similarly, Klapper et al. (2006) argue that a higher level of administrative requirements damages the creation of business by acting as an important barrier to entry. Therefore, we understand that more administrative simplification promotes all kinds of entrepreneurship, both opportunity and necessity.

When comparing the effect that business freedom has on the different types of entrepreneurship, it is useful to turn to the signaling theory (Spence, 1973). From this point of view, if regulation at entry is demanding and administrative requirements are complex, the signal sent to entrepreneurs is that the new initiatives they start are subject to penalties (Levie and Autio, 2011). Nevertheless, this signal will not necessarily be too significant for necessity entrepreneurs, since they are more concerned about their survival than about any penalties they could be subject to (Bosma et al., 2009).

Such arguments have been confirmed by Djankov et al. (2002), among others. In countries with more demanding entry regulations (in other words with less business freedom), the weight of the informal economy is substantially greater, as many businesses prefer to operate without registering or regularizing their situation to avoid costly regulations. These requirements are more difficult for large companies to ignore, since they have greater visibility and it is not easy for them to escape from governmental control (Dau and Cuerzo-Cazurra, 2014). Furthermore, as the business grows, entrepreneurs usually take on more personal commitments, which increase the incentives to regularize their situation to benefit from the limited liability that non-registered businesses lack (Levie and Autio, 2011). This means that entrepreneurs with more growth aspirations have more incentives to comply with regulations. As the entrepreneurship with higher growth aspirations is opportunity entrepreneurship (Reynolds et al., 2003; Shane et al., 1991), we understand that it will benefit more from greater business freedom. Accordingly, these arguments lead us to propose the following set of hypotheses:

H2a. A higher level of business freedom impacts positively on opportunity entrepreneurship.

H2b. A higher level of business freedom impacts positively on necessity entrepreneurship.

H2c. A higher level of business freedom impacts positively on the relative presence of opportunity entrepreneurship in comparison with necessity entrepreneurship.

Fiscal freedom

Fiscal freedom measures the extent to which governments allow individuals and businesses to manage and preserve their incomes and wealth for their own benefit and use, and it is determined by the tax level imposed on entrepreneurs. Dean and McMullen (2007) emphasize that overtaxation makes entrepreneurs feel squeezed by the Government and, consequently, demotivates them. Additionally, net profits may not compensate the effort needed to start the business. Along the same lines, some researchers, such as McMullen et al. (2008) and Bowen and De Clercq (2008), insist on the negative effect of taxation on a society's entrepreneurial behavior. We can also add the demotivating effect of the administrative effort needed when tax payment procedures are complex (Djankov et al., 2002).

A greater burden of tax, or lower fiscal freedom, is generally associated with a larger public sector. As it grows, it occupies economic areas of the private sector, leaving them less room to act (Estrin et al., 2013). More public activity diverts resources from the private sector to the public sector, thus negatively influencing the performance of entrepreneurial activity (McMullen et al., 2008). All these considerations lead us to propose that more fiscal freedom will have a positive effect on both types of entrepreneurship.

One of the differences between the two types of entrepreneurship is that necessity entrepreneurship is by nature imitative (Hessels et al., 2008; McMullen et al., 2008). Necessity entrepreneurs are, therefore, less likely to enjoy the income associated with innovation (Schumpeter, 1934) and their margins will be lower than opportunity entrepreneurs' margins. This makes necessity entrepreneurship especially sensitive to tax increases (McMullen et al., 2008) and means that more fiscal freedom will favor necessity entrepreneurship proportionally more.

H3a. More fiscal freedom impacts positively on opportunity entrepreneurship.

H3b. More fiscal freedom impacts positively on necessity entrepreneurship.

H3c. More fiscal freedom impacts negatively on the relative presence of opportunity entrepreneurship in comparison with necessity entrepreneurship.

Labor freedom

Some governments establish very thorough regulations of labor relations between employers and employees to protect the latter by putting in place restrictions ranging from salary determination to stipulations for working conditions or compensation in case of dismissal (World Economic Forum,

2013). When this type of rigidity exists, entrepreneurs' capacity to negotiate salary and working conditions is limited, thus preventing them from assigning resources to the uses they consider to be more productive (McMullen et al., 2008). Furthermore, these restrictions in labor legislation are accompanied by a large number or requirements that must be met, acting as a barrier to entry (Djankov et al., 2002). Considering the importance that entrepreneurs give to controlling their activity (Mueller and Thomas, 2001), labor legislation restrictions can demotivate and result in a decrease in the level of entrepreneurship.

When distinguishing between types of entrepreneurship, in a highly regulated labor market, the self-employed (and opportunity entrepreneurs usually are) will have fewer incentives to leave their jobs given the higher opportunity cost (Levie and Autio, 2011; McMullen et al., 2008). Therefore, opportunity entrepreneurship is damaged by more labor rigidity. However, this reasoning does not apply to necessity entrepreneurship, since other market alternatives are scarce.

Furthermore, opportunity entrepreneurs usually have more growth aspirations, which means they anticipate hiring more workers than necessity entrepreneurs (Reynolds et al., 2003). The more employees entrepreneurs intend to hire, the more flexible labor legislation will work in their favor (Roman et al., 2013). This again leads us to conclude that labor freedom positively influences opportunity entrepreneurship. However, if entrepreneurs have no plans to hire employees (as is often the case of necessity entrepreneurship, Reynolds et al., 2003), they will not suffer from the rigidity of the legislation. More precisely, Roman et al. (2013) claim that a rigid labor market promotes entrepreneurs without employees, since hiring costs are hard to meet; this discourages hiring and encourages the existence of smaller companies. Moreover, given the nature of necessity entrepreneurship—often seen as the last opportunity in the absence of alternatives (Reynolds et al., 2005)—it is reasonable to assume that more labor freedom encourages hiring in the market; this increases the range of possibilities, with the subsequent deterrent effect on necessity entrepreneurship. Therefore, more labor freedom might have a negative influence on the level of necessity entrepreneurs in a society. This reasoning leads us to propose the following hypotheses:

H4a. More labor freedom impacts positively on opportunity entrepreneurship.

H4b. More labor freedom impacts negatively on necessity entrepreneurship.

H4c. More labor freedom impacts positively on the relative presence of opportunity entrepreneurship in comparison with necessity entrepreneurship.

Financial capital

It is generally recognized that entrepreneurs founding a business are particularly vulnerable to financial restrictions. Because of their limited personal wealth, they often need financing to start up (Blanchflower and Oswald, 1998). Levie and Autio (2008) argue that financing is the institution carrying more weight in allocating effort for entrepreneurial activity, since it is usually an important barrier to establishing a business. In fact, the last World Economic Forum report (2013) determines that access to credit is one of the main difficulties people trying to start a business face. As Schumpeter (1934) mentions, credit is an essential precursor to business activity.

The ease of access to credit is usually associated with more financial freedom, which includes measures such as access to financial services, easy access to loans, the solvency of banks or legislation on the protection of a company's shareholders (World Economic Forum, 2013). The more developed financial markets are, the easier access to credit becomes, and this encourages any type of entrepreneurial activity.

However, financial restrictions can have more influence on entrepreneurs needing a larger initial capital to start their business, since they are more likely to request external finance. Bowen and De Clercq (2008) emphasize that the development of venture capital firms is especially important to finance high-growth projects, with higher risk levels and links to new technologies. Therefore, entrepreneurs with higher growth aspirations or a more innovative business (opportunity entrepreneurs) will be more affected by financial restrictions (Reynolds et al., 2003; Hessels et al., 2008). Easier access or more financial capital especially encourages opportunity entrepreneurs, which positively influences their relative presence. Consequently,

H5a. More financial freedom impacts positively on opportunity entrepreneurship.

H5b. More financial freedom impacts positively on necessity entrepreneurship.

H5c. More financial freedom impacts positively on the relative presence of opportunity entrepreneurship in comparison with necessity entrepreneurship.

Educational capital

The last dimension we consider is related to entrepreneurial and business skills (Gnyawali and Fogel, 1994). In this paper, they are associated with educational capital, an institution that clearly affects a country's business activity (Glaeser et al., 2004). In particular, Reynolds et al. (1999) argue that a country's level of entrepreneurial activity is related to investments in higher education. Given that education can provide people with a greater sense of independence as well as the necessary skills to find a business opportunity (Bowen and De Clercq, 2008; Jiménez et al., 2015; Verheul et al., 2002), its influence will be more significant in opportunity entrepreneurship. In the same vein, Levie and Autio (2008) underscore that education plays a very important role to detect opportunities in the market, and they emphasize that educational capital is the main resource entrepreneurs rely on when beginning an entrepreneurial activity.

Some researchers have highlighted the importance of distinguishing between *general education* and *specific education* (Bowen and De Clercq, 2008; Jiménez et al., 2015); the latter focuses on promoting specific skills to undertake

a business. For this reason, an educational system that pays more attention to entrepreneurship will have more possibilities of teaching the skills entrepreneurs need, such as the ability to design growth strategies in their ventures (Levie and Autio, 2008). This kind of education is very useful for opportunity entrepreneurs because they have more growth perspectives (Reynolds et al., 2003).

Some arguments posit that more educational capital may harm necessity entrepreneurship. This is the reasoning of Malchow-Moller et al. (2010), who present a model in which two groups of entrepreneurs coexist: the first have a high education level and renounce a fixed salary with the expectation of obtaining a higher reward by establishing their own venture; the second have a lower educational level and choose the entrepreneurial path because they did not attain the necessary performance to find a wage-earning job. This second group fits clearly in the definition of necessity entrepreneurship. For this reason, following the model presented by Malchow-Moller et al. (2010), we can assume that if a society's educational capital increases, the level of necessity entrepreneurship would drop because these people would have the education they need to obtain a wage-earning job, so they would never be forced to create a company. This discussion leads us to propose the following hypotheses:

H6a. More educational capital impacts positively on opportunity entrepreneurship.

H6b. More educational capital impacts negatively on necessity entrepreneurship.

H6c. More educational capital impacts positively on the presence of opportunity entrepreneurship in comparison with necessity entrepreneurship.

Research method

Sample

Our hypotheses were tested in a wide sample of 63 countries that have participated at least once in the Global Entrepreneurship Monitor (GEM)[2] project between 2005 and 2012,[3] and for which we have information on all the analysis variables. The final sample is a non-balanced panel (some countries only participated in the project one or two years between 2005 and 2012) with 189 observations.

One of the primary objectives of the GEM project is to assess the role played by entrepreneurs on economic growth (Reynolds et al., 2005) by harmonizing data on the level and nature of new ventures in every country. Initially, the most important target was policymakers, but the coverage and rigor of the data showed that they can be useful for academic purposes (Álvarez et al., 2014). As a result, there are a growing number of research articles using the GEM as a data source (see Bowen and De Clercq, 2008; Levie and Autio, 2011; McMullen et al., 2008; among others). In our case, GEM is an ideal tool because it presents a large number of countries, a wide time horizon and the possibility of differentiating between types of entrepreneurship.

Variables

Dependent variables

GEM approaches entrepreneurship in a country through an index known as Total Entrepreneurial Activity (TEA). It measures the percentage of the adult population (aged between 18 and 64) who had initiated a venture in the last 42 months.[4] One of the advantages of this study is that it asks about the reasons for creating the company, distinguishing between people involved in a new venture because of the identification of a market opportunity (opportunity entrepreneurship), people involved in entrepreneurship because they had no other option for work (necessity entrepreneurship), and people with other reasons. Among the first group, GEM distinguishes between those who create a new venture to be independent or increase their income, and those who just wish to maintain their incomes.

Our approximation takes into account this framework, so we estimate the model considering three dependent variables. *TEA opportunity*, defined as the percentage of individuals involved in entrepreneurship because of the identification of an appealing business opportunity; *TEA necessity*, defined as the percentage of individuals who create the new firm because they have no better work alternatives; and finally, the *TEA opportunity/TEA necessity* ratio, which measures the relative importance of both types of initiatives. A higher value of this indicator shows a relative increase in new ventures beginning to take advantage of a business opportunity. Some previous studies have used the same measures in their empirical analysis (McMullen et al., 2008; Valdez and Richardson, 2013; Amorós, 2009; Liñan et al., 2013).

Independent variables

Concerning independent variables, we usually use the information provided by the Heritage Foundation and, more specifically, the data of the Index of Economic Freedom (IEF). Nevertheless, the information on the expend in education is provided by the World Bank (WB). Business freedom tries to assess the extent to which governments help people manage the outcome of their work and efforts, and it has been previously used in research to measure a country's level of institutional development (McMullen et al.,

[2] GEM arose from the collaboration between the London Business School and The Babson College in the 1990s. Initially only 10 countries participated in the project, but over the years new countries have joined in (sometimes in a discontinuous fashion). As a consequence, we have information on a wide range of countries worldwide.

[3] It can be argued that the recent economic crisis has influenced our results and, therefore, the time frame considered can offer a false vision of this phenomenon. In order to rule out this possibility, we have undertaken a separate analysis for two periods: 2005–2007, and 2008–2012, with very similar results.

[4] GEM also provides data on people that intend to undertake a venture in the near future (potential entrepreneurs) or that have started an activity in the last 42 months (consolidated companies). Nevertheless, these initiatives are beyond the scope of our study.

Table 1 Description of the variables and data sources.

Dimension	Variable	Description	Source
Dependent variables	1. TEA opportunity	Percentage of those people involved in TEA (Total Entrepreneurship Activity) who claim to be driven by opportunity and who indicate the main driver for being involved in this opportunity as being independent or increasing their income.	GEM
	2. TEA necessity	Percentage of those people involved in TEA (Total Entrepreneurship Activity) who are involved in entrepreneurship because they had no other option for work.	GEM
	3. TEA opportunity/TEA necessity	Ratio between TEA opportunity and TEA necessity.	GEM
Independent variables	4. Property rights	Property rights protection across judicial systems against theft and expropriation.	IEF
	5. Business freedom	Measure of freedom to establish a company and to run it without interference.	IEF
	6. Fiscal freedom	Measure of a country's tax level.	IEF
	7. Labor freedom	People's freedom to work where they want and business freedom to hire and fire workers as appropriate to the circumstances.	IEF
	8. Financial capital	Measure of transparency and efficiency to access finance.	IEF
	9. Educational capital	Total expenditure on education as a percentage of GDP.	WB
Control variables	10. GDP growth	Annual rate of growth of GDP at market rates.	WB
	11. Unemployment	Percentage of the active population out of work, but seeking employment and available to perform a job.	WB
	12. Population growth	Demographic growth in annual percentage.	WB

GEM, global entrepreneurship monitor; WB, World Bank; IEF: index of economic freedom.

2008; Estrin and Mickiewicz, 2010; Aidis et al., 2012; Dau and Cuerzo-Cazurra, 2014; Garrido et al., 2014). A high value of this variable is associated with strong institutions, where transactions are supported by mechanisms that guarantee their transparency and predictability. The Heritage Foundation considers 10 dimensions, five of which are associated with our reasoning of the hypotheses 1–5. The selected dimensions are *property rights*, *business freedom*, *fiscal freedom*, *labor freedom* and *financial capital*. Each country is measured in each of the dimensions in a scale between 0 and 100 points. The interpretation of a country's score is as follows: free (100–80), mostly free (79.9–70), moderately free (69.9–60), mostly unfree (59.9–50) and repressed (49.9–0). Regarding the educational capital variable (hypothesis 6), it measures the total expenditure on education of educational institutions, educational administrations, subsidies and transfers to private entities from the government and it is expressed as a percentage of GDP.

Control variables

The model includes some control variables that may influence the level of entrepreneurship in a country and that have been previously used in the literature. Specifically, we control for GDP, unemployment and population growth, all obtained from the World Bank.

We use *GDP growth* as a proxy of the level of a country's economic activity. It is defined as the annual growth rate as a percentage of GDP at constant prices in local currency. Many previous studies have identified a positive relation between GDP growth and entrepreneurship (Carree et al., 2002; Bowen and De Clercq, 2008). Our analysis also takes into account the *unemployment* rate, a variable that clearly influences the creation of new ventures, especially during economic crisis. The literature establishes that unemployment has a negative impact on opportunity entrepreneurship because there are fewer business opportunities in times of crisis, and a positive impact on necessity entrepreneurship because there are fewer options to find a job in such periods, so people are forced by circumstances to create new companies (Verheul et al., 2002; Spencer and Gómez, 2004). This variable is obtained from the World Bank. Finally, we have also included *population growth*, a demographic measure that provides new business opportunities due to the expansion of new markets, which increases entrepreneurs' offer (Wennekers et al., 2005; Levie and Autio, 2008; Autio and Acs, 2010).

Table 1 summarizes the variables used in the empirical analysis and the source of information of these variables.

Data analysis

Tables 2 and 3 present the descriptive statistics and the correlations of the variables used in the analysis, respectively. As shown in Table 2, opportunity entrepreneurship is higher than necessity entrepreneurship, whereas the variability is similar in both variables. This means that, on average, the percentage of ventures started as a consequence of good

Table 2 Descriptive statistics.

Variable	Mean	Stand. Dev.	Minimum	Maximum
1. TEA opportunity	52.9	11.8	23	82
2. TEA necessity	21.1	11.3	3	48
3. TEA opportunity/TEA necessity	3.97	3.64	0.53	21.7
4. Property rights	66.1	22.5	10	95
5. Business freedom	77.6	12.8	47	100
6. Fiscal freedom	66.8	14.1	33	93
7. Labor freedom	64.9	15.6	29	100
8. Financial capital	64.3	16.9	10	90
9. Educational capital	5.10	1.26	1.8	8.74
10. GDP growth	2.65	4.10	−18	12
11. Unemployment	7.30	4.22	0.7	24.7
12. Population growth	0.84	0.73	−0.7	3.36

$N = 189$.

Table 3 Correlation matrix.

	1	2	3	4	5	6	7	8	9	10	11	12
1. TEA opportunity	1											
2. TEA necessity	−0.67*	1										
3. TEA opport./TEA necessi.	0.69*	−0.76*	1									
4. Property rights	0.52*	−0.55*	0.50*	1								
5. Business freedom	0.44*	−0.51*	0.50*	0.72*	1							
6. Fiscal freedom	−0.44*	0.48*	−0.53*	−0.50*	−0.45*	1						
7. Labor freedom	0.18*	−0.17*	0.22*	0.42*	0.33*	−0.01	1					
8. Financial capital	0.34*	−0.44*	0.36*	0.67*	0.55*	−0.37*	0.40*	1				
9. Educational capital	0.39*	−0.43*	0.57*	0.47*	0.54*	−0.56*	0.06	0.33*	1			
10. GDP growth	−0.09	0.08	−0.06	−0.26*	−0.32*	0.21*	−0.06	−0.15*	−0.34*	1		
11. Unemployment	−0.40*	0.40*	−0.38*	−0.28*	−0.22*	0.06	−0.23*	−0.22*	−0.06	−0.15*	1	
12. Population growth	−0.04	−0.01	0.02	−0.08	−0.10	0.18*	0.05	−0.03	−0.09	0.32*	−0.12	1

* $p < 0.05$, $N = 189$.

opportunity identification is clearly higher. This is also clear from the ratio between opportunity entrepreneurship and necessity entrepreneurship. This indicator takes a value close to 4, thus indicating that for every entrepreneur who undertakes a venture forced by circumstances, there are four new ventures trying to take advantage of a market opportunity.

In relation to the independent variables, all obtained from the Index of Economic Freedom (except business freedom) show values of around 65. This means that the countries in our sample have moderate free conditions to operate in the market. Nevertheless, these averages hide important differences among countries. Business freedom has a value close to 80, which suggests a high degree of freedom in this dimension. Finally, educational capital shows an average of 5.1, with a relatively moderate standard deviation of 1.26.

Concerning the correlation matrix in Table 3, we can see that the explanatory variables (proxies of formal institutions) have high correlations in most cases. This could suggest a potential problem of multicollinearity if all the variables are included in the same regression at the same time. For this reason we have calculated the variance inflation factor (VIF) that shows average values over 10, a threshold that could be considered the limit after which multicollinearity problems can affect estimated coefficients. The main consequence of this situation is that the precision of the estimated coefficients of the correlated variables is reduced, and some variables that would be normally statistically relevant can lose their significance (Gujarati, 2004). For this reason, we estimate each of the variables separately in our analysis and introduce them sequentially, which has been the usual practice in similar works (see, for example, Klapper et al., 2006 or Desai et al., 2003).

Results

Tables 4–6 show the coefficients of random-effects estimates. Fixed effects and random effects are the most common alternatives to control unobservable heterogeneity. Traditionally, selecting between these two alternatives is based on the Hausman test. Nevertheless, a preference for fixed effects would prevent the estimate of constant variables over time. This is the case of most of the explanatory variables in our model. Institutional dimensions tend to be

Table 4 Determining factors of opportunity entrepreneurship.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Property rights		0.20***					
		(0.06)					
Business freedom			0.25***				
			(0.09)				
Fiscal freedom				−0.34***			
				(0.09)			
Labor freedom					0.13*		
					(0.07)		
Financial capital						0.16***	
						(0.06)	
Educational capital							2.65**
							(1.06)
GDP growth	−0.38*	−0.08	−0.19	−0.20	−0.32	−0.32	−0.24
	(0.23)	(0.29)	(0.27)	(0.26)	(0.24)	(0.24)	(0.26)
Unemployment	−1.02***	−0.70***	−0.79***	−0.89***	−0.92***	−0.79***	−0.89***
	(0.27)	(0.27)	(0.27)	(0.25)	(0.28)	(0.28)	(0.25)
Population growth	0.02	0.73	0.57	0.75	−0.03	0.45	0.49
	(1.60)	(1.37)	(1.43)	(1.38)	(1.59)	(1.47)	(1.45)
Times dummies	YES	YES**	YES**	YES*	YES	YES*	YES**
Constants	58.05***	39.98***	34.01***	83.60***	48.42***	44.53***	44.85***
	(4.31)	(7.29)	(9.96)	(7.28)	(7.36)	(6.45)	(6.55)
N	189	189	189	189	189	189	189
R^2	0.25	0.36	0.35	0.36	0.25	0.29	0.35

* $p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.
Standard deviation in parentheses.

stable over time and some of them do not show any time variation. Under these circumstances, it is argued that the random-effects model is the best alternative (Holmes et al., 2013). In addition, in all the cases we have considered, robust errors to autocorrelation and the Breusch–Pagan test show that there is no heteroskedasticity in the models. To test our hypotheses, we created three groups of estimates, one for each of our dependent variables: the first refers to TEA opportunity, the second to TEA necessity and the last to the TEA opportunity/TEA necessity ratio. Our procedure was similar in all three cases. First, we estimated a model with only the control variables. Later, we sequentially introduced the proxies of the formal institutions in models 2–7.

Table 4 describes regressions related to opportunity entrepreneurship. Regarding the control variables, *unemployment* presents a negative and statistically significant coefficient in all models, as expected, thus confirming that a higher rate of unemployment in a country is associated with a lower rate of new ventures starting from the identification of a good opportunity. The two other control variables (*GDP growth* and *population growth*) are not statistically significant in any of our models (the only exception is the variable GDP growth in the model where we include only the control variables).

All the *property rights*, *business freedom*, *labor freedom*, *financial capital* and *educational capital* variables present the expected signs. In addition, all the coefficients are statistically significant; therefore, we can accept hypotheses 1a, 2a, 4a, 5a and 6a. The only coefficient that does not support our theoretical approach is the fiscal freedom variable, whose sign is the opposite, as we expected; this does not give support to hypothesis 3a.

As a consequence, with the exception of fiscal freedom, higher quality formal institutions (more property rights protection, more business freedom, more labor freedom, more financial capital and more educational capital) have a positive influence on opportunity entrepreneurship. Accordingly, the government authorities should improve the quality of these dimensions to the extent that there are positive consequences from a social well-being point of view.

Regarding the regressions of the necessity entrepreneurship (Table 5), the reasoning is similar. Again, the only statistically significant control variable is *unemployment*, with a positive sign that suggests that when the occupation rate diminishes, the level of entrepreneurs undertaking a venture forced by circumstances increases, probably because it is the only choice they have.

Regarding the explanatory variables, the only two significant coefficients with the expected sign are those related to *fiscal freedom* (hypothesis 3b) and *educational capital* (hypothesis 6b). Therefore, more fiscal freedom increases necessity entrepreneurship as the expected revenues from these initiatives rise. On the other hand, expenditure on education negatively affects necessity entrepreneurship, probably because a better-trained workforce has better labor prospects. In this context, entrepreneurship is only a choice when there is a real and attractive market opportunity covering an actual need in the market.

Table 5 Determining factors of necessity entrepreneurship.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Property rights		−0.21***					
		(0.04)					
Business freedom			−0.26***				
			(0.06)				
Fiscal freedom				0.32***			
				(0.06)			
Labor freedom					−0.11		
					(0.07)		
Financial capital						−0.15***	
						(0.06)	
Educational capital							−2.22**
							(0.90)
GDP growth	0.02	−0.24	−0.13	−0.11	−0.04	−0.03	−0.08
	(0.21)	(0.20)	(0.19)	(0.19)	(0.20)	(0.20)	(0.20)
Unemployment	1.05***	0.73***	0.83***	0.93***	0.97***	0.83***	0.94***
	(0.25)	(0.21)	(0.23)	(0.23)	(0.26)	(0.23)	(0.23)
Population growth	2.01	1.07	1.32	1.17	2.05	1.53	1.42
	(1.42)	(1.20)	(1.25)	(1.36)	(1.43)	(1.32)	(1.31)
Times dummies	YES	YES***	YES***	YES**	YES	YES***	YES***
Constants	7.00*	0	0	0	15.35**	0	0
	(3.85)	(0)	(0)	(0)	(7.12)	(0)	(0)
N	189	189	189	189	189	189	189
R^2	0.23	0.37	0.38	0.39	0.24	0.33	0.36

* $p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.
Standard deviation in parentheses.

The coefficients of *property rights*, *business freedom* and *financial capital* (hypotheses 1b, 2b and 5b, respectively) show opposite effects to the ones we expected, while the labor freedom coefficient (hypothesis 4b) is not statistically significant. One potential explanation could be the nature of this type of entrepreneurship. As mentioned above, necessity entrepreneurship arises from the lack of labor alternatives in the market and it is viewed as the only option to survive. In these circumstances, it is understandable that entrepreneurs do not pay enough attention to the institutional environment and begin an activity regardless of the conditions such a venture entails. Our results are consistent with the previous literature on necessity entrepreneurship (Valdez and Richardson, 2013; McMullen et al., 2008).

Finally, Table 6 presents the regressions with the *TEA opportunity/TEA necessity* ratio as a dependent variable. Concerning the control variables, *unemployment* is again the only statistically significant variable in all the models and it presents the expected negative sign. This supports the assumption that a high rate of unemployment increases the proportion of ventures that begin as a result of a lack of labor alternatives. The GDP growth variable is significant in some estimations (models 1, 5 and 6), but its sign is opposite to the one we expected.

Concerning the variables linked with our theoretical approach, all of them are statistically significant with the expected sign; therefore, we support hypotheses 1c, 2c, 3c, 5c, and 6c. The only exception is the *labor freedom* variable, which shows the expected sign, but the coefficient is not statistically significant, so we cannot support our hypothesis 4c.

More *property rights* protection, more *business freedom*, more *financial capital* and more *educational capital* increase the relative presence of the most productive entrepreneurship, which in our study is associated with opportunity entrepreneurship. Similarly, more *fiscal freedom* increases the relative presence of necessity entrepreneurship, which, as we explained, has minor profit margins, and is not capable of withstanding a high tax burden. Concerning *labor freedom*, although the sign is as expected, it is not statistically significant, and, therefore, we cannot accept hypothesis 4c. One possible explanation is a lower importance of this institution.

Discussion and conclusions

The main purpose of this research is to assess the influence of the formal institutions of a country on different types of entrepreneurship, paying special attention to the relative presence of opportunity versus necessity entrepreneurship. As an overall assessment, our results show that increased development of formal institutions positively affects both opportunity entrepreneurship and its relative presence.

Our findings on opportunity entrepreneurship slightly differ from those obtained by Valdez and Richardson (2013) and McMullen et al. (2008), given that they establish

Table 6 Determining factors of TEA opportunity/TEA necessity ratio.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Property rights		0.06***					
		(0.01)					
Business freedom			0.11***				
			(0.03)				
Fiscal freedom				−0.12***			
				(0.03)			
Labor freedom					0.04		
					(0.03)		
Financial capital						0.04**	
						(0.02)	
Educational capital							1.40***
							(0.35)
GDP growth	−0.13***	−0.02	−0.03	−0.06	−0.11**	−0.11**	−0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.06)
Unemployment	−0.28***	−0.18***	−0.18***	−0.24***	−0.24***	−0.22***	−0.30***
	(0.08)	(0.06)	(0.05)	(0.07)	(0.08)	(0.07)	(0.06)
Population growth	−0.02	0.18	0.23	0.28	−0.05	0.09	0.22
	(0.43)	(0.36)	(0.33)	(0.38)	(0.43)	(0.38)	(0.30)
Times dummies	YES	YES**	YES**	YES	YES	YES	YES**
Constants	5.01***	−0.85	−6.14***	14.11***	1.78	1.29	−1.19
	(1.06)	(1.23)	(2.19)	(2.83)	(2.18)	(1.60)	(1.30)
N	189	189	189	189	189	189	189
R^2	0.24	0.35	0.40	0.43	0.25	0.29	0.50

** $p < 0.05$.
*** $p < 0.01$.
Standard deviation in parentheses.

that the majority of formal institutions harm opportunity entrepreneurship. Nevertheless, our results are in line with those of Bowen and De Clercq (2008) and Levie and Autio (2011), where increased development of formal institutions positively affects higher quality entrepreneurship. This happens because both the latter and our research use qualified measures of opportunity entrepreneurship, which is the type most favored by a well-developed institutional framework. In this case, we understand by opportunity entrepreneurship those initiatives whose declared purpose is to be independent or increase entrepreneur's incomes.

Our striking result concerning fiscal freedom (that it negatively affects opportunity entrepreneurship) deserves further analysis. One possible explanation is that higher taxes lead to a higher state investment in infrastructures, in an effective judicial system or in a high protection of intellectual property, which, eventually, positively affect entrepreneurs. However, we should approach this outcome with care and it should not be interpreted as a political recommendation to promote a higher tax system to increase opportunity entrepreneurship.

If we focus our attention on the TEA opportunity/TEA necessity ratio, our results corroborate that more property rights protection, more business freedom, more financial capital and more educational capital positively affect this ratio, in other words, they increase the quality of entrepreneurship. On the other hand, lower taxation (more fiscal freedom) increases the rate of venture initiatives that only launch small businesses, with the sole purpose of ensuring the subsistence of their partners.

One result of special interest stems from the influence of educational capital. While a higher education positively affects opportunity entrepreneurship and its relative presence, its effect on necessity entrepreneurship is quite the opposite. In short, a better-trained workforce has better opportunities in the labor market and entrepreneurs only create a new venture if they detect a promising market opportunity.

The influence of institutions on the relative presence of opportunity versus necessity entrepreneurship is the most significant contribution of our research. Given the importance of this distinction, the absence of studies analyzing this phenomenon is quite surprising (Acs, 2006; Acs et al., 2008; Shane, 2009). To our knowledge, few empirical works analyze or compare the effects the same institutions have on different types of entrepreneurship (Levie and Autio, 2011; Dau and Cuerzo-Cazurra, 2014). Our research focuses on a more fine-grained analysis comparing opportunity entrepreneurship, which is far more related to economic growth, with necessity entrepreneurship, and which usually arises because of the lack of labor alternatives. Our main result is that increased development of formal institutions not only favors opportunity entrepreneurship, but also its relative presence. This is an interesting conclusion that has not been tested before, although similar results have been obtained theoretically in works such as Baumol (1990) or Baumol and Strom (2007).

From the point of view of public policies, it would be of interest for policymakers to provide a framework that channels entrepreneurial efforts toward those

activities that have positive effects on economic growth. The aim is not only to increase the rate of entrepreneurship indiscriminately, but also to focus it on innovative activities with higher added value that are more prone to create jobs (Shane, 2009). An institutional context where the rules of the game are clearer would increase opportunity entrepreneurship, with the subsequent effect on economic activity.

Our research has several limitations that may constitute avenues for further research. First, the opportunity–necessity dichotomy can be interpreted differently depending on the country in question. It is true that GEM methodology tries to be uniform in the regions where the study is conducted, but the concept of opportunity may differ from one country to another. Second, this dichotomy could be slightly restrictive by ignoring other classifications, such as commercial versus social entrepreneurship, or formal versus informal, which are also interesting to analyze.

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