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The Influence of the Quality of Government Institutions on Entrepreneurial Motivation: Exploring the Variance across Countries

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Abstract

Despite the increasing understanding of the relationships between institutions and entrepreneurship, the influence of the quality of government institutions on entrepreneurship is less addressed. This paper focuses on this critical determinant of entrepreneurship in developing and developed countries. Drawing from institutional theory we hypothesize and empirically assess the role of the quality of institutions in entrepreneurial activity. We examine how the quality of government institutions influences the rate of *necessity-based* entrepreneurial activity across countries and over time by using a cross-sectional time-series approach on data from the Global Entrepreneurship Monitor (GEM) database covering the years 2001–2011. Our results suggest that higher economic development associated with better quality of institutions reduces the prevalence of necessity-based entrepreneurship. Our findings imply that developing countries must rationally organize their functions, and seek to remove unnecessary barriers, decrease political instability, and controls that hamper entrepreneurial activity.

Keywords: Government Institutions, Quality, Regulation, Global Entrepreneurship Monitor, Entrepreneurial Motivation.

JEL Classifications: H11, L26, E02, O20

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The Influence on Quality of Government Institutions on Entrepreneurial Motivation: Exploring the Variance across Countries

1. Introduction

The relationship between entrepreneurship and national economic development has shared a growing scholarly interest. This is accountable for the empirical results suggesting that the variations in economic growth rates can be explained by differing rates of entrepreneurship (Reynolds et al. 1999; Zacharakis at al. 2000). The embedded contribution of the new venture creation enables and fosters the national economic development and growth via activities such as introduction of new innovation, increasing the competition and market dynamics (Audretsch and Keilbach 2004; Wong et al. 2005). Interestingly, the influence of entrepreneurial efforts differs not only between countries at the similar level of development (Carree et al. 2002, 2007), but also between countries at different stages of development (Wennekers et al. 2005; Acs and Amorós 2008) as well as among regions within a single country (Acs and Armington 2004; Belso-Martínez 2005; Hall and Sobel 2008). Accordingly, entrepreneurship scholars are searching for the explanations why these differences exist.

The empirical work documents various country level determinants of entrepreneurial engagement, such as level of educational attainment, business climate, and legal and political conditions (Grilo and Thurik 2005; Hwang and Powell 2005; van Stel et al. 2005; Grilo and Irigoyen 2006; Bowen and De Clercq 2008). Some of these 'macro level' factors can explain entrepreneurship rates but also types of entrepreneurial activities across countries and regions (Bowen and De Clercq 2008; Estrin et al., 2012; Stenholm et al. 2013). A number of researchers have developed frameworks to explain some of the macro (and micro) level determinants of entrepreneurial activities or process (Reynolds et al. 1999; Reynolds et al. 2005; Verheul et al. 2002; Wennekers and Thurik 1999; Sobel 2008). The majority of them conclude the same thing; institutional factors are an essential framework in understanding the determinants of entrepreneurial dynamics.

As defined by North (1990, 97) the "*institutions are the humanly devised constraints that structure political, economic and social interaction*". Based on this the institutions refer to a variety of social structures and rules that influence human and economic behavior. In addition to structure, such as division between formal and informal institutional determinans, their governance impacts the economic outcomes, including entrepreneurial activities, basically through the government's general role to provide—or fail to provide—institutions that underpin the effective rule of law (Kaufmann et al. 1999; Kaufmann et al. 2008; Hellman et al. 2000). Thus, in addition to the

structure of the institutional arrangements, their quality—how well or badly the institutions are governed—is decisive for individuals and organizations to impose the ownership of their resources, gain access to new resources, and make decisions. Even if this seems as truism, the previous research illustrates that the variance in the quality of institutions generates different outcomes. Moreover, these differences are amplified between wealthy and poor countries (Acemoglu et al., 2002; 2005; Amorós, 2009). Despite these insights on the quality of institutions, the influence of these differences on the different types of entrepreneurial behavior remains relatively understudied.

Previous results suggest that the differences in regulative institutions—laws determining the behavior—enhance the variance in entrepreneurial behavior across countries (Wennekers et al. 2005). As regulations and laws influence the level of access to resources required to create new businesses (Busenitz et al. 2000; Verheul et al. 2002), their quality is important for any type of entrepreneurial activity. In less developed countries, the regulation does not necessarily decrease the uncertainty related to human behavior or does not ease the access to resources needed in starting a business (Ardagna and Lusardi 2009). These variances indicate that in addition to the structure of institutions, their quality matters. However, the knowledge on the relationship between the quality of institutions and necessity--based entrepreneurship is still scarce.

Our study investigates how the *quality of institutions* affects entrepreneurial activity across countries at different levels of economic development (cf. Acs and Amorós 2008; Bruton et al. 2008; West et al. 2008). Instead of focusing on the rate of entrepreneurial activity in a country, we delimit our approach on *necessity-based* entrepreneurial activity. Necessity-based entrepreneurship comprises the engagement in entrepreneurial activity in case of no other appropriate choice of employment (Reynolds et al. 2005), while the opportunity-based entrepreneurship covers entrepreneurial activities started voluntarily in order to gain more income or independency (Bosma et al. 2008). Previous work illustrates that the general rate of nascent entrepreneurship varies across countries in relation to the level of economic development of each country (Wennekers et al. 2005). Closer insights suggest that necessity-based entrepreneurship may not have the same impact on economic development when compared to opportunity-based entrepreneurship (Acs 2006; Acs and Varga 2005). More importantly, the results show that the effect of institutional environment on entrepreneurial activity varies between necessity- and opportunity-based entrepreneurship (van Stel et al. 2007). This far, however, only a few studies have inquired about the link between institutional quality and entrepreneurship (Sobel 2008).

In this study we focus on the following questions: What kind of quality of institutions is related to the necessity--based entrepreneurship in different countries, and how do these relationships differ in developing and developed countries? The latter is highly important since thus far the majority of the scholarly work is discussing the developed country experiences and the developing countries' aspect is relatively necklegted.

Our paper proceeds as follows. In the next section, we present a general framework on the concept of the quality of institutions and describe how it affects entrepreneurship; the following section describes data and explains our methodology. Next, we present a brief discussion of empirical results on the relationship between entrepreneurship and the quality of institutions. The last section concludes the study and discusses the implications.

2. The quality of government institutions and entrepreneurship

Recent developments in economics have led to very interesting formal models of entrepreneurship (Audretsch and Thurik 2001; Audretsch 2007). For instance, in their approach Reynolds et al. (1999) suggest that established business activity at the national level varies along with the variables denominated to "general national framework conditions", while early-stage entrepreneurial activity varies with the "entrepreneurial framework conditions". These conditions are related to the social, cultural and political context of a country, and being entrepreneurship specific they comprise policies and governmental programs aimed at enabling and fostering entrepreneurship.

Individuals' perceptions on the feasibility of engaging in entrepreneurial activity and its incentives and restrictions are related to the surrounding institutions (Veciana and Urbano 2008). As they comprise the governance structures built on rules, norms, values and cultural meanings, they influence human behavior within a country (North 1990) and reduce the related uncertainty in a society (DiMaggio and Powell 1983) Accordingly, previous research suggests the existence of the relationship between institutional factors, such as government regulations, availability of necessary resources, and public policies, and entrepreneurship at the individual and national level (Eckhardt and Ciuchta 2008; Hessels et al. 2008; Lee et al. 2004; Verheul et al. 2002; Stenholm et al. 2013). Government institutions' role in affecting the prevalence of different types of entrepreneurship is vital. There is a increasing stream of literature examining the role of specific policies on entrepreneurship (Audretsch et al. 2007; Hoffmann 2007; Stevenson and Lundström 2005, 2007) indicating that by introducing policies that promote entrepreneurship as well as by creating a general institutional structure favorable to entrepreneurship government institutions can shape the

entrepreneurial dynamics of a country or region (Sobel et al. 2007). In general the prevalence of entrepreneurial opportunities tends to increase with less regulation and fewer barriers to entry (El-Namaki 1988).

The efficient allocation of resources in an economy—in this case, the allocation of entrepreneurial talent between different types of entrepreneurial activity—is expected to be attributable to the institutional structures. Institutions—the basic set of constraints and enablers within which economic agents interact—have a crucial role in a society and in an economy. As an analogy: consider economic interaction as a game; it becomes quite evident that the rules of the game can shape, in a crucial sense, the outcome of the interaction (Buchanan 1991). Alternative structures of the rules can then be expected to lead to different outcomes. For instance, regulatory processes promote or hinder entrepreneurship by shaping the level of risk involved in the formation and start of a business, and entrepreneurial behavior is influenced by the rules adopted and their enforcement (Baumol and Strom 2007). In this study we focus solely on regulative institutions and their quality, since the quality of regulative institutions—the transparency of institutions, low levels of corruption, and the protection of property rights—positively influence economic development (Knack and Keefer 1995; Rodrik 2000).

Even if the basic principles of neoclassical economic theory suggest that entrepreneurship must be commenced from an individualistic perspective (Kihlstrom and Laffont 1979; Bianchi and Henrekson 2005), the institutions do matter. Institutions affect to the calculations based on which the economic agent decides whether or not to undertake entrepreneurial activities or any other type of wage earning activities. It is the individual's rationale that determines the allocation of inputs across different activities when he or she is faced with a given economic constraint or a given environmental opportunity. Then, a model of labor choice can explain entrepreneurship (Lucas 1978; Lazear 2005). Risk aversion also plays a role in this decision-making; agents are less likely to be entrepreneurs when good, less risky alternatives for a job are available (Iyigun and Owen 1998). Additionally, previous research suggests that engagement in entrepreneurship increases when the opportunity and transaction costs related to entrepreneurship decrease (McMullen et al. 2008). These aspects highlight the critical role of the quality of institutions in determining human behavior. For instance, it is well known that if "prices" do not convey accurate information as to the relative scarcities of different 'products' (Hayek 1945), then the allocation of resources will be misguided. It is evident that this dilemma should be extended to cover the allocation of entrepreneurial effort (or, more generally, the allocation of labor). At the same time, risk perceptions and assessments can also be affected by the institutional quality. An economy where the

otherwise prevalent institutional framework does not safeguard an agent's economic freedom tends to be riskier in an objective sense[1]. This affects once again the manner in which the economy resolves its resource allocation problem. These examples represent particularly illustrative instances in which institutional quality dramatically influences the determinants of entrepreneurship. Accordingly, we assume that quality of institutions has influence on entrepreneurs who engage in entrepreneurship due to necessity looking for earnings. For instance, freedom from high tax rates and price controls seem to enhance necessity-based entrepreneurship (McMullen et al. 2008). Thus, in case of necessity-based entrepreneurship we assume that the individual has to face the quality of institutions (whatever it might be) and find a way to succeed in entrepreneurial behavior. However, if the quality of institutions is favorable for entrepreneurship, fewer individuals will engage in necessity-based entrepreneurship. Thus, we hypothesize that:

H1: The quality of institutions has a negative influence on necessity-based entrepreneurship

There is a general consensus that countries with weak institutional quality could have difficulties in enhancing their economic development after controlling for several variables like social, political and geography aspects (Basu and Das 2010). For less developed countries it is necessary to strengthen their entrepreneurial framework conditions in order to attain more entrepreneurial activity (Acs, 2006). Paraphrasing Bardhan's (2005) question, "*Institutions matter, but which ones?*" we propose "Institutions matters, but is it equal?" to put emphasis on the interaction between the quality of institutions and different stages of economic development. Baumol (1990) highlights the fact that institutional quality has important effects on the allocation of entrepreneurial talent in a given economy: the different types of entrepreneurial activity are partially due to the economic and political institutions and what kind of incentives they create for enterprising individuals. Baumol's (1990) conjectures explain that countries (or regions) with better institutions have more productive entrepreneurship and less unproductive (or destructive) entrepreneurship. When the incentive structure of an economy leads agents to unproductive (rent seeking) activities, we can expect that agents will follow suit. For example, in a world where the largest "prizes" are awarded to those that undertake unproductive activities, the level of productive entrepreneurship will necessarily be smaller. Boettke and Coyne (2003) have observed that entrepreneurship manifests itself differently across alternative institutional regimes and that only some of these expressions are consistent with

1 This greater risk can be captured by examining the assessments of risk-rating agencies, as well as from the point of view of modern portfolio financial theory in terms of the higher returns demanded by the investors in these economies.

economic development. From an aggregate point of view previous work tends to validate that institutional quality has an important effect on economic outcomes (Barro 1991; Knack and Keefer 1995, 1997). In less developed countries the emphasis of public policies is more on general development of institutions, necessary infrastructure, macroeconomic stability, and primary education (Bosma and Levie 2010) than in economic development. The related results suggest that in less developed countries the relationship between necessity-based entrepreneurship and economic development is negative (Acs et al. 2008). In all, a higher level of economic development seems to benefit more opportunity-based than necessity-based entrepreneurship (Acs 2006; Acs and Varga 2005). Even if the actual appearance of necessity-based entrepreneurs varies—from only option to get income to one's employer pushes someone to start their own business—across the stages of economic development (Williams 2009), the above highlights the importance of assessing the role of institutional quality on entrepreneurial activity across different levels of economic development. In this sense, if institutional variables are different depending on the country's degree of development, does this situation affect the types of entrepreneurship in a different manner? Accordingly, we assume that in developed countries the quality of institutions has a positive influence on necessity-based entrepreneurship. On the contrary, based on the statements presented above we assume that in less developed countries the quality of institutions has also a positive influence on necessity-based entrepreneurship. Thus, we hypothesize that

H2: The relationship between the quality of institutions and necessity-based entrepreneurship is positively moderated by country's level of economic development

3. Empirical model

3.1 Data sources

We use two data sources to test our hypotheses. The Global Entrepreneurship Monitor (GEM) project comprises harmonized, internationally comparable data to evaluate entrepreneurship activity across different countries among adult working age (18–64-years old) population. We employ data from the GEM study for the years 2001 to 2011. The sample covers 89 economies, although there is substantial variation in data availability, with several countries having only one or two years worth of data. Countries with richer data are those who started to collect GEM data earlier, with most being developed countries. Overall, 460 individual country-year observations are available, but the resulting panel is somewhat unbalanced. Of the 89 economies, 61 are considered developing economies, and these provide 49% of all observations.

The GEM data contains various entrepreneurial indicators that have been constructed on the basis of a survey known as the *adult population survey*, APS. GEM data provides estimates of the percentage of the adult population who are actively involved in starting a new venture. This indicator is called the early stage entrepreneurial activity index[2]. Our focus is one of its motivational derivations: necessity- and opportunity-based early stage entrepreneurial activity. We focus on the category which involves individuals engaging in necessity-based entrepreneurial activity (NEC). They are "pushed" into entrepreneurship because being an entrepreneur is the only option for wealth generation. Although many studies recognize that the majority of entrepreneurial activity is the result of the search for business opportunities (Kolvereid 1996; Feldman and Bolino 2000; Carter et al. 2003; Hessels et al. 2008; Bosma et al. 2008), there is a relatively high prevalence of NEC entrepreneurs starting new endeavors in many low and middle-income countries. Table 1 provides a list of countries with GEM data averages, number of observations and their classification in terms of economic development.

Insert Table 1 about here

Data on the quality of institutions were gathered from the World Bank's Worldwide Governance Indicators (WGI) database[3]. The background of this database is grounded in the recognition that 'governance matters' (Kaufmann et al. 1999; Kaufmann et al. 2008) and its definition explains the assumptions through which the effects of governance are expected to make a difference on economic outcomes. The governance is defined "*as the traditions and institutions by which authority in a country is exercised for the common good*". This definition is parallel with North's (1990) largely acknowledged definition of institutions. WGI comprises aggregate and individual governance indicators for 215 countries and territories covering the period 1996–2011. The WGI covers six dimensions of governance: Voice and accountability, Political stability and absence of violence, Government effectiveness, Regulatory quality, Rule of law, and Control of corruption.

2 This index is based on the life-cycle of the entrepreneurial process which is divided into two periods: the first covers nascent entrepreneurs who have undertaken some action to create a new business in the past year but have not paid any salaries or wages in the last three months. The second category includes owners/managers of businesses that have paid wages and salaries for over three months, but less than 42 months. (Bosma et al. 2008)

3 For the complete more information see http://info.worldbank.org/governance/wgi/index.asp

3.2 Dependent variables

In testing the hypotheses we use a dependent variable retrieved from the Global Entrepreneurship Monitor (GEM). Both are related to the prevalence of the specific type of entrepreneurial activity among the adult (18–64) population across participating countries.

Necessity-based entrepreneurship. The second dependent variable is the rate of necessity-based entrepreneurs (NEC). This rate covers the percentage of the country's adult population involved in entrepreneurship "*because they cannot find appropriate employment as paid-labor and thus creating a new business is their best available option*" (Reynolds et al. 2005: 217). This measure is relevant in analyzing the differences in entrepreneurship activity between less developed and developed countries.

3.3 Independent Variables

In assessing the impact of the quality of institutions, we borrow the set of measurements from the World Bank Worldwide Governance Indicators (WGI) research project (Kaufman et al. 2009). The six variables measured are:

i) Voice and accountability, measuring perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

ii) Political stability and absence of violence, measuring perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism.

iii) Government effectiveness, measuring perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and credibility of the government's commitment to such policies.

iv) Regulatory quality, measuring perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

v) Rule of law, measuring perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

vi) Control of corruption, measuring perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

Clearly, some of these variables are related more directly with entrepreneurship activities but all variables are considered for the initial analysis. These indicators are measured following a normal distribution with a mean of zero and a standard deviation of one in each period. According to WGI, these variables virtually have scores between -2.5 and 2.5, with higher scores corresponding to better outcomes. The WGI indicators are available biannually from 1996, and annually for the period 2002–2011. Values for 2001 have been imputed and extrapolated, respectively[4].

In addition to the quality of insitutions measures, we study the role of *economic development* in the relationship between entrepreneurial motives and institutional quality. This was assessed by using a dichotomical variable for the whether the country shows a high level of income and development (*Developed Country*=1) as an independent variable. This item enables to assess nonlinearities or discontinuities in the way institutions affect entrepreneurial activity.

Control variables. The analyses were controlled for several variables. Macroeconomic indicators such as GDP per capita, inflation rates (examined but later excluded due to multicollinearity) and real GDP growth have been acquired from the IMF´s International Financial Statistics dataset[5]. Per capita income growth rate is a good proxy for measuring economic growth and is one of main sources for qualifying the economic environment (Wennekers et al. 2005). GDP per capita is adjusted by purchasing power parity (PPP) in international US dollars.

An important issue that affects the precision of econometric results is the high correlation that exists among the different measures of institutional quality. On the one hand, the different sources of indicators readily available on institutions (i.e. WGI, Global Economic Forum´s Global

4 Regression results are robust to dropping observations in this year. To allow inclusion of a larger set of countries, we have preferred to show results using imputed data. All results have used linear trends or lagged data, when the former is unavailable.

5 Some indicators from Iran, Jamaica, Puerto Rico, West Bank and Gaza Strip were obtained from The CIA World Factbook https://www.cia.gov/library/publications/the-world-factbook/,

Competitiveness Index or Heritage Foundation´s Economic Freedom Index) will be very coincident as they measure similar aspects of the business environment. This is solved by refraining from combining institutional quality indicators from more than one source of data. On the other hand and more pervasively, indicators from the same source will also be highly correlated among themselves, as the aspects they measure are intimately related. Table 2 shows correlation across indicators of institutional quality and GDP per capita on the selected sample of economies.

Insert Table 2 about here

Such high correlation among indicators would lead to some collinearity and imprecisely estimated coefficients if all were to be included in regression analysis. A reliability analysis of the WGI data using the 460 observations show a Cronbach´s Alpha=0.97. Thus, principal component analysis (PCA) is performed over this set of indicators to reduce data to a suitable number of dimensions. One single factor is extracted from the principal component analysis that explains 87.5% of the total variance[6]. By consequence we can reduce in one component the WGI indicators and calculate a new variable named *Governance Index*. The higher the value of the *Governance Index* is the better is the quality of institutions in a country. Table 3 shows the related component matrix.

Insert Table 3 about here

3.4 Methodology

The sections on the literature framework and GEM descriptions on Table 1 note that the developing countries have relatively high rates of necessity-based entrepreneurial dynamics, while most developed nations have relatively high rates of opportunity-based entrepreneurs. Mindful of the general research proposition, in countries under *ceteris paribus* conditions[7], the relationship between the institutional quality variables is positive for the opportunity entrepreneurial dynamics

6 KMO= 0.928 and Bartlett's test p<0.001 (Approx. Chi-Square 4423.79; d.f.=15) indicate that PCA fits the data well.

7 Obviously other different economic, demographic, social and institutional factors exist, which influence entrepreneurial activity. See Wennekers et al. (2005: 298).

rates, and negative for necessity entrepreneurship. In order to examine these relationships, we use a series of regressions following the general specification:

$$E_{it} = f(GI_{it}; DC_{it}; X_{it})$$

where:

E is the entrepreneurial dynamics measurement, NEC;

GI represents principal components scores of WGI dataset or *Governance Index*;

DC represents a dummy variable for developed countries.

X is a set of control variables, including GDP per capita (PPP-adjusted), GDP growth.

i is the country index and *t* is the time period.

Models are estimated by pooling the cross-section of countries with the available time series data on each country for the period 2001–2011. Several models will be reviewed, increasing the number of control variables and examining interaction effects[8]. Also, several econometric specifications will be tested.

4. Results

Table 4 shows descriptive statistics of the used variables. In testing the hypotheses we ran first pooled OLS regressions which were adjusted for the year of observation. OLS models do not provide completely efficient estimators but gives some insights as to the nature of the relationships among variables. Next we ran panel models. We select random-effects models because they were proven to be more consistent[9].

Insert Table 4 about here

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8 We make two interaction effects with the governance index: one with the developed country dummy; the second with GDP.

9 Hausman test for OPP chi2 = 5.75, Prob>chi2 = 0.124 for NEC chi2=9.92, Prob>chi2 =0.537. We assumed than random effects is consistent and efficient under the H_0: difference in coefficients not systematic

Table 5 shows the models related to the regressions results for necessity-based entrepreneurship (NEC). All the model estimations except model 4 (by collinearity problem that we will discuss later) indicate that Governance Index influences negatively NEC (p<0.01). The results of random effects consistent models support our hypothesis *H1* proposing that the quality of institutions has negative influence on necessity-based entrepreneurship. Thus, a better working set of institutions reduces the propensity at country-level of necessity-based entrepreneurs.

Insert Table 5 about here

In testing the hypothesis *H2* we investigated the interaction between the governance index and country's stage of economic development. *Developed Country* variable and GDP are high-correlated and cause multicolinearity problems when both are introduced at the same time (i.e. Model 4). For this reason we tested two interactions between *Governance Index* one with *Developed Country* and one with GDP (i.e. Models 6 and 8). In terms of necessity-based entrepreneurship, the results of the model 8 suggest a positive interaction effect between the economic development and the *Governance Index* (p<0.05). Accordingly, our hypothesis *H2* is supported. Since the initial effects of both items (included in the interaction) on NEC are negative, the positive interaction illustrates that the negative effects are enhanced when the level of economic development improves. This suggests that the improvements in institutional quality have a negative effect on the prevalence of necessity-based entrepreneurial activities (reduce the propensity of population to be involved on NEC activities), particularly in developing countries where self-employment is a forced option on many people. Figure 1 shows the interaction effects for NEC model. The results show that in less developed countries the less opportune institutional governance increases the prevalence of NEC. If, however, the institutional governance improves, the prevalence of NEC decreases. Similarly, the results illustrate how in developed countries the prevalence of NEC is not remarkably affected by the quality of institutions.

Insert Figure 1 about here
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5. Discussion and conclusions

In this paper we analyzed the less addressed the relationship between the quality of institutions and the necessity-based entrepreneurship. By doing so, our results illustrate that the quality of institutions actually matters in entrepreneurship, but this mechanism contains some variation. Our findings suggest that necessity-based entrepreneurship is bound to the institutional quality. Thus, our work adds to the empirical evidence on the importance of institutional context in the level, motivations and quality of new venture creation across countries (Sobel et al. 2007; Bowen and De Clercq 2008; Bjørnskov and Foss 2008) following Baumol's (1990) propositions of the allocation of entrepreneurial activity. As Boettke and Coyne (2006) state, institutions can be understood as the formal and informal rules regulating human behavior and the enforcement of these rules. Entrepreneurship is the outcome of human behavior and the institutional environment—in this case its quality—will either enhance or hamper entrepreneurial activities. In this study we provide the analysis of the effect of economic development in the relationship between the quality of institutions and types of entrepreneurship. This aspect enabled us to study how the initial associations affecting types of entrepreneurship vary in relation to economic development.

Interestingly, our findings underscore that differences in institutional quality help to explain differences in entrepreneurship across developed and developing countries.

Our findings on necessity-based entrepreneurship activities have important implications for developing countries. The negative relationship between necessity-based entrepreneurship and the governance index confirms the influence of institutional quality on the allocation of entrepreneurship efforts. Drawing from Global Entrepreneurship Monitor's methodology necessity-driven entrepreneurs can be dictated both by pull and push factors (Williams 2009). The latter situation is very common in developing economies. On the other hand, some necessity entrepreneurs could be relevant for many economies because in many cases, despite the particularly small scale of the business, they can still be productive. Thus, necessity entrepreneurs are not necessarily less successful (Block and Sandner 2009) and not all opportunity-based entrepreneurs create successful business with high impact on job creation and economic growth.

Interestingly, our main finding illustrates that in less developed countries the less opportune institutional governance increases the prevalence of necessity-based entrepreneurship. If, however, the institutional governance improves, the engagement in necessity-based entrepreneurship decreases. This very mechanism highlights the importance of the quality of institutions in the allocation of entrepreneurial effort across countries. Further, our results show how in developed

countries the prevalence of necessity-based entrepreneurship is no longer remarkably affected by the quality of institutions. In general terms our results indicate that more economic development associated with the better quality of institutions reduce the prevalence rates of necessity-based entrepreneurship some of which is shaped by unproductive and non-innovative new business. (Anoknin and Wincent 2011; Shane 2009). For public policy, Leibenstein (1968: 83) suggests that attention be focused on: '*...the gaps, obstructions, and impediments in the market network of the economy in question and on the gap filling and input completing capacities and responsiveness to different motivational states of the potential entrepreneurs in the population*'. In this sense, the government institutions should converge to enhance the efficiency of the market, as well as to provide a general, opportune environment that is open to motivated entrepreneurs (Levie and Autio 2008). In developing countries, the institutional environment is usually embedded with the lack of regulations and rule of law (de Soto 2000), so many entrepreneurial efforts lead to large scale, predominantly unproductive activities rather than the more desirable productive activities. Thus, the institutional profiles in developing countries contrast with those of the high income developed economies that benefit from a sound regulatory base and well-established support for entrepreneurship (Manolova et al. 2008).

Our findings have important implications for public policy. The results suggest that for developing countries in general, the quality of institutions alone does not enhance or improve entrepreneurship but it strongly affects the type of entrepreneurial activity in a country. This implies continuing efforts for the reduction of unemployment and necessity-based entrepreneurship. But this kind of public policy, although indispensable, is insufficient. If developing countries do not consider the promotion of productive entrepreneurship as a main concern in their policy agenda (Wennekers et al. 2005), they will only reduce necessity-based entrepreneurship without achieving higher growth through opportunity-based entrepreneurship. Such governmental decisions require the creation of better national strategies to accelerate country growth and move more rapidly toward major innovation-based entrepreneurial activities (Acs and Amorós 2008). With an adequate environment, including the quality of institutions, entrepreneurship can help to improve the economic and social conditions for developing economies.

Even this paper suggests new avenues for future research on the relationship between entrepreneurial activity and institutions—specifically the quality of governmental institutions—our results are, in some sense, exploratory and more work is needed in this area. We recognize a series

of limitations many of which create opportunities for future research. First, the models of the present research could comprise other entrepreneurship and institutional variables. For example variables including formal registration of new firms versus informal sectors could be interesting to test with other type of institutional proxies. Second, if the longitudinal approach we used with panel data is novel, our approach was, however, embedded with assumption of linear relationships. Instead, the use of different specifications, such as non-linear and other sophisticated formulations, may produce varying results. Third, our research focused solely on country-level analysis which considers many relevant aspects known at this level. Unfortunately, at the same time our approach excluded some relevant aspects generated by the heterogeneity within countries and how national institutions might regionally shape different types of entrepreneurship. Accordingly, future research could include technics like multilevel analysis in order to assess related individual-level and regional level relationships between institutions and different types of entrepreneurship. Finally, we categorized economies into two groups. However, this aggregation could also be expanded to cover various stage of economic development. Thus, some economies could be classified based on different criteria which would enable deeper insights on the role of institutional quality in shaping entrepreneurship in different economies.

In conclusion, our findings illustrate that the quality of institutions has an influence on necessity-based entrepreneurial activity. Our findings also emphasize how does the level of economic developed moderate this influence. Given that at the country level the type of entrepreneurial engagement faces constant uncertainty, environmental change, and competitive forces, the quality of institutions seems to be particularly important in enhancing entrepreneurial activities in a country and later on the possible transformation from necessity-based entrepreneurship to opportunity-based entrepreneurship.

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Table 1: GEM Countries 2001-2011

	Observations count		
	Developing	Develop	NEC (average)
Algeria	2	-	3.23
Angola	2	-	9.7
Argentina	11	-	5.35
Australia	-	8	2.46
Austria	-	2	-.45
Bangladesh	1	-	3.49
Barbados	1	-	-.63
Belgium	-	11	-.49
Bolivia	2	-	7.55
Bosnia and Herzegovina	4	-	3.54
Brazil	11	-	5.54
Canada	-	6	2.03
Chile	9	-	4.38
China	8	-	7.26
Colombia	6	-	8.24
Costa Rica	1	-	4.28
Croatia	10	-	2.14
Czech Republic	2	-	2.25
Denmark	-	11	-.63
Dominican Republic	3	-	5.71
Ecuador	4	-	6.08
Egypt	2	-	3.08
Finland	-	11	1.01
France	-	11	1.07
Germany	-	10	1.49
Ghana	1	-	12.51
Greece	-	9	1.57
Guatemala	3	-	4.57
Hong Kong	-	5	1.15
Hungary	10	-	2.03
Iceland	-	9	-.8
India	5	-	3.05
Indonesia	1	-	2.62
Iran	4	-	4.86
Ireland	-	10	1.97
Israel	-	6	1.38
Italy	-	10	-.96
Jamaica	6	-	6.07
Japan	-	11	-.85
Jordan	2	-	2.73
Kazakhstan	1	-	2.6
Korea	-	6	3.98
Latvia	7	-	1.88
Lebanon	1	-	2.66
Lithuania	1	-	3.2
Macedonia	2	-	5.72
Malaysia	4	-	-.69
Mexico	7	-	2.92
Montenegro	1	-	5.55
Morocco	1	-	3.99
Netherlands	-	11	-.84
New Zealand	-	5	3.52
Nigeria	1	-	11.08
Norway	-	11	1.07
Pakistan	2	-	3.97

Panama	2	-	3.93
Peru	7	-	8.09
Philippines	1	-	9.32
Poland	4	-	3.14
Portugal	5	-	1.57
Puerto Rico	1	-	-.45
Romania	5	-	1.8
Russia	8	-	1.32
Saudi Arabia	2	-	-.75
Serbia	3	-	2.83
Singapore	-	7	1.27
Slovak Republic	-	1	3.91
Slovenia	-	10	-.65
South Africa	10	-	2.25
Spain	-	11	1.39
Sweden	-	9	-.81
Switzerland	-	7	-.8
Syria	1	-	3.12
Taiwan	-	3	1.54
Thailand	5	-	4.91
Tonga	1	-	5.75
Trinidad and Tobago	2	-	2.76
Tunisia	2	-	1.67
Turkey	5	-	2.61
Uganda	4	-	14.56
United Arab Emirates	4	-	-.92
United Kingdom	-	11	1.06
United States	-	11	2.27
Uruguay	6	-	3.13
Vanuatu	1	-	19.55
Venezuela	5	-	7.58
West Bank & Gaza Strip	2	-	3.24
Yemen	1	-	8.32
Zambia	1	-	10.49
TOTAL (averages)	227	233	3.71

Table 2: Correlation matrix for GDP and WGI indicators

		1	2	3	4	5	6	7
1	Control of corruption	1						
2	Government efficiency	.958**	1					
3	Political stability and no Violence	.841**	.818**	1				
4	Rule of law	.965**	.959**	.835**	1			
5	Regulation quality	.933**	.932**	.767**	.933**	1		
6	Voice & accountability	.867**	.853**	.783**	.887**	.826**	1	
7	GDP per capita PPP	.817**	.836**	.712**	.841**	.820**	.728**	1

** Correlation is significant at the 0.01 level (2-tailed).

Source: World Bank and IMF.

Table 3: Principal Component Analysis Matrix from WGI

	Component
Voice & accountability	0.878
Control of corruption	0.966
Government efficiency	0.969
Political stability and no violence	0.867
Rule of law	0.978
Regulation quality	0.948

KMO=.928, Barlett's p<.001

Table 4: Descriptive statistics and correlation matrix of the relevant variables

	Min.	Max.	Mean	S.D.	1	2	3	4	5	6
2 NEC	0.090	19.550	2.800	2.876	0.636	1				
3 Governance Index	-1.780	1.903	0.435	0.977	-0.284	-0.630	1			
4 GDP per capita (PPP)	912.19	59710.29	22588.69	13015.20	-0.341	-0.693	0.834	1		
5 GDP Growth	-18.00	14.20	3.043	3.767	0.263	0.273	-0.300	-0.338	1	
6 Developed country	0.000	1.000	0.510	0.501	-0.346	-0.622	0.808	0.831	-0.318	1

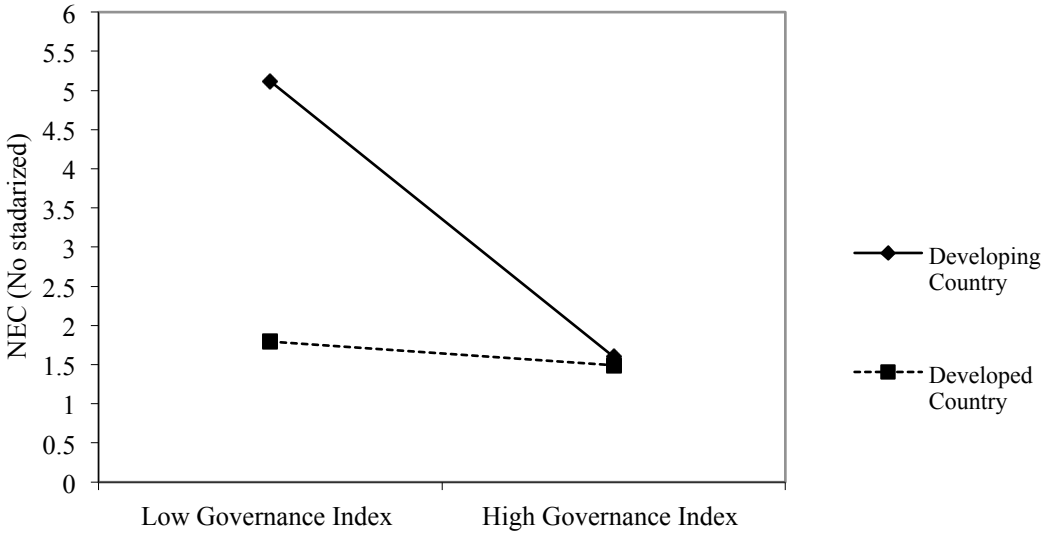
All correlations are significant at p<0.05
Valid N (listwise) 460

Table 5: Regressions results for necessity-based entrepreneurship (NEC)

	(1) OLS	(2) RE	(3) OLS	(4) RE	(5) OLS	(6) RE	(7) OLS	(8) RE
Governance Index	-1.708	-1.417	-0.843	-0.831	-2.045	-1.537	-1.771	-1.801
	(0.130)**	(0.245)**	(0.248)**	(0.491)	(0.349)**	(0.560)**	(0.281)**	(0.519)**
GDP per capita (PPP)			-8.53E-02	-8.53E-02	-1.40E-01	-1.46E-01		
			(1.947e-05)**	(4.018e-05)*	(2.170e-05)**	(4.401e-05)**		
GDP Growth			0.085	-0.029	0.048	-0.029	0.080	-0.035
			(0.042)*	(0.025)	(0.038)	(0.025)	(0.041)	(0.026)
Developed country			0.345	-0.024			-1.800	-2.434
			(0.331)	(0.828)			(0.286)**	(0.820)**
Interactions								
Developed x Governance							1.327	1.646
							(0.309)**	(0.708)*
GDP x Governance					7,68E-02	6,03E-02		
					(1.320e-05)**	(2.488e-05)*		
Constant	3.543	3.707	7.081	5.662	7.636	6.108	6.276	4.143
	(0.148)**	(0.296)**	(0.580)**	(0.904)**	(0.623)**	(0.909)**	(0.544)**	(0.478)**
R-squared	0.34	0.34	0.45	0.43	0.51	0.49	0.44	0.42
F	173.52**		22.48**		24.71**		22.84**	
Prob > F	0.000		0.000		0.000		0.000	
Wald Chi2		33.58**		174.57**		149.28**		168.49**
Prob >Chi2		0.000		0.000		0.000		0.000
Observations	460	460	460	460	460	460	460	460
Number of groups		89		89		89		89

Robust standard errors in parentheses. **Significant at 1%, *Significant at 5%. Control by year included not reported.

Figure 1: Interaction effects of Governance Index and degree of development (country level) in terms of necessity-based entrepreneurship



Edicions / Issues:

95/1	*Productividad del trabajo, eficiencia e hipótesis de convergencia en la industria textil-confección europea* Jordi López Sintas
95/2	*El tamaño de la empresa y la remuneración de los máximos directivos* Pedro Ortín Ángel
95/3	*Multiple-Sourcing and Specific Investments* Miguel A. García-Cestona
96/1	*La estructura interna de puestos y salarios en la jerarquía empresarial* Pedro Ortín Ángel
96/2	*Efficient Privatization Under Incomplete Contracts* Miguel A. García-Cestona Vicente Salas-Fumás
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