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Understanding the relationship between institutions and formal and informal entrepreneurial activity: The case of Latin American countries

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Abstract

The purpose of this thesis is to examine the influence of formal and informal institutions on the level of formal and informal entrepreneurial activity in Latin America countries. This was done using two panels. The first panel covered the period 2004-2015 with a dataset containing 180 observations in 18 Latin America countries, while the second panel covered the period 2006-2015 with a dataset containing 134 observations in 14 Latin America countries. Also, we have used the Latinobarómetro dataset, which has not been extensively used by scholars in the field of entrepreneurship and which could be useful for longitudinal research on entrepreneurial activity in Latin American countries.

In summary, using the percentage of the adult population identified as own-account workers as a proxy of informal entrepreneurial activity, the results suggest that informal entrepreneurial activity is more abundant in Latin American countries that have weak property rights, higher business regulation, and lower tax morale. However, stricter labor market regulation is associated with a less informal entrepreneurial activity rate. Regarding formal entrepreneurial activity, the impact of institutional variables depends on the definition employed: productive or legal. In the case of the productive definition, the results suggest that formal entrepreneurial activity is more substantial in Latin American countries that have weak property rights and lower tax morale. Conversely, from a legal definition, formal entrepreneurial activity is more significant in Latin American countries that have most secure property rights and fewer labor regulations. These contradictory results suggest that the legal definition of formal entrepreneurship, but not the productive definition, seems to be associated with the type of entrepreneurial activity that promotes economic growth and development. The results were maintained after controlling for some socio-economic factors, such as GDP per capita, the population growth rate, GDP growth rate, agricultural population, and education level.

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1 Introduction

1.1 Introduction

The importance of the entrepreneur as a relevant factor in economic activity was noticed long ago by classical economists such as Cantillon (1755), Say (1836) and Mill (1884). However, it was not until the first part of the 20th century that authors such as Knight (1985) and Schumpeter (1934) explicitly emphasized the entrepreneur's relevance in the economic process. From the predominance of the neoclassical approach, which reduced economic analysis to a framework of equilibrium (Baumol, 1968; Kirzner, 1973; Leibenstein, 1978), there was a period of exclusion of the entrepreneur, whose role can only be understood within a dynamic framework.

However, over the last few decades, there has been resurgence in academic work regarding the relevance of the entrepreneurial factor in the economic process (Baumol, 1968; Kirzner, 1973; Leibenstein, 1978; Audretsch et al., 2006). This has led to a substantial increase in the literature on entrepreneurship, and foremost, the relationship between entrepreneurship and economic growth (see Blanchflower, 2000; Carree et al., 2002; Carree and Thurik, 2003; Acs et al., 2004; Autio, 2005; Wennekers et al., 2005; Van Stel et al., 2005; Acs and Amorós, 2008).

On the other hand, the literature on economic growth has seen a significant explosion, from the seminal work of Solow (1956), later supplemented by the works of Romer (1986) and Lucas (1993), and through to the modern models of economic growth proposed by Aghion and Howitt (1998). However, none of these models explicitly incorporate the entrepreneur as an explanatory factor of economic growth. As Baumol (2010) argues, in traditional economic models, entrepreneurs are largely hidden, despite being present in certain interpretations.

The absence of the entrepreneur has been partly due to the difficulties of introducing it into the formal neoclassical models, by nature of the neoclassical model of the firm, "where there is no room for enterprise or initiative" (Baumol, 1968:67). Likewise, the fact that the economic mainstream sees the competition process in a static sense, through a balance of prices and quantities (Richardson, 1997), inevitably renders the entrepreneurial function invisible. For Buckley and Casson (2010:4), the non-incorporation of the entrepreneurial function in economic theory is due to the complication of incorporating this factor into the explanation of how markets work, and also due to the disagreements that exist with respect to the proper definition of entrepreneurship (Gartner, 1985; Shane and Venkataraman, 2000).

Undoubtedly, the entrepreneur's absence has limited the understanding of the processes of growth and economic development; this has meant the absence of public policies aimed

specifically at entrepreneurship. However, entrepreneurship's contribution to economic growth is important in terms of job creation, introducing innovation, and knowledge (Leff, 1979; Acs and Audretsch, 1988; Wennekers and Thurik, 1999; Audretsch et al., 2006). Moreover, the contribution of entrepreneurship goes deeper than the mere growth of national income, affecting human welfare and introducing new goods, services, and methods of production (Holcombe, 2007).

However, the relationship between Entrepreneurship and Economic Growth cannot be explained, or it is an incomplete analysis if there is no reference to institutions. As argued by Boettke and Coyne (2003:3) "... development is caused by the adoption of certain institutions, which in turn channel and encourage the entrepreneurial aspect of human action in a direction that spurs economic growth." For instance, for Baumol (1990) the supply of entrepreneurs between societies is relatively stable over time, and therefore, the important thing is to understand how the assignment of entrepreneurial talent to productive or unproductive activities is done. Baumol believes that the allocation of entrepreneurial talent will depend on the incentives offered by the institutional matrix.

In recent years, there has been a significant increase in research on institutions and entrepreneurial activity (Bruton et al., 2010; Álvarez et al., 2014). The evidence has pointed out the importance of institutional frameworks as an explanatory factor for the wide variation in entrepreneurial activity observed between countries and over time (Acs et al., 2008; Boettke and Coyne, 2009; Stenholm et al., 2013). Nevertheless, most of these studies have focused on the overall rate of entrepreneurial activity, despite the existence of different types of entrepreneurial activities (Baumol, 1990; Autio, 2008; Sobel, 2008; Larroulet and Couyoumdjian, 2009; Ardagna and Lusardi, 2008; Avanzini, 2011), many of which exhibit characteristics associated to the country-specific institutional context in which entrepreneurs operate (Urbano and Alvarez, 2014). Thus, some scholars consider it necessary to take into account the specific cultural and regional context (Peng, 2002; Desai, 2009; De Mel et al., 2010) and the heterogeneous nature of entrepreneurial activity (Baumol, 1990; Bowen and De Clercq, 2008; Desai, 2009; Stenholm et al., 2013). Furthermore, less interest has been devoted to developing countries (Naudé, 2010; Amoros, 2011), such as those in Latin America (Alvarez et al., 2014; Urbano and Alvarez, 2014; Aparicio et al., 2016), and the time dimension (Desai, 2009; Stenholm et al., 2013; Dau and Cuervo-Cazurra, 2014; Thai and Turkina, 2014).

Baumol's seminal paper (1990) regarding the importance of institutional frameworks on the allocation of entrepreneurial talent among productive, unproductive or destructive activities has been highly valuable, particularly as it stressed the importance of focusing not only on the level but also the type of entrepreneurial activity taking place within a specific society, as a product of returns provided by the institutional matrix. This approach involves assuming that the type of entrepreneurial activity selected by entrepreneurs will be influenced by the profit rates of alternative activities (El Harbi and Anderson, 2010), some of which will be coherent with economic growth, whilst others will not (Boettke and Coyne, 2003; Coyne and Leeson 2004; Stenholm et al., 2013). Therefore, the institutional matrix will define the type of entrepreneurial activities that will become the main recipients of entrepreneurial talent (Murphy et al. 1991; Acemoglu, 1995).

However, Baumol's categories are centered on the results of entrepreneurial activities, not taking into account those activities that are inherent to specific economic and cultural contexts associated with developing countries. For example, Desai (2009) identifies three types of entrepreneurial activities normally found in developing countries: legal-illegal, opportunity-necessity, and formal-informal. Although the first two categories have been the subject of extensive research (see Broadman and Recanatini, 2001; Reynolds et al., 2002; Fadahunsi and Rosa, 2002; Acs and Varga, 2005; Williams, 2007; Aidis and Van Praag, 2007; Rosa et al., 2006; Margolis, 2014, among others), there are fewer studies focusing on the latter (Nyström, 2008; McElwee, 2009; Godfrey, 2011; Webb et al., 2013; Dau and Cuervo-Cazurra, 2014; Autio and Fu, 2015), despite the fact that informal entrepreneurship is considered as a significant source of employment (ILO 2011) and an important means of reducing poverty in developing countries (Tokman, 2007; Bruton et al., 2013).

Although informality is a multidimensional phenomenon and some causes have their origin in elements related to the productive structure and the social and demographic characteristics of a country, the thesis will focus on the institutional causes, because in the last decades, as a result of the work of Hernando de Soto (1989) and his book "The Other Path", they have been mentioned as key determinants of informality in Latin America.

1.2 Research Objective

The thesis is built on the works of North (1990) and Baumol (1990). For North (1990, 2005) the definition of institutions includes both formal (conventions, laws, economic rules, property rights, and contracts) and informal rules (conventions, norms of behavior, and self imposed rules of behavior). The work includes both types of institutions, since any institutional analysis should attempt to incorporate both because their relationship is unidirectional, either competing or mutually reinforcing (Helmke and Levitsky, 2004; Lauth, 2015). In addition, based on the ideas of Baumol (1990), the work will focus on formal and informal entrepreneurship, which are the types of entrepreneurial activities prevalent in Latin American countries (Tornarolli et al., 2014).

On the other hand, although there has been a growing literature analyzing the relationship between entrepreneurship and institutions, it has been mostly static or at best has covered short periods of time (Urbano and Alvarez, 2014; Alvarez et al., 2014). Although institutions are stable and resistant to change (Jepperson, 1991), they are not immutable; rather, their change process is slow and presents incremental characteristics (North, 1990; Williamson, 1998). For this reason, the time dimension becomes relevant. In addition, very little is known about the relationship between entrepreneurship and institutions in a context of institutional change. The objective of the thesis is to analyze the influence of institutional factors across countries over time and on types of entrepreneurial activities that are specific to developing countries.

The present work aims to contribute to increasing the research on formal and informal entrepreneurial activity, using institutional theory (North, 1981, 1990, 2005; Baumol 1990) as a conceptual framework. Additionally, the research attempts to understand the way in which the institutional framework shapes formal and informal entrepreneurial activity. This point is crucial to improving the design of public policy and regulations aimed to reduce informality.

1.3 Research Question

The research seeks to shed some light on the following issues: How does the formal and informal institutional framework shape formal and informal entrepreneurial activity in Latin American countries over time? Is the informal sector an incubator of entrepreneurs with a restricted growth potential due to excessive regulatory burden, lack of property rights and extended corruption, or does the informal sector act as a haven for millions of unemployed individuals who invent jobs in order to survive while waiting for better employment opportunities in the formal sector?

The last two questions reflect two views which have framed the debate on informality (De Mel et al., 2010). The first is related to De Soto (1989), who argues that own-account workers are entrepreneurs excluded from the formal sector as a result of high transaction costs imposed by national regulatory frameworks (Perry, 2007). The view offered by De Soto (1989) highlights the entrepreneurial capacity of the informally self-employed and coincides with several works reporting that numerous self-employed workers initiate their informal activities by necessity and that these turn into opportunities over time (see Kodithuwakku and Rosa, 2002; Williams, 2008; Rosa et al., 2006).

The second is related to Tokman (2007), and the dual economy theory of development (Lewis, 1954). The scholars following this view considered that informal entrepreneurship arises as a product of failures by the economic system to generate sufficient productive employment. Therefore, informal activities are often undertaken by necessity, and are temporary due to a lack of employment in the formal sector (see Tokman, 1987; Freije, 2002; Banerjee and Duflo, 2005; La Porta and Shleifer, 2008, 2014; Mondragón-Vélez and Peña, 2010; among others).

1.4 Methodology

1.4.1 Research Philosophy

The research process not only needs to answer the question How to research? and What to research?, but also Why research? (Holden and Lynch, 2004). This last question is related to the philosophy that supports the research. The present study is based on an objective approach to research. This means that reality is objective and that knowledge about social phenomena can be discovered and explained. One of the assumptions of the objective approach is that there are causal laws that explain regularities in human social behavior (Mark et al., 1991). Therefore, the research will follow an empirical approach, and thus we will try to seek generalizations from a broad sample through a hypothetic-deductive process (Popper, 2005). This means that the hypothesis will be verified or rejected based on the obtained results. Therefore, it is necessary to use the methodological tools best suitable to respond to the research phenomenon.

1.4.2 Method

As previously established, this research aims to analyze the relationship between formal and informal rules and formal and informal entrepreneurial activity for different Latin American

countries over several time periods. For this, we will use panel regression techniques (combining a cross-section and a time series). A panel data methodology has several advantages over conventional OLS techniques. For instance, OLS techniques are not suitable for explaining any variation in our dependent variable over time. This is because OLS estimators ignore the panel structure of the data. Therefore, if we analyze several periods of time, the OLS estimators will be biased and inconsistent (Wooldridge, 2002). The panel data methodology allows many of these deficiencies to be addressed.

On the other hand, an analysis of institutional change over time is relevant, especially for developing countries. In the words of Stenholm et al. (2013:190) "The results related to high - income countries are likely to remain relatively stable over time, but the analysis of the institutional changes in developing countries seems to us to warrant further investigation." Therefore, the panel data methodology will allow us to adequately address the research questions and thus to draw conclusions and useful recommendations for public policy. Also, the statistical approach chosen is consistent with that used in several works about entrepreneurial activity and institutions over various periods of time (see Nyström, 2008; Levie and Autio, 2011; Klapper et al., 2011; Dau and Cuervo-Cazurra, 2014; Cullen et al., 2014; among others).

1.4.3 Data

The sources of information to obtain our dependent variables come from two panel data. The first is derived from the Latinobarómetro dataset. The Latinobarómetro Corporation is a non-profit NGO headquartered in Santiago de Chile that receives funding from some organizations such as: IADB (Inter-American Development Bank), UNDP (United Nations Development Program), AECI (Agencia Española de Cooperación Internacional), SIDA (Swedish International Development Cooperation Agency), CIDA (Canadian International Development Agency), CAF (Corporación Andina de Fomento), and OAS (Organization of American States) among others. The surveys have been conducted in the region since 1995 until the present date; however, since 2004, the surveys have presented a national coverage of nearly one hundred percent for all countries and a common questionnaire leading to harmonized data.

The surveys have consisted of approximately 1,000-1,200 individuals per country, representing more than 600 million inhabitants. The methodology applies a modified probability sample, probabilistic in three stages and quotas in the final stage. The samples are representative of the

adult population of each country, with a margin of error of approximately 3%. The surveys are aimed at the adult population over 18, except in Brazil and Nicaragua, where the legal age is 16. The entire survey is treated as a sizeable region-wide sample with the weights assigned in the whole dataset for each individual and country. Also, the survey ensures representation across gender, socioeconomic status, and age.¹ The survey is comparable to the Eurobarometer survey for European countries in design and focus.

For the present work, we used the survey waves that include the period 2004 to 2015 for 18 Latin America countries.² Countries included in our sample are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. That is, data are available not only for a cross-section of countries but also for various consecutive periods per country. Another advantage of Latinobarómetro is that it is harmonized ex-ante and is suitable for cross-country studies. Besides, the dataset allows for consideration of the heterogeneous nature of entrepreneurship. That is, the database distinguishes between own account workers and business owners, excluding agricultural sectors. The labor categories were identified in the survey through the following question:

What type of employment do you have?

”A”. Self-employed

1. Professional (doctor, lawyer, accountant, architect)
2. Business owner
3. Farmer/fisherman
4. Self-employed, informal

”B”. Salaried employee

5. Professional
6. Senior management
7. Middle management
8. Other

¹All the information about sample design, method of selection of respondents, sample size, etc, can be found at <http://www.latinobarometro.org>.

² There were two years when the survey was not conducted: 2011 and 2014.

The use of the Latinobarómetro dataset has been unusual in the field of entrepreneurship. However, its use has been more extensive in other fields of social sciences. For example, the survey has been exploited in studies on the Economics of crime (Gaviria and Pages, 2002; Wood et al., 2010), Political studies (Altman, 2002; Benton, 2005; Pearce, 2010; Daude and Melguizo, 2010), Labor economics (Lora and Marquez, 1998; Aguilar et al., 2013), Economics of education (Neidhofer et al., 2017), and Gender studies (Desposato and Norrander, 2009; Zetterberg, 2009) among others. For instance, Graham et al. (2001; 2004; 2006; 2011) have consistently used information from Latinobarómetro to conduct empirical studies on economics and happiness in Latin America.

Furthermore, the survey has been used in institutional studies. For example, Torgler (2005), in a study on tax morale in Latin America, made a comparison between the World Values Survey and the Latinobarómetro dataset and concluded that the average tax morale values in both datasets are similar. Likewise, Brañas-Garza et al. (2009) used information from Latinobarómetro to explore the effects of religious observance and affiliation on generalized and institutional trust in Latin American countries. Lastly, the information from Latinobarómetro has been used for the construction of The Worldwide Governance Indicators (Kaufmann et al., 2007) such as the Rule of Law index.

On the other hand, the paper of Aguilar et al. (2013) used the Latinobarómetro dataset, and they followed a strategy similar to our research. That is, the authors focused on the different labor categories that belong to self-employment, such as described in the survey question shown above. The objective of the work was to determine if there were differences among these categories regarding work and life satisfaction. The authors concluded that business owners are more satisfied with their jobs and life than the rest of the groups. Therefore, these findings support our decision to treat these two categories as different types of entrepreneurial activities. In other words, business owners are more associated with traits and characteristics of entrepreneurs, such as autonomy and flexibility. Instead, own account workers are entrepreneurs who are more motivated by push factors than by pull factors.

On the other hand, Neidhofer et al. (2017) made an explicit comparison between the Latinobarómetro dataset and Household surveys in a study on intergenerational mobility for Latin American countries. The authors found that the two harmonized survey sets yield very similar

statistics in trends and levels. Further down, we will do a comparison of the Latinobarómetro data against the Global Entrepreneurship Monitor (GEM) and Household Surveys from Socio-Economic Database for Latin America and the Caribbean (SEDLAC).

The other survey is The World Bank Group Entrepreneurship Survey (WBGES). The survey has been designed to be comparable across countries and measures formal entrepreneurship as the number of new officially registered limited liability corporations (Klapper et al., 2010). The WBGES includes data from 14 out of 18 Latin America countries from the year 2006. Three nations do not have information for all years; it is, therefore, an unbalanced panel.³ Countries included in our sample are: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Mexico, Panama, Paraguay, Peru and Uruguay. The database has been widely used in the field of entrepreneurship (see Klapper et al., 2010; Acs et al., 2008; Dau and Cuervo-Cazurra, 2014; Autio and Fu, 2015).

For example, Acs et al. (2008) made a comparison between the WBGES and GEM databases. The authors concluded that the two surveys measure distinct issues and that WBGES is suitable for analyzing formal entrepreneurship. “The WBGES measures rates of entry into the formal economy, and even more specifically, entry in the form of LLC establishments” (Acs et al., 2008: 266). Among the limitations of the data, it is questionable to assume that only limited liability corporations (LLCs) adhere to prevailing legal regulations; furthermore, the database does not report the number of closed businesses (Acs et al., 2008).

Moreover, the information provided by our institutional variables comes from data sources with widespread use in empirical research on institutions: the World Bank Doing Business Project, World Bank's Governance Indicators Project, Heritage Foundation, Fraser Institute and Organization for Economic Cooperation and Development (OECD). Also, the variables used for informal rules come from Latinobarómetro, whose information, as explained above, has been consistent when it has been compared with other more commonly used surveys, such as the World Values Survey.

Finally, we will use an additional measure of informal entrepreneurial activity. The purpose is to carry out checks of robustness and thus test the reliability of the results obtained with the Latinobarómetro dataset. This measure comes from the ILOSTAT database (International Labor Organization statistics) and corresponds to the percentage of the active workforce that is an own-

³ Argentina: 2015 missed; Colombia: 2013 missed; Guatemala: 2012, 2013, 2014 and 2015 missed.

account worker. ILOSTAT collects this information mainly from household surveys for each country. However, ILO makes estimates and projections, if a country does not have data in a specific year. To do this, they apply the ILO's Trends Econometric Models (TEM). These make it possible to obtain a balanced panel dataset with consistent country coverage. It should be noted that the measure of informality from ILOSTAT includes agricultural own-account workers.⁴

Comparing Latinobarómetro with Other Survey Data

The Latinobarómetro Dataset has not been used extensively by academics in the field of entrepreneurship. For this reason, we will proceed by comparing this data with other better-known surveys in research on entrepreneurship and informality: the Global Entrepreneurship Monitor (GEM) and the Household Surveys from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC). As previously mentioned, the main reason for selecting Latinobarómetro is the time-consistency of its data for all the countries in the region (10 years and 18 countries) and the possibility to categorize entrepreneurial activities.

GEM and SEDLAC report information which is relatively similar to that of Latinobarómetro in terms of separating individuals between entrepreneurs (business owners and self-employed) and salaried employees. Basically, the rates of total entrepreneurial activity of each survey were compared in order to show that the data from Latinobarómetro are consistent with those obtained by other surveys. Although not all countries are covered by all the surveys and for different years, we have attempted to establish a comparison using countries for which there is information on both surveys and for the same periods.⁵

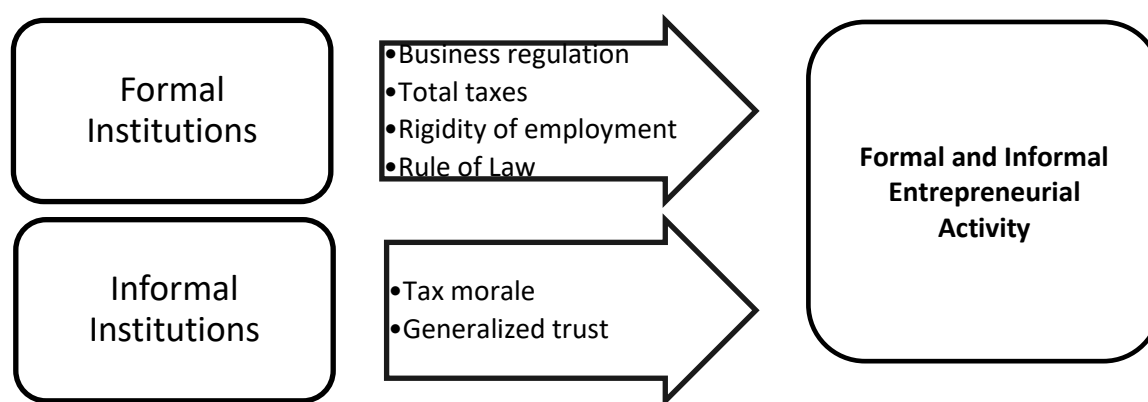
The objective is to ensure the highest possible level of comparability, always taking into account that these surveys have been conducted for different purposes. When comparing SEDLAC and Latinobarómetro, the percentage of individuals involved in total entrepreneurial activity is very

⁴ Information about methodological issues can be found at <http://www.ilo.org/ilostat>

⁵ i) Total Entrepreneurial Activity rate (GEM): I added two measurements calculated in GEM: Total early-stage Entrepreneurial Activity (TEA) and Established Business Ownership Rate.
 ii) Total Entrepreneurial Activity rate (SEDLAC): I added three categories defined in the survey: entrepreneurs (employers), qualified self-employed workers and non-qualified self-employed workers (includes farmer/fisherman self-employed).
 iii) Total Entrepreneurial Activity rate (Latinobarómetro): I added four categories defined in the survey: 1) Professional (doctor, lawyer, accountant, etc), 2) business owner, 3) farmer/fisherman, and 4) own-account workers or street peddlers.

similar in both cases (32.5% in SEDLAC and 33.8% in Latinobarómetro). The difference is slightly more notable when comparing GEM and Latinobarómetro (30.5% in Latinobarómetro and 27.1% in GEM). This difference probably reflects the fact that there is greater compatibility in the definition of labour categories between SEDLAC and Latinobarómetro. Likewise, the level of correlation between SEDLAC and Latinobarómetro at 1% significance is 0.58, whereas the level of correlation between GEM and Latinobarómetro at 1% significance is 0.51.

Figure I. Conceptual Model



1.5 The structure of the study

The thesis is structured as follows: Chapter 2 describes the theoretical framework that supports the research. Basically, the second chapter covers the most relevant academic literature on institutions, social capital, and entrepreneurship. It also details the literature of entrepreneurship that has used institutional theory to explain the levels of total entrepreneurial activity, and specifically, the types of entrepreneurial activities that are typical of developing countries. Finally, the chapter describes the gap found in the literature.

The following three chapters correspond to the articles themselves. The first article (Chapter 3) analyzes the empirical relationship between formal institutions and informal entrepreneurial activity. On the other hand, in the second article (Chapter 4) we discuss the empirical relationship between informal institutions and informal entrepreneurial activity. Next, the third article (Chapter 5) analyzes the empirical relationship between formal and informal institutions and formal entrepreneurial activity.

Furthermore, Chapter 6 describes some conclusions, identifies limitations and suggestions for future research, and establishes some implications for policy makers. Finally, Chapter 7 contains all the references mentioned in this thesis.

2 Literature Review

2.1 Institutions: A general overview

According to North (1990: 3) "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic." For North, in the same way as technology has been a response of human beings to the challenges imposed by the physical environment, institutions become a response to the challenges imposed by the social environment. On an economic level, the institutions aim to reduce the level of uncertainty that arises when individuals make economic transactions.

With the emergence of New Institutional Economics in recent decades, thanks to the pioneering work of Ronald Coase (1937), Olivier Williamson (1985), Douglas North (1990), and Elinor Ostrom (2015), institutions return to the central place that they had decades ago in the economic debate, as essential factors in the explanation of economic performance of society. Through its analytical framework, it has been possible to understand the causes of the differential performance of economies over time. Unfortunately, the traditional analytical framework based on the assumptions that govern the neoclassical economics has been very limited in the explanation of these differences (North, 1981).

The origins of New Institutional Economics go back to the older institutional economics that emerged at the end of the 19th century and at the beginning of the 20th century, under the figures of some American economists such as Thorstein Veblen, John Commons, and Wesley Mitchell. All of them shared the belief that institutions matter for the economic development and pointed out the importance of the historical aspects in the explanation of the levels of development observed in different countries.

On the other hand, while it is true that the old institutionalism took a distance from the neoclassical ideas, New Institutional Economics tends to reconcile and adapt the neoclassical approach and thus to explain economic change from an institutional point of view. However, the use of the neoclassical tools in the New Institutional Economics approach is quite nuanced, especially since it deviates from the so-called neoclassical rationality. According to the standard neoclassical approach, individuals have complete information with regard to the different sets of elections and their calculated capability to process all of this information is unlimited. For North (1990) the real world operates under assumptions of incomplete information and limited computational capabilities of the economic actors.

New Institutionalism prefers to embrace the concept of bounded rationality, developed by Simon (1965). According to this concept, the decision-making process is conditioned by cognitive limitations such as knowledge and computational capabilities. Likewise, in the neo-classical world, agreements between economic actors are performed costless (Coase, 1937). In other words, when two individuals become engaged in economic exchange, all the information relating to the good or service is available and also the enforcement of contracts is carried out at a minimum cost (North, 1990).

However, the economic reality is very different. The market economy presents several failures such as asymmetric information (Stiglitz, 2002) and opportunistic behavior of the economic agents (Williamson, 1996). Moreover, the contracts usually are incomplete and the agents spend an enormous amount of resources on monitoring and enforcement of the contracts (Williamson, 1985). Institutional Economics tries to incorporate these realities in its analytical framework and understand the world from reality, rather than make use of artificial devices such as unlimited rationality and complete information (North, 2005).

2.1.1 Formal and informal institutions

For North (1990) the definition of institutions includes both formal (constitutions, laws, economic rules, property rights, and contracts) and informal rules (convention, norms of behavior, and self-imposed rules of behavior). Formal institutions are rules and procedures that are created, communicated, and enforced through channels widely accepted as official (Helmke and Levitsky, 2004).

The analysis on formal rules has been emphasized mainly by the so-called "transaction cost" school of economics whose core of research are the contracts that allow minimizing opportunistic behavior of economic agents (Williamson, 1985). These ideas come from the seminal work of Coase (1937) concerning the importance of transaction costs as explanation for the existence of the firm. Neo-institutionalists have pointed out the weakness of property rights and public over-regulation as the main sources of high transaction costs that inhibit or limit economic activity (Williamson, 1985; North, 1990; Coase, 2012).

In addition, higher transaction costs, expressed in weak property rights, might discourage entrepreneurs from accumulating capital and innovating (Rodrik, 2000). Alternatively, excessive regulation burden can lead to encouraging types of entrepreneurial activities which are not

consistent with economic growth, as documented by De Soto (1989) in a case study on the informal economy in Peru. In this study, De Soto determined that formal rules stifled entrepreneurship, and thereby entrepreneurs were forced into the informal economy. In the same way, the presence of weak formal institutions can lead to the foundation of organizations that are adapted to these circumstances or status quo and will challenge any process of institutional change (North, 1990).

Altering formal institutions with the purpose of modifying the incentives of economic actors has traditionally been a key strategy of the developing countries (North, 2005). That means that the problems of economic stagnation or the difficulty of sustaining economic growth that overwhelms many developing economies may not be related to a lack of entrepreneurship among the members of their societies, but rather to the lack of an institutional context that allows the type of entrepreneurial activity which is beneficial to society to take place (Sautet, 2005; Rodrik, 2008).

On the other hand, although the institutions by their own function should be stable to generate certainty, this does not mean that they are immutable. Institutional change has been a constant in economic history. However, it seems to have characteristics which are incremental rather than revolutionary. The reason is the importance of the informal rules that constrain any deliberate change caused by a revolutionary event or through the enactment of a new Constitution, which unexpectedly changes the legal structure of a society (North, 1990).

Norms, values, and traditions (informal rules) are fundamental pillars that sustain the economic, political and social institutions and that represent the belief system of a society (Elster, 2000; Dasgupta, 2011). Informal rules are those that connect the past with the present and the future. Generally speaking, institutions come to be devices created by humans to transmit the learning of one generation to future generations through what is called culture, and that becomes part of the belief system of that generation (North, 2006). As Hayek (1960: 27) argues, the culture is "the transmission in time of our accumulated stock of knowledge." Furthermore, the culture conditions the way that human beings conduct their cognitive process, perceive reality, and make decisions (North, 2005).

It should be emphasized that a significant proportion of the research and evidence on social norms has not been developed by the new economic institutionalism, but by the literature of Social Capital (Keefer and Knack, 2008), through the pioneering work of Bourdieu (1985), Coleman (1988) and Putnam (1993). For Putnam (1993:167) "Social capital refers to characteristics of the social organization, such as trust, norms, and networks that can improve the efficiency of society

by facilitating coordinated actions". Bates (1988) called these characteristics "soft solutions". For Bates, institutions are based mainly on concepts such as community, symbolism, and trust (informal rules) rather than notions of contracts, coercion, and punishment (formal rules).

Helmke and Levitsky (2004: 727) define informal institutions as "socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels." For Raiser (1997: 4), "Informal institutions encompass a whole array of social and moral norms that constrain individual behavior and thereby allow for the coordination of expectations in social and economic exchange." Informal rules are very relevant, since individuals' behavior not only depends on or is shaped by written rules, but by the process of socialization in which individuals are embedded during their life (Granovetter, 1985).

For example, authors such as Putnam (1993) point out the importance of civic values while Fukuyama (1995) points out trust. In the field of entrepreneurship Kostova (1997), refers to the high appreciation for entrepreneurship in society. In addition, social capital is relevant for entrepreneurship because the concept has a direct relationship with social networks, which in turn is a very important element for the entrepreneurial process (Aldrich, 2008). Societies which have a greater stock of the elements mentioned above are more prone to cooperation, by reducing transaction costs and enabling economic exchange which otherwise could not be carried out (Fukuyama, 1995; Knack and Keefer, 1997; Keefer and Knack, 2008).

On the other hand, in a process of economic change, formal institutions represent only part of the story. For example, even if there is the motivation and political consensus to replace inefficient formal institutions with efficient institutions that promote entrepreneurship, economic growth and social welfare, the system of rules, values, and beliefs prevailing in a society (Coleman, 1988; Putnam, 1993; Fukuyama, 1997) might condition the effectiveness and depth of any process of deliberate institutional change (North, 1990; Hoffman, 1999; Hodgson, 2003; Boettke et al., 2009).

As argued by North (1990) the complex interactions between formal and informal rules, together with the manner in which they are enforced is what constitutes social life. According to Lauth (2015) the relationship between formal and informal institutions varies significantly. Thus, informal and formal institutions may: (1) compete with each other, (2) reinforce each other, or (3) maintain a neutral relationship. Similarly, authors such as Helmke and Levitsky (2004) considered that informal institutions can be functional or dysfunctional. Informal rules are functional, when providing solutions to problems of interaction and social coordination that improves the efficiency

of formal institutions. On the other hand, they can be dysfunctional when they undermine the performance of formal democratic, market, and state institutions, such as clientelism, corruption, and patrimonialism (Helmke and Levitsky, 2004). Hodgson (2006: 18) argues: "To put it differently, legal or 'formal' institutions that do not have strong 'informal' support are unsupported legislative declarations rather than real institutions."

2.1.2 Institutions and Economic Growth

There exist three key factors that explain economic change: demographics, technology, and institutions (North, 2005). While there is a relationship between them, institutions seem to be the fundamental variable in the explanation of the vast disparities in economic performance between countries (Acemoglu et al., 2000, 2005; Rodrik, 2000). As stated by North (2005) the structure that humans create to order their political and economic environment is the basic determinant of economic performance.

Also, as mentioned before, institutions not only address formal rules arising from the legal framework of a country; the concept is much broader and includes informal rules related to norms, values, and traditions that are present in everyday life and that direct most of our social interactions (Greif, 1996). In fact, informal rules are those that allow for a stable and predictable social coexistence, so that people do not have an attitude of distrust towards economic or social exchange (Elster, 2000). If we look at world economic history, for a long time economic exchange was limited to small groups of society and the exchange was supported by informal rules such as customs, traditions and norms embedded in family and religious ties (North, 1990; Greif, 1993).

Viewed from a game theory perspective, when economic exchanges take place between a limited numbers of players who are regularly involved in economic exchanges (repeated games), the dominant strategy is cooperation. This means that the likelihood of defection by one of the players is low, and that it can be possible to maintain the economic exchange without the necessary presence of a third party to enforce contracts (State). In this case, informal rules become a substitute for formal rules. For instance, the ostracism that many communities impose upon those who do not respect the agreements is an important incentive to prevent deviations from the original agreements (North, 1990; Greif, 1996).

However, problems arise when impersonal economic exchanges take place (geographically distant individuals carrying out economic exchanges). There is no doubt that economic

specialization was one of the key elements in achieving the great leaps of productivity observed in the last few centuries. Nevertheless, specialization demands the existence of large markets (Smith, 1827), that is to say that it involves impersonal economic exchanges in which cooperative outcomes observed in repeated games are no longer reached. As a consequence, there will be an increase in transaction costs, which in turn means that society must generate formal institutional structures in order to try to minimize them (North and Weingast, 1989).

According to North (1990), under a basic societal structure, transaction costs are very low. As a consequence, it is easy to carry out economic exchanges and monitor and enforce contracts (since norms, values, and traditions mean that agreements are met). However, the transformation (production) costs are high, that is, those which represent the way to combine the different factors of production for a given product (production function). This in turn is closely linked to the fact that in a closed economy, specialization is very limited, and therefore firms can not exploit the gains from trade to the maximum.

In other words, economic development is inevitably linked to the ability of economies to expand impersonal economic activity. Nevertheless, this produces an economic trade off. In a society dominated by impersonal economic exchange, the transformation costs decline: the productivity of the economy increases, pushed largely by specialization. However, on the other hand, the transaction costs increase: the costs of measuring the tangible and intangible attributes of what is being exchanged and the costs of monitoring and enforcement of contracts increase (North, 1990). This means that, in these types of economy, the aim of economic agents is not only to maximize their incomes but to try to minimize those costs of transaction through the design of efficient economic institutions.

Therefore, economic development will emerge in those economies that achieve an institutional framework that minimizes transaction costs. The reason why some societies have been more effective than others in developing efficient institutions that minimize transaction costs, depends largely on the economic, political and social history of each country (Glaeser and Shleifer, 2002; Acemoglu et al., 2005). For these reasons, to understand the institutional context that prevails at present in Latin America countries and its consequence on economic growth and entrepreneurial activity, it is necessary to take into account its particular historical process, largely tied to its colonial past. In addition, this will make it possible to put the empirical results into context, which are presented in subsequent chapters.

2.1.3 Institutions and Economic Development in Latin-American

Some institutions are formally designed in the political arena through the interactions and pressures from various groups in society. These groups share interests and have enough strength to preserve the status quo or promote institutional change (Acemoglu and Robinson, 2006). The power accumulated by interest groups is the result of a complex historical process (North et al., 2000). These ties, which link the past with the present are what North (1990, 2005) calls "path dependence". In other words, the ways in which institutions and beliefs were developed in the past restrict the feasible choices in the current period (North, 2005).

North et al. (2000); Acemoglu et al. (2000, 2002); and Engerman and Sokoloff (2002) are scholars who have pointed out the importance of the institutional framework during the colonial era, as an explanation for economic performance observed at present in Latin American countries. Though they differ on some issues, all these scholars agree that the Spanish designed an institutional structure that protected the property rights of small elite but at the same time, the rights of the indigenous population were not recognized. All of this led to an unfair social structure which especially meant inequality in terms of legal status and political rights (Coatsworth, 2005).

As a result, the economic institutions created during the colony produced prosperity and wealth for the small elite that controlled political power (Acemoglu et al., 2005). Although this pattern persisted after independence, the critical economic situation inherited from the costly independence wars led to the emergence of new social forces that began to exercise a real counterweight to the power of the traditional colonial elite. The objective of the emerging social forces was to assert control in order to modify the existing political and economic institutions. Consequently, during the following fifty years nearly all the Latin America countries had experienced chronic violence and social conflict that depressed entrepreneurship (Coatsworth, 2005).

On the other hand, for North (1990), institutions are the rules of the game that govern society and the organizations are their players. The incremental nature of institutional change is related to the presence of organizations that were created to maximize profits offered by the prevailing institutional matrix (Baumol, 1990); that is to say, these organizations will try to perpetuate the current institutional structure because they are adapted to survive in this context, and therefore will destine resources to avoid any possibility of institutional change (North et al., 2009). For North

(2008) the institutional framework provides the incentive structure that dictates the kinds of skills and knowledge perceived to have the maximum payoff.

In the case of Latin America, this has had consequences on entrepreneurship and especially on types of entrepreneurial activity identified with long-term economic growth such as productive entrepreneurship (Baumol, 1990; Baumol et al., 2007). For instance, the past and current institutional framework has been designed to benefit organizations linked particularly to trade and commodity exports. As a result, these organizations have been reluctant to support institutional change that promotes innovative entrepreneurship related to technological change. Linked to the above, it is likely that the prevalence over time of informal entrepreneurial activity generated the specialization of some economic agents in such activities, and thus, they were tailored to those rules. All of this makes it difficult for these organizations to migrate to types of entrepreneurial activities that are more efficient from the economic viewpoint as formal entrepreneurial activities. As established by Schumpeter (1934), the organizations and their entrepreneurs are very fearful of the creative destruction process, which normally reconfigures the whole economic, political and social structure and thus threatens vested interests by the prior institutional matrix. Therefore, the economic elite will try to maintain the status quo, mobilizing their political power.

The above is mainly explained by the fact that the creation of new industries will mean that current organizations have to compete for resources, such as labor and capital, with new organizations (Schumpeter, 1934; Kirzner, 1973). In addition, the entry of new entrepreneurs may weaken the political position of the current economic elite and thus its ability to generate a structure of property rights that benefit their economic activities (Acemoglu and Robinson, 2006). This is in line with Schumpeter (1934), for whom normally the new enterprises comes from "outsiders" to the industry, Therefore, the economic opportunities will be blocked to individuals with the necessary entrepreneurial talent but outside of the interests of the current economic elite (Haber, 2013).

On the other hand, authors such as North (1990) and Acemoglu and Robinson (2012) have pointed out the tendency of societies to institutional inertia, when there exists an excessive power of tiny political and economic elite who will have the incentive to subvert any strategy of institutional change. For example, De Soto (1989) used the theoretical framework proposed by Douglas North to explain the dynamics of informal entrepreneurship in his native Peru. De Soto concluded that the presence of a deficient regulatory and legal framework is due to the historic

presence of interest groups that are more centered on how to redistribute wealth rather than generate it (De Soto, 1989). De Soto termed these types of societies as mercantilist states, which are a legacy of the Spanish colonial system. The mercantilist state has created incentives for economic and political groups to compete in order to influence public policies. This has generated high transaction costs and which in turn are the main causes of the informal economy. Likewise, Glaeser et al. (2003) argues that in extremely unequal societies, the powerful have subverted the political, regulatory and legal institutions of society for their own benefit. As a result, small elite makes all investments, while the rest of the population has no access to productive investment and political power (Glaeser et al., 2003).

2.2 Entrepreneurship: A general overview

The absence of the entrepreneur in economic theory has been due mostly to disagreements that have existed over time with respect to the definition of entrepreneurship (Baumol, 1968). Traditionally this definition was tied to the role that the entrepreneurs have in the economic process. However, there was no uniformity with respect to its function. For instance, one of the first economists that took the entrepreneurial function into account was Cantillon (1755), for whom the entrepreneur is someone who exercises entrepreneurial judgments in a context of uncertainty. Although Cantillon perceived the role of uncertainty in the entrepreneurial process, he failed to distinguish between the concepts of risk and uncertainty (Hébert and Link, 2009). It was Knight (1985) who expanded and clarified the concept, differentiating risk, which is measurable, from uncertainty, which cannot be measured. For Knight, the function of the entrepreneur is to be the bearer of uncertainty; in fulfilling this function he or she reduces the uncertainty of economic activity.

On the other hand, Schumpeter (1934) gives the entrepreneur the role of an innovator who carries out new combinations, becoming the agent that causes economic development. In contrast, for Kirzner (1973) the function of the entrepreneur is not necessarily limited to the function of innovation that Schumpeter grants it. Kirzner conceives the entrepreneur as an intermediary or arbitrator, who through their alertness, notices situations of disequilibrium in the market as entrepreneurial opportunities upon which to act. For Herbert and Link (1988), both concepts, rather than being seen as conflicting, should be perceived in a complementary way, as part of the market process.

In his theory of X-efficiency, Leibenstein (1978) does not believe that enterprises operate at the limit of its production function and in that context he points out two important functions that the entrepreneur must fulfill: Input Completing and Gap-filling. For Leibenstein these functions become extremely relevant and critical in developing countries and the absence of these capabilities may be a determining factor in the explanation of economic stagnation in many developing countries. However, as Low and MacMillan (1988: 141) argues, "Although each of these visions captures an aspect of entrepreneurship, none captures the whole picture".

In the fields of the management and psychology, entrepreneurship has been defined in terms of who the entrepreneur is and what he or she does (Venkataraman, 1997). In an initial analysis, the investigations have sought to define a set of psychological traits typical of entrepreneurs that differentiate them from non-entrepreneurs: extroversion, agreeableness, need for achievement, risk-taking, locus of control, self-efficacy, overconfidence, representativeness, and intuition (Shane, 2003). However, for authors such as Gartner (1988) this concentration at the level of the individual has been unproductive; they advocate migration to a level of behavioral approaches with a concentration on "What the entrepreneur does and not who the entrepreneur is" (Gartner, 1988: 57).

In the same vein, Venkataraman (1997) and Low and MacMillan (1988) consider that it is a mistake to define the field of entrepreneurship by defining the entrepreneur and consider them as a field of study in themselves, taking into account that entrepreneurial success does not depend on specific traits attributed to entrepreneurs. The entrepreneurs as well as other actors will be restricted by the environment in which they operate (Shane and Venkataraman, 2000; Aldrich and Martínez, 2001). For instance, for Veciana and Urbano (2008) the institutional approach is a much more promising approach to explain entrepreneurship.

In recent years, there has been an effort in the field of entrepreneurship to try to reconcile the different views and find a common conceptual framework that makes it possible to explain and predict the phenomenon of entrepreneurship at the empirical level, and in a broader sense, allow for its legitimacy as an independent field of research (Venkataraman, 1997; Shane and Venkataraman, 2000). This new approach conceives entrepreneurship as a process that includes the analysis of the "sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate and exploit them" (Shane and Venkataraman, 2000: 218). Central to this approach is the concept of entrepreneurial

opportunity. Shane (2003: 18) defines "an entrepreneurial opportunity as a situation in which a person can create a new means-end framework for recombining resources that the entrepreneur believes will yield a profit." Therefore, overcoming each one of the stages of the entrepreneurial process will depend on the presence of a set of individual traits and the characteristics of the economic and institutional environment in which the entrepreneur is immersed.

The entrepreneurial process starts with the perception of the existence of entrepreneurial profit opportunities. In fact, the recognition of opportunities is the most characteristic trait of entrepreneurial behavior (Minniti and Bygrave, 2001). From the perspective of Kirzner (1973) the opportunities exist and are available, and the function of the entrepreneur goes far beyond that recognizing and being alert to them. Therefore, the entrepreneur is someone who responds to opportunities rather than creating them. In contrast, for Schumpeter (1934) the function of the entrepreneur is to create these opportunities by incorporating new knowledge through innovation (Sarasvathy et al., 2003). The psychology of Kirzner's entrepreneur is in his ability to be alert to entrepreneurial opportunities arising from previous mistakes made by economic agents (Kirzner, 1973). By contrast, the psychology of Schumpeter's entrepreneur rests on his or her capacity, as a leader, to create and imagine new combinations (Schumpeter, 1934). However, as argued by Shane and Venkataraman (2000), despite these differences, it is common that both types of opportunities are present in the economy at the same time.

Nevertheless, the simple detection of an entrepreneurial opportunity does not mean exploitation. Exploiting an opportunity involves a decision-making process leading to the pursuit of the discovered opportunity. According to Shane (2003) demographic and psychological factors affect the likelihood of individuals to exploit entrepreneurial opportunities and the presence of best attributes in each of these dimensions increases the likelihood of success of the exploitation of the entrepreneurial opportunity. The process of exploitation implies acquiring resources and recombining them, and additionally the entrepreneur must choose if the exploitation of the opportunity is done through market mechanisms or by establishing a firm (Eckhardt and Shane, 2010).

This entrepreneurial process, although achieved at the individual level, is clearly conditioned by institutional factors (Baumol, 1990). The discovery process and mainly the decision-making process with regard to exploiting an opportunity does not make in a vacuum and will be influenced by the institutional context (Shane, 2003; Harper, 2003; Holcombe, 2007). The process of

institutional change itself, developed through the evolution of rules, norms, values, beliefs, and habits, creates entrepreneurial opportunities (Hoffman, 1999; Schneiberg and Soule, 2005). Another important effect of the institutional framework for the entrepreneurial process concerns respect for and proper specification of property rights. An institutional structure that allows profits arising from the entrepreneurial process to be kept will certainly encourage greater participation by individuals in the pursuit of entrepreneurial opportunities and therefore in their exploitation (Holcombe, 2007).

2.3 Institutions and entrepreneurship

The institutional theory has proposed a series of definitions for institutions. In the old institutionalist school, Veblen (1919: 239) defined institutions as "settled habits of thought common to the generality of man." As seen before, North (1990:3) defined them as "the rules of the game in a society, or more formally, institutions are the constraints that shape human interaction." Similarly, Scott (2013:71) defines institutions as "regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life". In turn, Hodgson (2003:7) defines institutions as "durable systems of established and embedded social rules and conventions that structure social interactions".

In the field of Economics, research on the relationship between institutions and economic growth has gained new strength in recent decades, particularly following the theoretical contributions of what has been called New Institutional Economics (Coase, 1937; Williamson 1985; North 1990). However, studies analyzing the relationship between entrepreneurship and institutions in theoretical and empirical terms are relatively new (Veciana and Urbano, 2008; Bruton et al., 2010).

Traditionally, the literature on institutional theory in sociology has analyzed the relationship between the institutional framework and the behavior of existing firms, ignoring the relationship with the process of founding new organizations (Sine and David, 2010; Tolbert et al., 2011). This same trend was maintained in the field of entrepreneurship, where for a long time the main research efforts were focused on the individual level. These approaches which was called by Gartner (1988) personal traits, ignoring the institutional context in which the processes of discovery, evaluation and exploitation of entrepreneurial opportunities take place (Shane and Venkataraman, 2000; Shane, 2003; Eckhardt and Shane, 2010).

Institutional theory has emerged as a subfield that tries to relate institutions with entrepreneurship (Sine and David, 2010; Hwang and Powell, 2005). An institutional theory approach to entrepreneurship is built on the pioneering work of Scott (2013) for whom the institutional environment consists of three interrelated pillars which reflect regulatory, normative and cultural-cognitive dimensions. Applied to the field of entrepreneurship, "these dimensions shape the entrepreneurial process, such as identifying, creating and exploiting opportunities, firm founding, initial growth and exit" (Sine and David, 2010: 3). In the regulative pillar, Scott includes what North (1990) calls the formal rules. The normative pillar is formed by the set of norms and values that restrict or promote the social behavior of individuals. Finally, there is the cognitive pillar, which is related to ideologies or cognitive frameworks that have been impregnated into society (Sine and David, 2010).

A specific institutional profile for entrepreneurship was adapted by Kostova (1997) and Busenitz et al. (2000) based on the work of Scott (2013). This profile has been used by some researchers to empirically understand the relationship between institutions and entrepreneurship (Spencer and Gomez, 2002; Stenholm et al., 2013). Another group of studies has specifically analyzed the impact of the regulatory dimension on the level of entrepreneurial activity in a country or among countries (Aidis et al. 2009; Van Stel et al., 2007; Desai et al., 2003; Wennekers et al., 2005).

In the field of Economics, the seminal paper of Baumol (1990) regarding the importance of institutional frameworks on the allocation of entrepreneurial talent among productive, unproductive or destructive activities has been highly valuable, particularly in stressing the importance of focusing not only on the level but also the type of entrepreneurial activity taking place within a specific society, as a product of returns provided by the institutional matrix. This approach involves assuming that the type of entrepreneurial activity selected by entrepreneurs will be influenced by the profit rates of alternative activities (El Harbi and Anderson, 2010), some of which will be in line with economic growth, whilst others will not (Boettke and Coyne, 2003; Coyne and Leeson, 2004; Stenholm et al., 2013). Therefore, the institutional matrix will define the type of entrepreneurial activities that will become the main recipients of entrepreneurial talent (Murphy et al., 1991; Acemoglu, 1995). Implicit in the argument is the recognition of the multidimensionality of the phenomenon of entrepreneurship and the margin of action that exists for public policy. Hence, a change in the institutional matrix can encourage the type of

entrepreneurial activities that are compatible with economic growth and social welfare (Baumol, 1990). Some authors have followed the approach of Baumol (1990), trying to explain at the empirical level the impact of the institutional environment on the allocation of entrepreneurial talent between different types of entrepreneurial activities (see Holmes and Schmitz Jr, 2001; Fadahunsi and Rosa, 2002 ; Sobel, 2008; Amorós, 2009; Sauka, 2008; Stenholm et al., 2013).

In summary, the importance of institutions in the entrepreneurial process is made plausible through their role in the economic context. For example, reducing uncertainty and making human action predictable (Dimaggio and Powell, 1983; Boettke and Coyne, 2003); allowing for the formation of entrepreneurial expectations (Sarasvathy et al., 2003); facilitating the coordination of dispersed knowledge in society (Hayek, 1945); reducing transaction costs (Coase and Wang, 2011); legitimizing the new industries and organizational forms (Aldrich and Fiol, 2007); providing access to resources (Gnyawali and Fogel, 1994); generating social capital (Thornton et al., 2011); restricting and allowing entrepreneurial intentions (Bird, 1992); and establishing incentives and payments offered by the economy that affect the level and type of entrepreneurial activity (Baumol,1990; Murphy et al.,1991; Acemoglu, 1995).

2.3.1 Institutions and types of entrepreneurial activity

The distinction made by Baumol (1990) between productive, unproductive and destructive entrepreneurship is enormously relevant to the understanding of the relationship between institutions and entrepreneurship. Baumol emphasizes that not only is it important to focus on the institutional factors that alter the rate of entrepreneurship (supply) but it is also important to pay attention to the process of allocation of entrepreneurial talent between productive and unproductive/destructive activities (demand). This approach does not take a heroic vision of the role of the entrepreneur as someone whose primary objective is innovation; instead, it assumes that their main motivation is the pursuit of profit (Hobsbawm and Wrigley, 1999). Therefore, "entrepreneurial talent will go towards activities with the highest private returns that do not always coincide with the highest social returns" (Murphy et al., 1991: 506).

Baumol and Murphy and coauthors are distinguished as pioneers in the analysis of the process of allocation of entrepreneurial talent among different economic activities. Baumol (1990) defines unproductive entrepreneurship as that which does not make a contribution to the actual production of the economy, and in some cases can be used to reduce production or restrict its growth. Murphy

et al. (1991), on the other hand, considers unproductive activities to be those whose private returns come from the redistribution of wealth from others and not the creation of wealth. Elsewhere, Acemoglu (1995) considers unproductive activities to be those which bring positive return to the individual but not to the society, therefore generating negative returns for other individuals.

It is necessary to understand that political and economic factors behind the shaping of economic institutions do not guarantee that the rules arising from political institutions are efficient in an economic sense nor that they lead to productive activities which will generate economic growth (North, 1990; Acemoglu and Robinson, 2006). As North (1990) argues, "institutional change almost always creates opportunities for both types of activities those that increase productivity and those that decrease productivity". Therefore, institutional quality is a key element in explaining the differences in the type of entrepreneurial activity that arises in a society (Amorós , 2009)

For instance, Sautet (2005) considers that the problem of economic stagnation in many developing countries is not due to a deficit of entrepreneurial skills in their societies, but rather to the lack of an institutional framework that allows for the type of entrepreneurial activity beneficial to society to take place. Additionally, for authors such as Krueger (1974) and De Soto (1989), the relevant size in economic activities such as rent-seeking or informality reach in a country, is mainly related to the restrictions imposed by the government on economic activity. For Krueger, when restrictions increase, a similar increase in income happens in a variety of ways, and, this causes the agents to compete for these incomes, both in legal forms and illegal, for example through corruption. In turn, De Soto shows that the high regulations present in the Peruvian economy are the cause of the presence of high rates of informal activity.

2.4 Gap found in literature

We identified some gap in the literature review. First, in recent years, there has been a significant increase in research on institutions and entrepreneurial activity. Nevertheless, most of these studies have focused on the overall rate of entrepreneurial activity, despite the existence of different types of entrepreneurial activities (Baumol 1990; Autio 2008; Sobel 2008; Larroulet and Couyoumdjian, 2009; Ardagna and Lusardi, 2008; Avanzini, 2011), many of which exhibit characteristics associated with the country-specific institutional context in which entrepreneurs operate (Urbano and Alvarez, 2014). Thus, some scholars consider it necessary to take into account the specific cultural and regional context (Peng, 2002; Desai, 2009; De Mel et al., 2010). Moreover, less

interest has been devoted to the literature of entrepreneurship in developing countries (Naudé, 2010; Amoros, 2011), such as those in Latin America (Alvarez et al., 2014; Urbano and Alvarez, 2014; Aparicio et al., 2016). We have contributed to filling this gap by focusing on a specific developing region: Latin America.

Second, Baumol's categories center on the results of entrepreneurial activities, not taking into account those businesses that are inherent to specific economic and cultural contexts associated with developing countries. Desai (2009) identifies three types of entrepreneurial activities typically found in developing countries: legal-illegal, opportunity-necessity, and formal-informal. The Global Entrepreneurship Monitor (GEM) project, through its differentiation between necessity and opportunity entrepreneurship, has taken a big step in this direction (see Broadman and Recanatini, 2001; Reynolds et al., 2002; Fadahunsi and Rosa, 2002; Acs and Varga, 2005; Williams, 2007; Aidis and Van Praag, 2007; Rosa et al., 2008; Margolis, 2014; among others). However, less has been said about formal and informal entrepreneurial activity (Nyström, 2008; McElwee, 2009; Godfrey, 2011; Webb et al., 2013; Dau and Cuervo-Cazurra, 2014; Autio and Fu, 2015), despite the fact that informal entrepreneurship is considered a significant source of employment (ILO, 2011) and an essential means of reducing poverty in developing countries (Tokman, 2007; Bruton et al., 2013). Therefore, we have contributed to filling these gaps by focusing on formal and informal entrepreneurship. Also, many times the lack of studies on types of entrepreneurial activities in developing countries has been due to the lack of comparable cross-country data. We used an unusual dataset that could be useful for longitudinal research on entrepreneurial activity in Latin American countries.

Third, analyzing entrepreneurship according to the type of entrepreneurial activity is relevant in developing countries. This is because it broadens the spectrum that has traditionally framed the discussion within the literature of entrepreneurship, which is mainly interested in the type of entrepreneurial activity near the Schumpeterian or innovative position (Baumol, 2010). We left out the kind of entrepreneurship - 'Kirznerian' (Kirzner, 1973) or 'replicative' (Baumol et al., 2007), which prevails in developing countries.

Finally, although there is a growing quantity of literature analyzing the relationship between entrepreneurship and institutions, it has been mostly static or at best has covered short periods of time (Urbano and Alvarez, 2014; Alvarez et al., 2014). Although institutions are stable and resistant to change (Jepperson, 1991), they are not immutable; instead, their change process is slow

and presents incremental characteristics (North, 1990; Williamson, 1998). In the words of Stenholm et al. (2013: 190) "The results related to high - income countries are likely to remain relatively stable over time, but the analysis of the institutional changes in developing countries seems to us to warrant further investigation." For this reason, the time dimension becomes relevant. The present thesis contributes to filling this gap by analyzing the influence of institutional factors across countries over time.

3 Formal institutions and informal entrepreneurial activity: panel data evidence from Latin American Countries

3.1 Introduction

In recent years, there has been a significant increase in research focusing on institutions and entrepreneurial activity (Bruton et al., 2010; Álvarez et al., 2014). The evidence has highlighted the importance of institutional frameworks as an explanatory factor for the wide variation in entrepreneurial activity rates observed between countries and over time (Acs et al., 2008; Boettke and Coyne, 2009; Stenholm et al., 2013). Nevertheless, most of this research work has focused on the overall rate of entrepreneurial activity, despite the existence of different types of entrepreneurial activities (Autio, 2008; Sobel, 2008; Larroulet and Couyoumdjian, 2009; Ardagna and Lusardi, 2008; Avanzini, 2011), many of which display characteristics associated with the socioeconomic context in which entrepreneurs operate (Peng, 2002; De Mel et al., 2010). For example, Desai (2009) identifies three types of entrepreneurial activities normally found in developing countries: legal-illegal, opportunity-necessity, and formal-informal.

Informal entrepreneurship is considered as a significant source of employment (ILO, 2011) and an important means of reducing poverty in developing countries (Tokman, 2007; Bruton et al., 2013). The explanation for its prevalence has generated a wide discussion from work developed by Hart (1973) during the 1970s, who was the first to coin the term informality. However, in the last decades two views have framed the debate on informality (De Mel et al., 2010). The first is related to De Soto (1989), who considers that own-account workers are entrepreneurs excluded from the formal sector as a result of high transaction costs imposed by national regulatory frameworks (Perry, 2007). The view offered by De Soto (1989) highlights the entrepreneurial capacity of informal self-employed individuals and coincides with several research projects reporting that numerous self-employed workers initiate their informal activities by necessity and that these turn into opportunities over time (Kodithuwakku and Rosa, 2002; Rosa et al., 2006; Williams, 2008).

The second is related to Tokman (2007) and the dual economy theory of development (Lewis, 1954). The scholars following this view suggest that informal entrepreneurship arises as a product of failures by the economic system to generate sufficient productive employment. Therefore, informal activities are undertaken by necessity, making them temporary due to a lack of employment in the formal sector (see Tokman, 1987; Freije, 2002; Banerjee and Duflo, 2005; La Porta and Shleifer, 2008, 2014; Mondragón-Vélez and Peña, 2010; among others).

From the perspective of De Soto, if governments reduce the regulatory burden and improve legal framework, the energies of the informal entrepreneurs will be channeled to the formal sector, generating a virtuous cycle of employment and prosperity. On the other hand, from the dual-view of informality, their advocates do not deny the importance of the regulatory and legal framework. However, they consider that these factors, rather than restricting the informal entrepreneurs, impose high barriers to entry into the formal sector on potential entrepreneurs with greater human capital and entrepreneurial talent to establish enterprises with high growth potential, which will absorb the millions of entrepreneurs currently operating in the informal sector (La Porta and Shleifer, 2008, 2014).

While informality is a multidimensional phenomenon and some causes have their origin in issues related to the productive structure and the social and demographic characteristics of a country, the chapter will focus on institutional causes and specifically on formal rules, because in the last decades, these have been mentioned as key determinants of informality in Latin America (De Soto, 1989; Loayza, 1996). To achieve this objective, we will use institutional theory (North 1981, 1990, 2005; Scott, 2013) as a conceptual framework and panel data for 18 Latin America countries in the period from 2004 to 2015. The proxy used to informal entrepreneurial activity is the percentage of the adult population identified as own-account workers or street peddlers.

The article is organized as follows: Section 2 discusses theory and hypothesis development. Section 3 describes the variables and econometric method used in the empirical analysis. In Section 4 the statistical analysis is developed. Finally, the empirical results are presented.

3.2 Theory and hypothesis development

3.2.1 Defining Informal Entrepreneurial Activity

Although there is a certain consensus regarding the role of entrepreneurship in economic growth (Schumpeter, 1934; Kirzner, 1973; Audretsch et al., 2006; Baumol et al., 2007; Audretsch, 2007), there is no acceptable agreement as to the exact meaning of entrepreneurship and the role of entrepreneurs in the economic process (Amit et al., 1993; Parker, 2004). According to Peneder (2009), it is possible to define and identify entrepreneurs in accordance with their function, behavior and occupational status. The first refers to the function that an entrepreneur fulfils in the economy, whether as an innovator who disrupts the market (Schumpeter, 1934), a coordinator who equilibrate the market (Kirzner, 1973), or a diffuser of technology (Schultz, 1975). The second

understands entrepreneurs as individuals who discover and exploit entrepreneurial opportunities (Shane and Venkataraman, 2000). The third refers to each individual entrepreneur's decision to opt for paid work or manage their own business (Lucas, 1978; Knight, 1985).

The latter definition has been extensively used to conduct empirical research on entrepreneurship in developed countries, by means of surveys to identify the category commonly known as "self-employment", which generally includes both business owners and self-employed individuals. Those belonging to this broad category of "self-employment" are considered as entrepreneurs (Van Praag and Versloot, 2007; Van Stel et al., 2010; Van Praag and Van Stel, 2013). The evidence shows that for developed countries, the distinction between business owners and the self-employed does not seem to be relevant, since both reflect reasonably well the entrepreneurial behaviors and traits attributed to entrepreneurs by the first two definitions offered by Peneder (see Kirchoff, 1996; Blanchflower and Oswald, 1998; Benz and Frey, 2003; Van Praag and Versloot, 2007; Benz and Frey, 2008; Caliendo et al., 2014; among others).

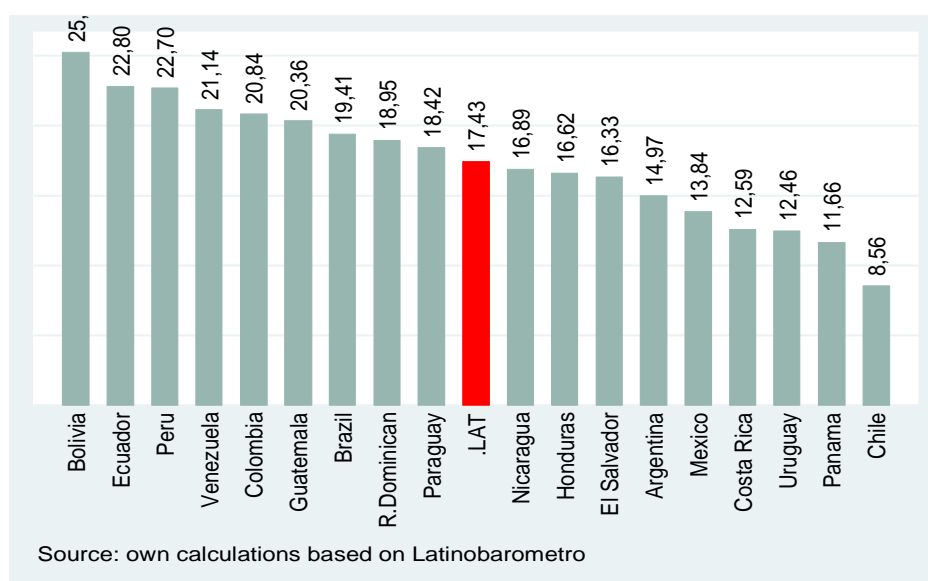
Nevertheless, in the case of developing countries, self-employed individuals and business owners present some very different nuances (Gindling and Newhouse, 2014). For instance, in Latin American countries, the self-employed have less human capital, smaller incomes, and a lower level of work satisfaction than business owners (Mondragón-Vélez and Peña, 2010; Aguilar et al., 2013; Tornarolli et al., 2014). There exists robust evidence for developing economies showing that self-employment is associated with informality (see Hart, 1973; Tokman, 1987; De Soto, 1989; Loayza, 2006; Loayza and Rigolini, 2011; La Porta and Shleifer, 2008, 2014; Biles, 2009; Henley et al., 2009; De Mel et al., 2010; Williams and Nadin, 2010; among others). Therefore, in developing countries it is necessary and useful to categorize entrepreneurial activities, unlike in developed countries, where the terms self-employed and business owners are normally used indistinctly when referring to entrepreneurship (see Carree et al., 2002; Van Stel, 2005; Van Stel et al., 2010; among others).

Loayza and Rigolini (2006) found a correlation coefficient of 0.75 between self-employment and the alternative estimations of informal activity conducted by Schneider (2005). Likewise, due to their own nature, the self-employed are more likely to hide their income-generating activities from tax and registry authorities (Portes and Haller, 2005; La Porta and Shleifer, 2008). For instance, Mondragón-Vélez and Peña (2010) found that only five per cent of own-account workers registered their activity in Colombia over the period 2002-2006. Moreover, depending on country,

in Latin America between 89% and 97% of the self-employed do not pay social security taxes (Henley et al., 2006). Therefore, in this research, and following the pioneering work of Hart (1973), who was the first to coin the term "informality" and apply it to self-employment, we will categorize the self-employed as informal entrepreneurs. This perspective involves viewing the self-employed not as individuals, but rather as activities capable of producing goods and/or services for the market (Tokman, 1987).

Our definition of informal entrepreneurship is in line with Webb et al. (2009), who define informal entrepreneurial activities as those associated with illegal means or ends, but considered legitimate by large segments of society. Moreover, we must recognize that, since these activities are not registered by official statistics, informality is difficult to measure (Portes and Schauffler, 1993; Mead and Morrisson, 1996; Schneider, 2005; La Porta and Shleifer, 2008); therefore, any measurement will be incomplete, given the heterogeneous nature of the phenomenon (Tokman, 2007), particularly when attempting to obtain country-level and internationally comparable measurements. Although our measurement of self-employment does not encompass all the heterogeneity surrounding informal entrepreneurial activity, it is still a good proxy that allows us to explore institutional influences on informal entrepreneurial activities in Latin American countries over different time periods. Below, Figure II shows the percentage of the adult population per country who identify themselves as own account workers (average 2004-2015).

Figure II. Informal entrepreneurial activity in Latin American Countries. Percentage of the adult population (average 2004-2015)



3.2.2 Formal Institutions and informal entrepreneurial activity

Formal institutions are those that are officially codified in written documents (Lauth, 2015). According to North (1990), the role of formal rules is to facilitate economic and political exchanges in the presence of uncertainty and their importance is relevant when those exchanges become impersonal. However, it is important to take into account that formal institutions arise from politics, and hence, political factors acquire relevance (Acemoglu and Robinson, 2012; Autio and Fu, 2014). Therefore, there is no guarantee that formal rules will be efficient and inclusive (Acemoglu and Robinson, 2012), protect property rights and contract enforcement (North, 1990), coordinate and correct market failures (Rodrik, 2008), and promote productive activities that generate economic growth (North, 1990; Baumol, 1990; Acemoglu and Robinson, 2005, 2012). Moreover, formal rules may even be maintained in spite of a proven inefficiency (DiMaggio and Powell, 1983; North, 1990; Greif and Kingston, 2011).

According to Hall and Jones (1999), there is a series of formal rules that are important for entrepreneurship, such as property rights, tax codes, social insurance systems, labour market legislation, competition policy, trade policies, capital market regulation, and law and order. However, we will focus on two main categories: regulatory burden and property rights, which have been the most prominent in studies on institutions and entrepreneurial activity (see Hall and Jones, 1999; De Soto, 2000; Djankov et al., 2002; Aidis et al., 2012; among others).

Although, ideally, formal regulations should be created to facilitate economic exchange and reduce transaction costs, in reality many of them become obstacles for entrepreneurial activity (Gnyawali and Fogel, 1994). For example, Djankov et al. (2002) and Klappler et al. (2006) found that the entry rate of new businesses was lower in countries with high entry costs. Prantl and Spitz-Oener (2009) found that entry barriers reduce the rate of self-employment. In turn, De Soto (1989); Loayza (1996); Djankov et al. (2002) and Loayza et al. (2006) found that excessive regulation is linked to higher levels of informal entrepreneurial activity and fewer registered businesses (La Porta and Shleifer, 2008). Likewise, excessive labour regulation may dissuade formal employers from generating new sources of employment, and push many individual workers towards informality (Margolis, 2014).

Disaggregating regulatory burden into different categories, several authors found that entrepreneurial activity is affected by excessive bureaucratic requirements for start-ups (Desai et

al., 2003; Urbano and Alvarez, 2014; Aparicio et al., 2016), rigid labour regulations (Scarpeta et al., 2002; Klapper et al., 2006; Van Stel et al., 2007; McMullen et al., 2008), deficient bankruptcy procedures (Djankov et al., 2006; Lee et al., 2011), and high tax rates (Djankov et al., 2010; La Porta and Shleifer, 2008). Therefore, based on these findings, we propose the following hypotheses:

Hypothesis 1: Lighter business regulation is associated with lower levels of informal entrepreneurial activity.

Hypothesis 2: Higher tax rates are associated with higher levels of informal entrepreneurial activity.

Hypothesis 3: Stricter regulation of labor is associated with higher levels of informal entrepreneurial activity.

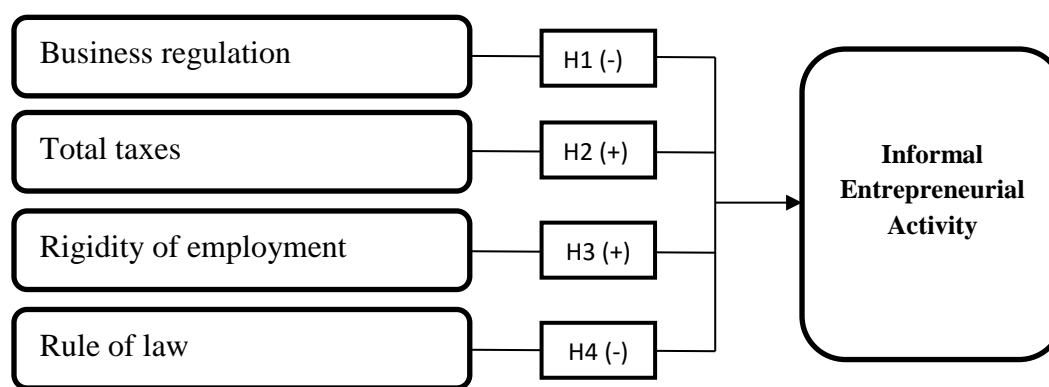
Barzel (1997:3) defined property rights as: "individuals' ability, in expected terms, to consume the good (or the services of the asset) directly, or to consume it indirectly through exchange." The security of property rights has been identified as key to the establishment and development of a market economy (North, 1990; Rodrik, 2000; De Soto, 2000; Acemoglu et al., 2005). In the context of entrepreneurship, weak property rights can be a dissuasive factor for entrepreneurial activity (Johnson et al., 2002). For example, McMullen et al. (2008); Aidis et al. (2008) and Estrin et al. (2013), found a positive relationship between enforcement of property rights and opportunity, and high growth entrepreneurship. Desai et al. (2003) found that entry rates for businesses are higher in countries where courts are just and impartial. Nyström (2008) found that better property rights are positively associated with higher rates of self-employment in 23 OECD countries. In turn, Acs et al. (2008) found that legal and judicial efficiency are crucial in the decision whether to operate in the formal sector or not. For Knack and Keefer (1995), in countries where property rights are not assured, entrepreneurs reduce their investment levels in specialized physical and human capital.

Nevertheless, the mere existence of property rights does not guarantee entrepreneurial activity; much more relevant are the enforceability of contracts (North, 1990) and the level of extension of those rights to the entire population (De Soto, 1989; Sonin, 2003; Acemoglu and Robinson, 2012). The presence of strong property rights improves the exploitation of entrepreneurial opportunities,

as individuals believe that business profits will not be taken arbitrarily (Shane, 2003), including the risk of illegal expropriation by the government (McMillan and Woodruff, 2003; Acemoglu and Robinson, 2012). Similarly, strong property rights facilitate the establishment of transactions over different points in time (Harper, 2003), making it possible to carry out productive long-term investments (Portes, 2010) and depersonalizing economic exchanges (Centeno and Portes, 2006; Portes, 2010). Furthermore, weak enforcement of property rights creates an incentive for individuals to build their own self-regulation mechanisms, as in the case of informal economy (Centeno and Portes, 2006). Therefore, we propose the following hypothesis:

Hypothesis 4: Stronger property rights are associated with lower levels of informal entrepreneurial activity.

Figure III. Informal entrepreneurial activity and formal institutions: hypothesis



3.3 Methodology

3.3.1 Data and Variables

As previously established, this chapter seeks to estimate the relationship between formal rules and informal entrepreneurial activity for different Latin American countries over several time periods. For the research, we have built a panel covering the period 2004-2015, and the dataset contains 180 observations in 18 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica,

Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Perú, Uruguay and Venezuela.⁶

Dependent Variables

The dependent variable comes from Latinobarómetro for the period 2004-2015. The survey is conducted by the Latinobarómetro Corporation, a non-profit NGO headquartered in Santiago de Chile. The surveys have been conducted in the region since 1995 until the present date; however, since 2004, the surveys have presented a national coverage of nearly one hundred percent for all countries and a common questionnaire leading to harmonized data.⁷ The ten measurement surveys consist of 218.889 interviews with approximately 1000-1200 surveys per country. The samples are representative of the adult population of each country, with a margin of error of approximately 3%. The data source allows four different labour categories to be identified:

- 1) Professionals (doctors, lawyers, accountants, etc)
- 2) Business owners (micro-entrepreneurs and/or the owners of larger businesses)
- 3) Farmers/fishermen
- 4) Own-account workers, street peddlers.

Gasparini and Tornarolli (2009:19), at an empirical level, implement the following definition of labor informality:⁸ "An individual is considered an informal worker if (s) he belongs to any of the following categories: (i) unskilled self-employed, (ii) salaried worker in a small private firm, (iii) zero-income worker." From these categories, only the first one fit the simplest definition of entrepreneur.⁹ For this reason, we will define informal entrepreneurial activity as the percentage of the adult population identified as own-account workers or street peddlers. Loayza and Rigolini (2006, 2011) suggest using self-employment as a good proxy for informality in developing countries. Lastly, the Corporación Andina de Fomento (CAF 2013: 51), through its survey on access, quality and satisfaction with public services in Latin America (ECAAF, 2012) collected in

⁶ There were two years when the survey was not conducted: 2011 and 2014.

⁷ To access a detailed document on the sample and coverage: <http://www.latinobarometro.org/latContents.jsp>

⁸ These categories are defined from a productive perspective of informality: those in low-productivity, unskilled, marginal jobs (see Gasparini and Tornarolli 2009; Tornarolli et al. 2014)

⁹ As someone who undertakes owning and managing a business, taking the risk of profit or loss (see Oxford English Dictionary)

several Latin American cities, found that three quarters of non-professional own-account workers are subsistence or necessity entrepreneurs.

Independent Variables

Following De Soto (1989), we will divide the independent variables according to the cost of becoming formal, the cost of staying formal, and the benefits of being formal.¹⁰ As a proxy for the cost of becoming formal, we will include the variable business regulation (Fraser Institute), which includes an average of six categories: Administrative requirements; Bureaucracy costs; Starting a business; Extra payments-bribes; Licensing restrictions and Tax compliance, and which basically measures the difficulty of starting and operating a business in the formal sector. The cost of remaining formal includes total tax rate paid by businesses after deductions and exceptions (World Bank Doing Business Project) and obeying government regulations such as labour regulations (World Bank Doing Business Project). To this end we have built the Rigidity of Employment Index: a simple average of three sub-indices: Difficulty of Hiring Index, Rigidity of Hours Index and Difficulty of Firing Index (World Bank Doing Business Project). The index was constructed following Berg and Cazes (2007), based on the work of Botero et al. (2004).

Within the benefits of being formal we include the access to a judicial system in order to enforce property rights and adjudicate disputes. We have assumed that formal businesses enjoy greater advantages in terms of resorting to courts to resolve disputes. As a proxy for property rights, we used the Rule of Law Index (World Bank's Governance Indicators project). According to Kaufmann et al (2007) this index measures "the degree to which agents have confidence in and abide by the rules of society, as well as the quality of contract enforcement, the police, and the courts, and also the likelihood of crime and violence."

¹⁰ Cases in which the data had missing values were resolved by nearest neighbour imputation, i.e., identifying and substituting the nearest case in the cell with a missing value. Normally, this was the information from the preceding year for the same variable within a country. This allowed us to run regressions with a balanced panel and, fundamentally, has vectors of valuable information which would have been lost without imputation.

Control Variables

Several studies have found a relationship between the level of entrepreneurial activity and economic development (see Acs et al., 1994; Carree et al., 2002; Wennekers et al., 2005; Van Stel et al., 2005; Acs et al., 2008; Levie and Autio, 2011; Estrin et al., 2013 among others). For this reason, we have used GDP per capita (purchasing power parity) as a control variable. We also controlled by the rate of economic growth (Dau and Cuervo-Cazurra, 2014). The study period coincides with a cycle of strong growth in the region and some scholars have recognized the importance of the business cycle as a potential determinant of informality (Tornarolly et al., 2014). However, a high population growth rate, particularly among the poor, could raise demand for informal goods and, therefore the supply of informal workers. We therefore controlled for the population growth rate (La Porta and Scheifler, 2014). Other scholars have found that informality is related to the productive structure of a country and the educational level. We controlled for productive structure by using the percentage of the economically active population working in the agricultural sector (Gasparini and Tornarolli, 2009). As a control of the education level, we used the average years of secondary schooling of the adult population (Loayza et al., 2005; Barro and Lee, 2013). Here, we included time-fixed effects to capture the business cycle of these countries.

Table I shows the description of variables used in this research. Below, Figure IV show simple correlations between informal entrepreneurial activity and socio-demographic factors.

Figure IV. Informal entrepreneurial activity and socio-demographic factors (simple correlations)

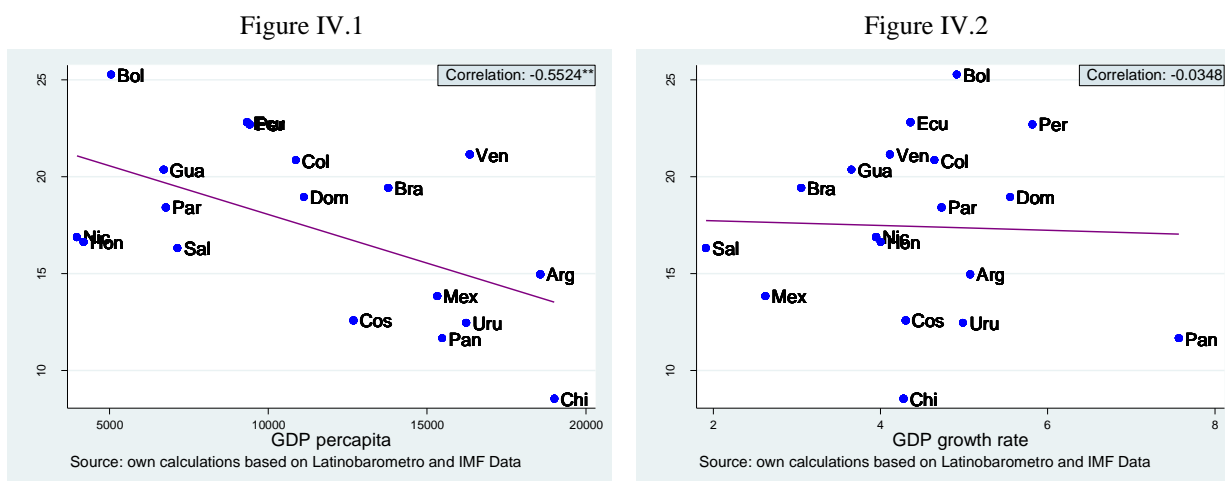


Figure IV.3

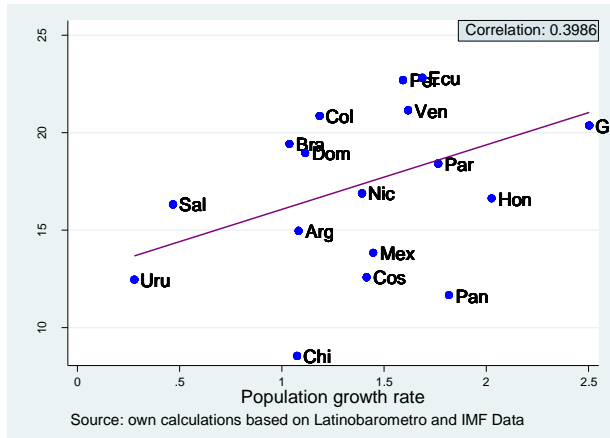


Figure IV.4

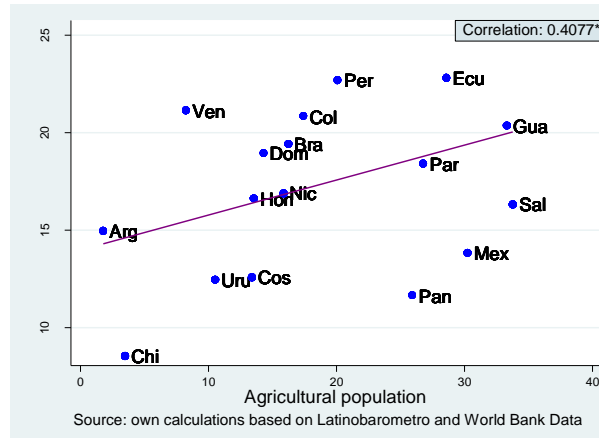
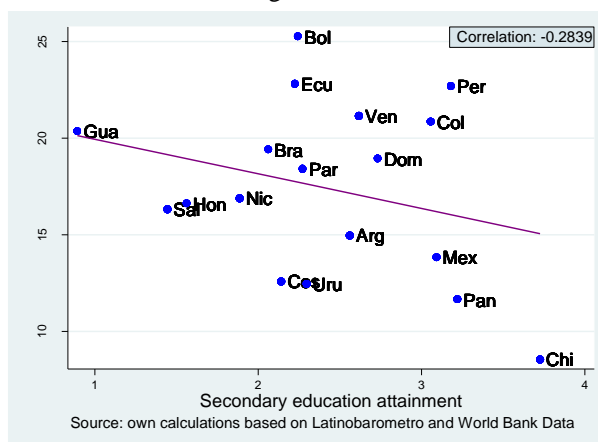
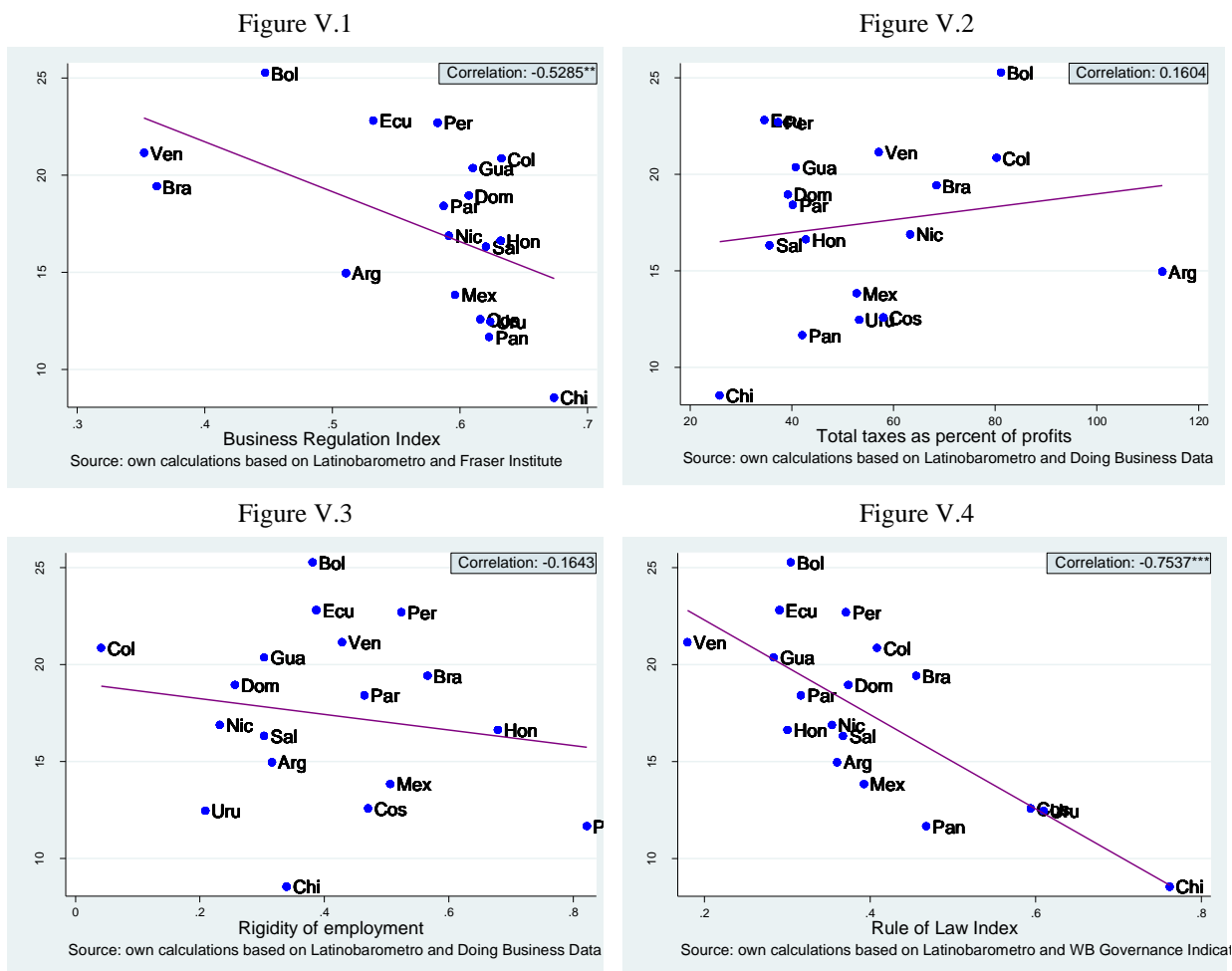


Figure IV.5



In the figures V, which are presented below, the scatter diagrams show simple correlations for each of the formal institutional variables (average 2004-2015) with respect to the rate of informal entrepreneurial activity. The graphics exhibit patterns of correlation which were expected based on theory and previous empirical evidence. However, these are simple correlations. A more appropriate analytical exercise requires evaluating the statistical significance of each one of them jointly, through a multiple regression analysis.

**Figure V. Informal entrepreneurial activity and formal institutions
(Simple correlations)**



3.4 Statistical Analysis

In order to analyze the relationship between institutional factors and informal entrepreneurial activity in Latin America countries, we have used a balanced panel data for the period 2004-2015. Therefore, the following general model is proposed:

$$\begin{aligned} \text{Informal Entrepreneurial Activity} = & \beta_0 + \beta_1.GDP_percapita + \beta_2.Growth_rate_GDP + \\ & \beta_3.Population_Growth + \beta_4.Agricultural_Population + \beta_5.Secondary_Education + \beta_6.Trend(t) \\ & + \beta_7.Business\ regulation + \beta_8.Total_tax_rate + \beta_9.Rigid_labour + \beta_{10}.Rule_of_Law + u. \end{aligned}$$

Firstly, we verified whether the use of Panel Data versus a simple OLS regression is justified. This is done by applying the Breusch and Pagan test (Breusch and Pagan, 1980). We rejected the null hypothesis ($\text{Prob} > \chi^2 = 0.0000$), which argues that panel data are preferable to using a pooled dataset. To verify whether it is preferable to use fixed effects or random effects, the Hausmann test was applied (Wooldridge, 2002). The test consistently suggested that the random effects model was better suited to the data ($\text{Prob} > \chi^2 = 0.6418$). In other words, there was no correlation between the individual effects and the explanatory variables, indicating the use of the random effects model. We also verified the presence of autocorrelation. This was done by applying the test for serial correlation derived by Wooldridge (2002). We obtained a result of $F > 0.000$ ($\text{Prob} > F = 0.4047$), therefore autocorrelation did not seem to be a problem in our data. Finally, we verified the existence of severe multicollinearity problems, particularly taking into account that the correlation matrix (Table II) includes some correlations over 0.5. To this end, we applied the variance inflation factor (VIF). The maximum value of VIF was 2.50. The average VIF was 1.72, which in any case showed values below the commonly accepted threshold of 5 and 10 (Dau and Cuervo-Cazurra, 2014). Therefore, multicollinearity did not appear to be a problem.

3.5 Results

Table I shows the means and standard deviations for the variables analyzed and table II shows the correlation matrix, where an asterisk identifies statistical significance. These univariate tests show that some dependent variables are significantly related to each other, although, as previously mentioned, this did not represent any serious multicollinearity problem. Table III presents the regression results based on the data panel.

Results in Model 2 revealed a significant negative relationship between business regulations and informal entrepreneurial activity ($P < 0.01$). These findings are in accordance with Loayza et al. (2009) for Latin American and the Caribbean. This also is consistent with the relationship reported by Thießen (2003) and La Porta and Shleifer (2008) for complexity of the tax system. On the other hand, total tax rate did not have a significant effect on informal entrepreneurial activity. This coincides with the results reported by Friedman et al. (2000) for Latin American countries. Similarly, La Porta and Shleifer (2008) did not find any statistical significance using self-employment data for 133 countries. These results support hypotheses 1. However, no support was found for hypotheses 2.

Moreover, we have found a negative and statistically significant relationship between labor market rigidity and informal entrepreneurial activity ($p < 0.01$). In accordance with Tornarolly et al. (2014), after the year 2000 an overall fall can be observed in the informal sector and greater labour regulation in Latin America, coinciding with a period of economic growth, job creation and improvement in terms of poverty and inequality (Gasparini et al. 2011). On the other hand, in the 1990s there was an increase in the rate of informality, despite greater labour flexibility (Stiglitz, 2003; Galdo et al., 2007; Freeman, 2009). For example, Maloney (2004) found that in countries with relative labour flexibility, as Mexico, this was accompanied by a large informal sector, because the individuals could not find significant differences between both sectors in terms of income or benefits, and thus preferred the informal sector, which offered greater flexibility and autonomy. Furthermore, after building an index of labor market legislation rigidity for an extended time period, Campos and Nugent (2012) found that countries with lower GDP per capita tended to show lower levels of labor rigidity. Furthermore, the author concludes that the relationship between employment protection and economic growth seems to be inconclusive. On the other hand, Botero et al. (2004) found that heavier regulation of labor had no effect on informality. However, authors such as Loayza (1996) and Loayza et al (2006) found that labour market regulations had a positive effect on informality. Therefore, we reject hypotheses 3.

Meanwhile, the Rule of Law index is strongly and negatively associated with informal entrepreneurial activity ($p < 0.01$), similar to that found in previous studies (see Loayza and Rigolini, 2006; Acs et al., 2008 ; La Porta and Shleifer, 2008). Therefore, we accept hypotheses 4. Regarding the magnitude of the coefficients, the results show that property rights have the largest impact on the reduction of the informal entrepreneurial activity rate. Therefore, an improvement in property rights by one standard deviation results in a reduction in the informal entrepreneurial activity rate of about 0.15 standard deviations.

Table I. Description of variables and statistics

| Variable | measure | Description | Mean | Std. Dev. |
|--|----------------|---|-------------|------------------|
| 1 Informal entrepreneurial activity rate | percent | Percentage of the adult population who identify themselves as self-employed or street vendors (excluding self-employed professionals and agricultural) <i>Latinobarómetro</i> | 17.43 | 5.67 |
| 2 GDP percapita | USD | GDP per capita, purchasing power parities (log for analysis) <i>International Monetary Fund Data</i> | 11220.52 | 5232.46 |
| 3 GDP change | percent | Growth rate GDP <i>International Monetary Fund Data</i> | 4.42 | 3.24 |
| 4 Population growth | percent | The population growth rate <i>International Monetary Fund Data</i> | 1.41 | 0.57 |
| 5 Agricultural population | percent | Percentage of economically active population working in agriculture <i>World Bank Data Base</i> | 19.25 | 10.15 |
| 6 Secondary education attainment | percent | Average years of secondary schooling <i>World Bank Data Base- Barro and Lee (2013)</i> | 2.40 | 0.72 |
| 7 Business regulation | index | A measure of the level of administrative requirements and bureaucratic procedures that entrepreneurs must comply with to open or operate a formal business. Normalized between 0 and 1, with 1 equaling the freest business environment. <i>Fraser Institute</i> | 0.57 | 0.09 |
| 8 Total taxes as percent of profits | percent | Total tax rate paid by businesses after deductions and exemptions (log for analysis) <i>Doing Business</i> | 53.66 | 21.54 |
| 9 Rigidity of employment | index | It is a quantitative measure that considers various aspects of the legal and regulatory framework of a country's labor market. Normalized between 0 and 1. A higher value indicates greater rigidity. <i>Doing Business</i> | 0.40 | 0.18 |
| 10 Rule of Law Index | index | This index measures "the degree to which agents have confidence in and abide by the rules of society, as well as the quality of contract enforcement, the police, and the courts, and also the likelihood of crime and violence" (Kaufmann et al. 2007) Normalized between 0 and 1. A higher value indicates stronger rule of law. <i>World Bank Governance Indicators</i> | 0.40 | 0.14 |

Table II. Informal entrepreneurial activity and sociodemographic/formal institutions factors (correlation matrix)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|----------------------------------|-----------|-----------|-----------|---------|-----------|-----------|----------|-----------|-----------|---------|----|
| 1 Informal entrep. activity rate | 1 | | | | | | | | | | |
| 2 % of EAP self-employed ILO | 0.463*** | 1 | | | | | | | | | |
| 3 GDP per capita -log | -0.437*** | -0.635*** | 1 | | | | | | | | |
| 4 Growth rate GDP | 0.0827 | -0.00677 | 0.00133 | 1 | | | | | | | |
| 5 The population growth rate | 0.292*** | 0.339*** | -0.395*** | 0.0855 | 1 | | | | | | |
| 6 Agricultural population | 0.323*** | 0.375*** | -0.471*** | -0.0588 | 0.357*** | 1 | | | | | |
| 7 Secondary educ. attainment | -0.287*** | -0.163* | 0.609*** | 0.121 | -0.195** | -0.358*** | 1 | | | | |
| 8 Business regulations | -0.450*** | 0.0793 | -0.0496 | 0.0254 | -0.115 | 0.0343 | 0.101 | 1 | | | |
| 9 Total taxes % of profits | 0.196** | -0.193** | 0.0253 | -0.0173 | -0.0708 | -0.198** | -0.0639 | -0.459*** | 1 | | |
| 10 Rigidity of employment | -0.127 | -0.154* | 0.0273 | 0.0928 | 0.388*** | 0.145* | 0.0779 | -0.136* | -0.218*** | 1 | |
| 11 Rule of Law Index | -0.594*** | -0.569*** | 0.458*** | 0.0819 | -0.474*** | -0.387*** | 0.407*** | 0.426*** | -0.217*** | -0.0579 | 1 |

* p < 0.05, ** p < 0.01, *** p < 0.001

**Table III. Formal institutional factors and informal entrepreneur activity rate
(econometric results) †**

| | Principal Models | | Robustness Checks | | | |
|--|----------------------|----------------------|----------------------|------------------------------|----------------------|----------------------|
| | Model 1. [OLS] | Model 2. [RE] | Model 3. [GEE] | Model 4. [RE] | Model 5. [RE] | Model 6. [GLS] |
| <i>Controls</i> | | | | | | |
| GDP per capita | -0.161** (0.066) | -0.153 (0.125) | -0.155 (0.113) | -0.131 (0.100) | -0.170 (0.155) | -0.255*** (0.049) |
| Growth rate GDP | 0.007 (0.005) | 0.003 (0.005) | 0.004 (0.004) | 0.006 (0.005) | 0.003 (0.005) | -0.001 (0.001) |
| Population growth | 2.970 (3.977) | 5.734 (4.002) | 4.674 (3.813) | 9.237*** (3.378) | -1.574 (5.459) | 0.264 (1.158) |
| Agricultural population | 0.004** (0.002) | 0.001 (0.003) | 0.003 (0.003) | 0.006** (0.003) | 0.006 (0.004) | 0.002 (0.002) |
| Secondary education attainment | 0.073** (0.033) | 0.063 (0.045) | 0.068 (0.046) | 0.072 (0.047) | 0.114* (0.061) | 0.029 (0.021) |
| Trend | -0.027*** (0.009) | -0.029** (0.012) | -0.029*** (0.011) | -0.013 (0.011) | -0.034** (0.014) | 0.011*** (0.003) |
| <i>Predictors</i> | | | | | | |
| Business regulations | -1.337*** (0.332) | -1.300*** (0.428) | -1.310*** (0.374) | | -1.278*** (0.355) | -0.048 (0.139) |
| Number of days to start a Business (log) | | | | 0.146*** (0.041) | | |
| Total taxes as percent of profits | -0.040 (0.056) | -0.073 (0.109) | -0.056 (0.091) | 0.102 (0.084) | -0.014 (0.104) | -0.056 (0.045) |
| Rigidity of employment | -0.545*** (0.117) | -0.556*** (0.152) | -0.553*** (0.145) | | -0.541*** (0.158) | -0.280** (0.139) |
| Labor freedom | | | | 0.503*** (0.183) | | |
| Rule of Law Index | -1.065*** (0.231) | -1.127*** (0.404) | -1.095*** (0.351) | | -1.415*** (0.337) | -0.380*** (0.136) |
| Legal System & Property Rights | | | | -1.776*** (0.392) | | |
| Constant | 1.046 (0.732) | 1.184 (1.008) | 1.087 (0.992) | -1.371* (0.781) | 1.087 (1.396) | 5.966*** (0.496) |
| Observations | 180 | 180 | 180 | 180 | 144 | 215 |
| R2 within | | 0.305 | | 0.289 | 0.314 | 0.0320 |
| R2 between | | 0.808 | | 0.820 | 0.783 | 0.658 |
| R2 adjusted/overall | 0.560 | 0.578 | | 0.570 | 0.584 | 0.632 |
| F/Chi2 | 23.54 | 1031.3 | 534.6 | 201.3 | 260.39 | 68.11 |

† Estimators used: Ordinary least square [OLS]; Random effects [RE]; Generalized estimating equation [GEE]; Generalized least squares [GLS].

Standard errors in parentheses. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.6 Robustness checks

As a verification of the robustness of the results, we used an appropriate alternative method for data panels: a time-series generalized estimating equation (GEE) model (see Acs et al., 2008; Klapper et al., 2010; Dau and Cuervo-Cazurra, 2014). As shown in table III (Model 3), the results were very similar to those obtained through random effects. Therefore, the results are robust to the estimation method used (RE or GEE).

As manifested previously some works have found a positive relationship between stricter labor regulation and informal activity. One may therefore be concerned that the finding that stricter labor regulation negatively correlates with informal entrepreneurial activity was driven by the specific proxy used to measure labor regulation. To address this concern, we used the variable labor freedom from Heritage Foundation.¹¹ The results remained very similar when this variable was included (see Model 4, table III). We also employed an additional measure for Business regulation: number of days to start a new business. Again, the results remained very similar (see Model 4, table III). Finally we used an additional measure for property rights: Legal System & Property Rights Index from Fraser Institute. As displayed in Model 4, the results are maintained. In general, the results proved robust against specification changes.

Moreover, we lag each of the independent variables by one year. As shown in Model 5, the results remained the same. Again, the results proved robust against specification changes.

Finally, we used an additional measure of informal entrepreneurial activity (Model 6). This measure comes from ILOSTAT database and corresponds to the percentage of the active workforce that is an own-account worker. As displayed in the Model 6, the Rule of law index and Rigidity of employment maintained their high significance. However, business regulation lost its significance. This is probably due to that ILOSTAT includes agricultural self-employed, while Latinobarómetro allows making the differentiation. However, overall the results are robust.

¹¹ Higher value indicates more labour flexibility.

Table IV. Formal institutional factors (Hypothesis testing)

| Hypothesis | Description | Result |
|-------------------|---|---------------|
| H1: | Lighter business regulation is associated with lower levels of informal entrepreneurial activity. | Not rejected |
| H2: | Higher tax rates are associated with higher levels of informal entrepreneurial activity. | Rejected |
| H3: | Stricter regulation of labor is associated with higher levels of informal entrepreneurial activity. | Rejected |
| H4: | Stronger property rights are associated with lower levels of informal entrepreneurial activity. | Not rejected |

4 Informal institutions and informal entrepreneurial activity: panel data evidence from Latin American Countries

4.1 Introduction

In recent years, and most notably after the publication of the seminal paper by Webb et al. (2009), scholars in the field of entrepreneurship have begun to pay closer attention to informal entrepreneurship and, in particular, the importance of informal rules as one relevant explanation for its wide prevalence, predominantly in developing countries. According to Webb et al. (2009) societies are constituted of groups that normally differ regarding what is socially acceptable, and these differences are due to the norms, values, and beliefs which prevail in a given society (Dowling and Pfeffer, 1975; Scott, 2013). These asymmetries can lead to generating a gap between what some groups in society understand as legal and what others consider as legitimate (Webb et al., 2009). According to Webb et al (2013: 3) "the informal economy is concerned with economic activities that are outside of formal institutional boundaries (i.e., illegal) yet fall within informal institutional boundaries (i.e., legitimate)." This means that while formal rules such as tax, labor or environmental regulation penalize informality, other informal rules such as social acceptance of the informal economy by large groups of the society legitimize their presence and facilitate their development.

The definition proposed by Webb et al. (2009, 2013) has been very enlightening, mainly by the emphasis given to the informal rules. According to the authors of this study, informal rules make it possible for informal entrepreneurs to operate within the economy in spite of developing on the fringes of the law. Likewise, the informal activities are usually developed in small networks, where participants can make use of informal rules such as trust, and in this way try to compensate for the lack of rules and formal markets (Castells and Portes, 1989). For example, informal entrepreneurs can leverage identity-based groups that, in part, act as a substitute for formal institutions (Wilson and Portes, 1980). In other words, informal entrepreneurs can replace or compensate the market rules by operating through networks in the informal economy. In these networks the informal entrepreneurs find investors, suppliers, and customers; furthermore, social norms as trust, solidarity, reciprocity, and reputation can act as an acceptable substitute for formal rules (see Alesina and La Ferrara, 2000; Glaeser et al., 2000; Greif, 1993; Stiglitz, 2000; among others).

On the other hand, empirical research in the field of entrepreneurship has focused on the relationship between formal institutions and informal entrepreneurial activity. However, less has been said about the relationship with informal institutions (D'Hernocourt and Méon, 2012). The chapter attempts to incorporate and empirically test some of the ideas developed in recent years

by academics of entrepreneurship (see Webb et al., 2009; Welter and Smallbone, 2011; De Castro et al., 2014; Webb et al., 2014; Williams and Vorley, 2014). These scholars argue that the greater the incongruence between formal and informal institutions, the more entrepreneurs will operate in the informal sector (Williams and Shahid, 2016). Although informal entrepreneurs are not aligned with formal rules, they are justified by informal rules that give social acceptability to their activity (Webb et al., 2009).

To achieve this objective we will use institutional theory (North 1990, Web et al 2009, 2013) as conceptual framework and a panel data for 18 Latin America countries in the period from 2004 to 2015. The proxy used to informal entrepreneurial activity is the percentage of the adult population identified as own-account workers or street peddlers. The article is organized as follows: Section 2 discusses theory and hypothesis development. Section 3 describes the variables and econometric method used in the empirical analysis. In Section 4 the statistical analysis is developed. Finally, the empirical results are presented.

4.2 Theory and hypothesis development

4.2.1 Informal Rules and informal entrepreneurial activity

Helmke and Levitsky (2004: 727) define informal institutions as "socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels." For Raiser (1997: 4) "Informal institutions encompass a whole array of social and moral norms that constrain individual behavior and thereby allow the coordination of expectations in social and economic exchange." Within the new institutional economics, North (1990, 2005) has emphasized the importance of informal rules in economic performance; however, a large part of the research and evidence on informal rules has not come from institutional economics, but from the field of social capital (Keefer and Knack, 2008), through the pioneering works of Bourdieu (1985), Coleman (1988), and Putnam (1993). However, the discussion of the role of beliefs and values in shaping change inevitably turns to Max Weber's pioneering work which emphasized the religious origins of such values (Weber, 2002).

For Putnam (1993: 167) "Social capital... refers to features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions." These characteristics were termed by Bates (1988) as "soft solutions". Bates argues that institutions, rather than being supported on notions of contracts, coercion, and punishment (formal

rules), are based on concepts such as community, symbolism, and trusts (informal rules). Informal rules are very relevant because the behavior of individuals depends not only on written rules but also the process of socialization in which individuals are embedded during their lifetime (Granovetter, 1985). In his celebrated work on the Italian regions, Putnam (1993) included trust and norms of civic cooperation as forms of relevant social capital. According to his results, it is expected that those societies which have a greater stock of these elements are more prone to cooperation, reducing transaction costs and enabling economic exchange (Fukuyama, 1995; Knack and Keefer, 1997; Keefer and Knack, 2008).

At the level of entrepreneurship, social norms minimize the problems of adverse selection and moral hazard arising during the entrepreneurial process (Venkataraman, 1997). This happens due to the conditions of ignorance and uncertainty that surround the new ventures (Sarasvathy, 2001). In addition, informal rules encourage participation in social networks, which are important for entrepreneurs to mobilize resources such as human and financial capital (Baker et al., 2005; Aldrich and Kim, 2007; Acs and Stough, 2008). Also, social networks make it possible for the entrepreneurs to recognize opportunities through access to information and knowledge (Elfring and Hulsink, 2003; Stuart and Sorenson, 2005; Arenius and De Clercq, 2005).

For example, Arenius and De Clercq (2005), in a study conducted in Belgium and Finland, found a significant and positive relationship between the level of associative activity and new entrepreneurial activity. Moreover, the relationship is stronger in the case of emerging economies (De Clercq et al., 2010). The works of Granovetter (1983) about weak ties and Burt (2009) on structural holes have been applied to the field of entrepreneurship. The evidence suggests that those entrepreneurs who are part of extensive social networks have greater likelihood to discover and exploit entrepreneurial opportunities (Kim and Aldrich, 2005).

On the other hand, some scholars have pointed out that in developed societies, the relationships of trust that individuals develop throughout their lives goes beyond family, relatives, and friends, leading to greater economic activity (Fukuyama, 1995; Putnam, 1993). By contrast, in the least-developed societies, trust is limited to family and relatives, resulting in economic stagnation, corruption, clientelism, illegality, and informality (Banfield, 1967; De Soto, 1989; Gambetta, 1996).

Moreover, informal rules can empower the participation and political control of citizens and thus increase the quality of formal institutions and public policies (Putnam, 1993; Knack and

Keefer, 1997). However, social norms can also replace the non-presence of strong formal institutions that monitor and enforce contracts, and thus enable entrepreneurial activity in environments of greater uncertainty (Peng, 2003; Estrin et al. 2006). For example, Danis et al (2011) found that the relationship between social networks and new entrepreneurial activity is stronger in countries with lower levels of institutional development. Social norms can also help to encourage innovation since entrepreneurs have to spend less time monitoring misbehavior of partners, employees, and suppliers (Knack and Keefer, 1997). Also, Dakhli and De Clercq (2004) found a positive relationship between trust and innovative activity, although this relationship was not found for norms of civic behavior.

Finally, formal and informal rules interact in different ways, either complementing or replacing one another (North, 1990; Helmke and Levitsky, 2004; Tonoyan et al., 2010). For example, some informal rules are originated with the aim of solving problems of social interaction. In the same vein, trust can be a solution to the problem of a lack of trust in the legal framework (D'Hernocourt and Méon, 2012). In contrast, other informal rules create problems, such as the absence of civic norms (Knack and Keefer, 1995; Helmke and Levitsky, 2004) or low tax morale (Torgler and Schneider, 2007). In general, informal institutions that replace formal rules are developed mostly in states with weak formal institutional structures (Helmke and Levitsky, 2004).

Below, two types of informal institutions will be analyzed. Each of them has been important in the literature on institutionalism and social capital: Trust (Putnam, 1993; Fukuyama, 1995; Gambetta, 1996; Knack and Keefer, 1997; Dasgupta, 2000, 2011; Keefer and Knack, 2008) and norms of behavior (Elster, 2000; Akerlof and Kranton, 2005). Generalized trust refers to one's trust in strangers. Generalized trust may be understood as a "mental model of what one can expect from others when there is no personalized information about them" (Tonoyan et al., 2010). To deal with other people, individuals need the construction of internal representations of the agents with whom they interact (Arthur, 1992). According to Tonoyan (2004) social trust may be seen as an example of what North (1990) called informal institutions.

Moreover, trust is important for entrepreneurship, due to its relevance in situations of ignorance and uncertainty (Dasgupta, 2001; Hohmann and Malieva, 2005; Gambetta 2000). Ignorance and uncertainty are typical characteristics of entrepreneurship (Knight, 1985; Sarasvathy, 2001). Under this environment, trust can help minimize problems of adverse selection and moral hazard

(Venkataraman, 1997; Shane, 2003) and also reduce opportunistic behavior (Smallbone and Lyon, 2002).

On the other hand, trust is a key element for the promotion and formation of social networks (Lin, 1999; Lin et al., 2001). For example, Light (2004: 2) defines social capital as "relationships of trust embedded in social networks" and Anderson and Jack (2002) believe that trust is the "glue and lubricant" holding together networks. Furthermore, social networks are important for entrepreneurs to mobilize resources such as human and financial capital (Baker et al., 2005; Aldrich, 2008; Acs and Stough, 2008). For example, Arenius and De Clercq (2005) and De Carolis and Saporito (2006) found a positive and significant relationship between social networks and perception of opportunities, and the same relationship was found between social networks and new entrepreneurial activities (Aidis et al., 2008; De Clercq et al., 2010; Danis et al., 2011; Turkina and Thi Thanh Thai, 2013; Kozan and Akdeniz., 2014). Likewise, some scholars have emphasized the collective nature of informal entrepreneurship (Webb et al., 2013).

Furthermore, the presence of trust in a society can help to avoid the excessive use of coercive formal means, such as litigation, which are expensive, inhibit cooperative behavior, and take resources that could otherwise be used in productive activities (Baumol, 1990; Gambetta, 2000). But at the same time, trust can compensate for gaps or deficiencies in formal rules (McMillan and Woodruff, 2000; Peng, 2003; Estrin et al., 2006; De Clercq et al., 2010; Puffer et al., 2010; Danis et al., 2011; Batjargal et al., 2013). In this case, trust becomes a substitute for the legal framework (Helmke and Levitsky, 2004). For example, in a study in Chile by Khanna and Palepu (2000), it was found that the formation of business groups, which is mediated by solidarity rules and behavior codes (Granovetter, 1985), is often due to the presence of a series of formal institutional voids.

Another point is that trust decreases the costs and risks involved in business transactions, especially when the institutional environment is more volatile (Welter and Smallbone, 2011). In societies where the law does not work well or markets are not yet sufficiently well developed, individuals base their relations on communal forms (Dasgupta, 2011). For example, Welter and Smallbone (2003) argue that societies with low levels of trust are related to the development of informal economic activities. However, the relationship between trust and the informal economy has little been studied empirically (D'Hernoncourta and Meon, 2012).

For example, D'Hernoncourta and Meon (2012) considered that the relationship between trust and informality exist, but the sign of the relationship will depend on whether the trust is a substitute

for the legal system or a form of tax evasion. In the first case, a positive relationship is expected, because, as Knack and Keefer (1995) argue, trust is essential where contracts are not effectively enforced by the legal system. In the second case, a negative relationship is expected, because if informal entrepreneurship is a form of tax evasion, and given that trust increases tax compliance (Torgler, 2003, 2005), informality should be negatively related to the trust (D'Hernoncourta and Meon, 2012).

Likewise, as argued by Uslaner (2002:181), "the rich and the poor have little reason to believe that they share common values, and thus might well be wary of each others' motives." That is to say, in low-trust societies, it is very probable that individuals do not identify with the formal rules and this ultimately leads to a legitimization of their informal activities (Web et al., 2009, 2013). In this situation, less trust should lead to greater informal entrepreneurship. This implies that the relationship is an empirical issue. However, D'Hernoncourta and Meon (2012) found a negative relationship for a heterogeneous sample of countries around the world. Based on this finding, we propose the following hypothesis:

H1: Higher Generalized trust is related to lower levels of informal entrepreneurial activity

For Fukuyama (1995), some social virtues as honesty, trustworthiness, and cooperation have a significant impact on economic life and their absence may explain differences in development between countries or regions, as suggested by Putnam (1993) for the case of Italy. Moreover, in developing economies, failure to comply with several regulations is often viewed as socially acceptable. This is because economic necessity forces many people to develop activities of very low productivity that won't allow them to meet the costs which, in terms of money and time, are imposed by the State's legal framework (De Soto, 1989; Grosh and Somolekae, 1996).

Tax morale is a social norm reflecting the intrinsic motivation to pay taxes (Torgler and Schneider, 2007). In other words, it can be seen as a moral obligation regarding compliance with the payment of taxes. This variable essentially tries to capture the fact that in societies where citizens believe in their economic and political institutions, they will be more willing to comply with their tax obligations and therefore decide to operate in the formal sector. In this type of society, the moral costs of operating in the informal economy are quite high (Torgler and Schneider, 2007). Therefore complying with fiscal obligations becomes a social norm. By contrast,

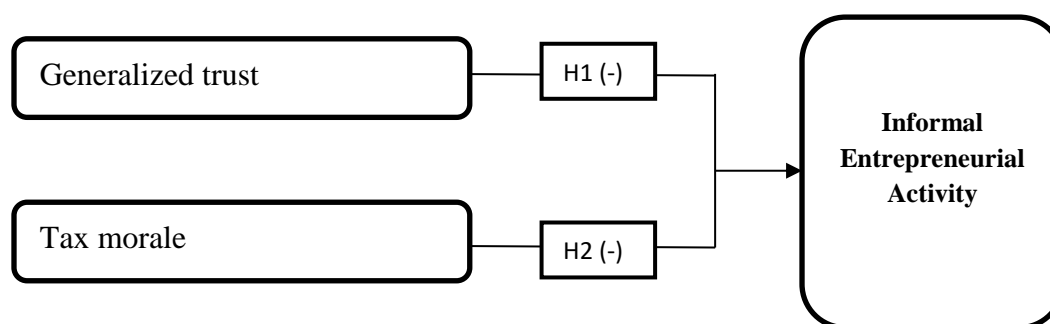
in societies where these aspects are absent, there is social acceptability with regard to certain laws being violated (Webb et al., 2009, 2013).

For example, Torgler and Schneider, (2007) argue that in countries where corruption is systemic and the government budget lacks transparency and accountability, the obligation of paying taxes can not be assumed to be an accepted social norm. Therefore, for such countries the incentives to operate within the informal economy increase. Likewise, when citizens feel less satisfied with their institutions, they have less incentive to adhere to the rules emanating from the institutional framework (Alm and McKee, 1993). Individuals may decide to evade taxes because they do not trust that the government will make proper use of them (Tanzi, 1982; Renooy, 1990).

At the empirical level, some studies have found a negative relationship between tax morale and a larger size of the informal sector (Alm and Torgler, 2006; Torgler and Schneider, 2007; Torgler and Schneider, 2009; Torgler et al., 2010). Using data for Latin America, Torgler (2005) found a strong negative correlation between both variables. However, his study only considered one reference year (data from 1998). From these findings, the following hypothesis is established:

H2: A higher degree of tax morale is related to less informal entrepreneurial activity.

Figure VI. Informal entrepreneurial activity and informal institutions: hypothesis



4.3 Methodology

4.3.1 Data and Variables

As previously established, this chapter seeks to estimate the relationship between informal rules and informal entrepreneurial activity for different Latin American countries over several time periods. For the research, we have constructed a panel covering the period 2004-2015, and the dataset contains 180 observations in 18 countries: Argentina, Bolivia, Brazil, Chile, Colombia,

Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.¹²

Dependent Variables

As explained in the last chapter, the dependent variable comes from Latinobarómetro for the period 2004-2015. The survey was conducted by the Latinobarómetro Corporation, a non-profit NGO headquartered in Santiago de Chile. The surveys have been conducted in the region since 1995 until the present date; however, since 2004, the surveys have presented a national coverage of nearly one hundred percent for all countries and a common questionnaire leading to harmonized data¹³. The ten measurement surveys consist of 218,889 interviews with approximately 1,000-1,200 surveys per country. The samples are representative of the adult population of each country, with a margin of error of approximately 3%.

We will define informal entrepreneurial activity as the percentage of the adult population identified as own-account workers or street peddlers. Loayza and Rigolini (2006, 2011) suggest using self-employment as a good proxy for informality in developing countries.

Independent Variables

Following the argument developed by Webb et al (2009) regarding the relevance of informal rules for informal entrepreneurship, we will use two variables from Latinobarómetro: Generalized trust and Tax morale. If there is incongruence between formal and informal institutions as expressed in low trust and tax morale, this should follow the highest levels of informal entrepreneurial activity. According to Webb et al (2009) the existence of an asymmetry between the formal rules and what people consider as legitimate (informal rules) is what permits the emergence of informal entrepreneurship.

As a proxy for generalized trust, we will build an index of generalized trust, which corresponds to the percentage of adults who responded positively to the following question: “Generally speaking, would you say that most people can be trusted?” Moreover, we include the variable tax morale, which reflects the intrinsic motivation to pay taxes.¹⁴ This index was built based on the

¹² There were two years when the survey was not conducted: 2011 and 2014.

¹³ To access a detailed document on the sample and coverage: <http://www.latinobarometro.org/latContents.jsp>

¹⁴ The index was constructed following to Torgler and Schneider (2009)

following question: On a scale of 1 to 10, where 1 means "not at all justifiable" and 10 means "totally justifiable", how justifiable do you believe it is to evade paying taxes? In all of these variables the average of the period 2004-2015 was used with the aim of minimizing possible biases in the sample. In addition, according to institutional theory (North, 1990), the change in the informal rules can be quite slow.

Control Variables

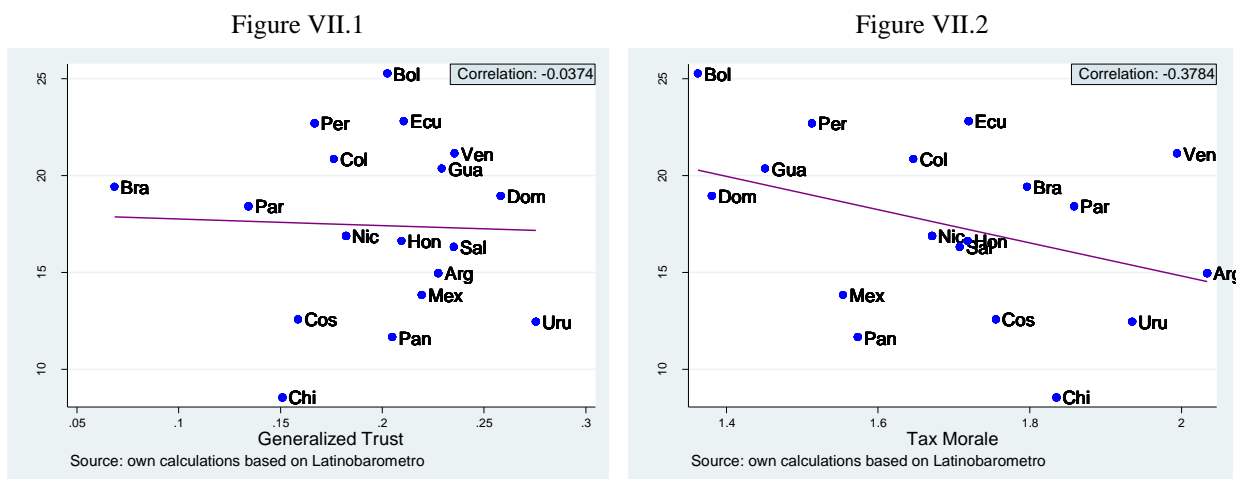
Several studies have found a relationship between the level of entrepreneurial activity and economic development (see Acs et al., 1994; Carree et al., 2002; Wennekers et al., 2005; Van Stel et al., 2005; Acs et al., 2008; Levie and Autio, 2011; Estrin et al., 2013; among others). For this reason, we used GDP per capita (purchasing power parity) as a control variable. We also controlled for the rate of economic growth (Dau and Cuervo-Cazurra, 2014). Moreover, we controlled for the population growth rate (La Porta y Scheifler, 2014). Other works have found that informality is related to the productive structure of a country and the educational level. We controlled for productive structure by using the percentage of the economically active population working in the agricultural sector (Gasparini and Tornarolli, 2009). As a control for education level, we used the average years of secondary schooling of the adult population (Loayza et al., 2005; Barro and Lee, 2013).

On the other hand, as suggested by the empirical results presented in the previous chapter, some formal institutions affect the informal entrepreneurial activity. For example, several scholars have found that a greater regulation of business, as high entry barriers (Djankov et al., 2002; Klappler et al., 2006; La Porta and Shleifer, 2008; Loayza et al., 2009) or stricter labour regulations (Loayza, 1996; Loayza et al., 2005) are related to greater informal activity. Finally, other scholars have showed that countries with a strong rule of law present lower levels of informal activity (Loayza and Rigolini, 2006; Acs et al., 2008; La Porta and Shleifer, 2008). Therefore, we controlled for each of these factors.

Table V shows the description of variables used in this research. In the figures VI, which are presented below, the scatter diagrams show simple correlations for each of the institutional variables (average 2004-2015) with respect to the rate of informal entrepreneurial activity. The graphics exhibit patterns of correlation which were expected based on theory and previous empirical evidence. However, these are simple correlations. A more appropriate analytical exercise

requires evaluating the statistical significance of each one of them jointly, through a multiple regression analysis.

Figure VII. Informal entrepreneurial activity and informal institutions (Simple correlations)



4.4 Statistical Analysis

In order to analyze the relationship between informal rules and informal entrepreneurial activity in Latin America countries, we used a balanced panel data for the period 2004-2015. Therefore, we propose the following general model:

$$\begin{aligned} \text{Informal Entrepreneurial Activity} = & \beta_0 + \beta_1.GDP_percapita + \beta_2.Growth_rate_GDP + \\ & \beta_3.Population_Growth + \beta_4. Agricultural_Population + \beta_5.Secondary_Education + \beta_6. \\ & Business_regulation + \beta_7.Total_tax_rate + \beta_8.Rigid_labour + \beta_9. Rule_of_Law + \beta_{10}.Trend(t) \\ & + \beta_{11}. Generalized_Trust + \beta_{12}. Tax_Morale + u. \end{aligned}$$

Firstly, we verified whether the use of Panel Data versus a simple OLS regression was justified. This was done by applying the Breusch and Pagan test (Breusch and Pagan, 1980). We rejected the null hypothesis ($\text{Prob} > \text{chibar2} = 0.0027$), which argues that panel data are preferable to using a pooled dataset. To verify whether it was preferable to use fixed effects or random effects, the Hausmann test was applied (Wooldridge, 2002). The test consistently suggested that the random effects model was better suited to the data ($\text{Prob} > \text{chi2} = 0.6770$). In other words, there

exists no correlation between the individual effects and the explanatory variables, indicating the use of the random effects model. We also verified the presence of autocorrelation. This was done by applying the test for serial correlation derived by Wooldridge (2002). We obtained a result of $F > 0.000$ ($\text{Prob} > F = 0.4037$), therefore autocorrelation does not seem to be a problem in our data. Finally, we verified the existence of severe multicollinearity problems, particularly taking into account that the correlation matrix (Table VI) included some correlations over 0.5. We applied the variance inflation factor (VIF). The maximum value of VIF was 3.40. The average VIF was 2.13, which in any case shows values below the commonly accepted threshold of 5 and 10 (Dau and Cuervo-Cazurra, 2014). Therefore, multicollinearity did not appear to be a problem.

4.5 Results

Table V shows the means and standard deviations for the variables analyzed and table VI shows the correlation matrix, where an asterisk identifies statistical significance. These univariate tests show that some dependent variables were significantly related to each other, although, as previously mentioned, this did not represent any serious multicollinearity problem. Table VII presents the regression results based on the data panel.

As established before, the model analyzes the effect of two informal institutions (tax morale and generalized trust) and informal entrepreneurial activity. For this purpose, we controlled by some socio-economic and institutional factors. Regarding the control variables, the results show a behavior which was very similar to those obtained in the results described in the last chapter, where only the socio-economic factors and the formal rules were included. The result shows that business regulation, rigidity of employment, and the rule of law index maintained their sign and statistical significance (Model 2).

With respect to the variables of interest, the results displayed in the Model 2 (Table VII) indicate that tax morale was significant ($p < 0.05$). Hence, an improvement in tax morale by one standard deviation results in a reduction in the informal entrepreneurial activity rate of about 0.082 standard deviations. However, generalized trust had no significance. In the case of tax morale this coincides with previous studies for several countries around the world (Alm et al., 2006; Alm and Torgler, 2006; Torgler and Schneider, 2007; Torgler and Schneider, 2009; Torgler et al., 2010) and for the specific case of Latin America (Torgler, 2005). Therefore, these results support hypotheses 2.

The non-significance of generalized trust may be explained by the construction of the variable, which includes unskilled self-employed workers, who normally carry out transactions of low scale (Williams and Shahid, 2016). Under these conditions, it is possible that trust does not matter excessively (D'Hernoncourta and Meon , 2012). Although the study of D'Hernoncourta and Meon (2012) found a negative and strongly significant relationship, they used a measure of shadow economy, which captures illegal and evasive types of transactions. Therefore, no support was found for hypotheses 1.

Finally, the independent variables jointly explain a high percentage of the variation in the level of informal entrepreneurial activity observed between different countries of Latin America ($R^2 = 0.597$). In general, the results show that informal entrepreneurial activity is greatest in Latin American countries that have lower levels of tax morale. However, generalized trust did not show a statistically significant relationship. The tax morale was highly significant ($p < 0.05$) and all the coefficients showed the expected signs. Finally, it is relevant to point out that those formal institutional variables that were included as controls, and that proved to be significant in the previous chapter, kept their significance and sign when the informal institutional variables were added.

Table V. Description of variables and statistics

| Variable | measure | Description | Mean | SD |
|---|---------|---|----------|---------|
| 1. Informal entrepreneurial activity Rate | percent | Percentage of the adult population who identify themselves as self-employed or street vendors (excluding self-employed professionals and agricultural). <i>Latinobarómetro</i> | 17.43 | 5.67 |
| 2. GDP per capita | USD | GDP per capita, purchasing power parities (log for analysis) <i>International Monetary Fund Data</i> | 11220.52 | 5232.46 |
| 3. Growth rate GDP | percent | Growth rate GDP <i>International Monetary Fund Data</i> | 1.42 | 0.58 |
| 4. The population growth rate | percent | The population growth rate. <i>International Monetary Fund Data</i> | 4.60 | 3.35 |
| 5. Agricultural population | percent | Percentage of economically active population working in agriculture. <i>World Bank Data Base</i> | 19.25 | 10.15 |
| 6. Secondary education attainment | index | Average Years of Secondary Schooling. <i>World Bank Data Base- Barro and Lee (2013)</i> | 2.40 | 0.72 |
| 7. Business regulation | Index | A measure of the level of administrative requirements and bureaucratic procedures that entrepreneurs must comply with to open or operate a formal business. Normalized between 0 and 1, with 1 equaling the freest business environment. <i>Fraser Institute</i> | 0.57 | 0.09 |
| 8. Rigidity of employment | Index | It is a quantitative measure that considers various aspects of the legal and regulatory framework of a country's labor market. Normalized between 0 and 1. A higher value indicates greater rigidity. <i>Doing Business</i> | 53.66 | 21.54 |
| 9. Total taxes as percent of profits | percent | Total tax rate paid by businesses after deductions and exemptions (log for analysis). <i>Doing Business</i> | 0.40 | 0.18 |
| 10. Rule of Law Index | Index | This index measures "... the quality of contract enforcement, the police, and the courts, and also the likelihood of crime and violence" (Kaufmann et al. 2007) Normalized between 0 and 1. A higher value indicates stronger property rights. <i>World Bank Governance Indicators</i> | 0.40 | 0.14 |
| 11. Generalized Trust | percent | "Generally speaking, would you say that most people can be trusted?" <i>Latinobarómetro</i> | 19.70 | 6.91 |
| 12. Tax Morale | Index | On a scale of 1 to 10, where 1 means "not at all justifiable" and 10 means "totally justifiable", how justifiable do you believe it is to evade paying taxes? A higher value indicates greater motivation to pay taxes <i>Latinobarómetro</i> | 1.69 | 0.41 |

Table VI. Informal entrepreneurial activity and sociodemographic/formal/informal institutions factors (correlation matrix)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|-----------|-----------|-----------|---------|-----------|-----------|----------|-----------|-----------|-----------|-----------|---------|----|
| 1 Informal entrep. activity rate | 1 | | | | | | | | | | | | |
| 2 % of EAP self-employed ILO | 0.463*** | 1 | | | | | | | | | | | |
| 3 GDP per capita | -0.437*** | -0.635*** | 1 | | | | | | | | | | |
| 4 Growth rate GDP | 0.0827 | -0.00677 | 0.00133 | 1 | | | | | | | | | |
| 5 The population growth rate | 0.292*** | 0.339*** | -0.395*** | 0.0855 | 1 | | | | | | | | |
| 6 Agricultural population | 0.323*** | 0.375*** | -0.471*** | -0.0588 | 0.357*** | 1 | | | | | | | |
| 7 Secondary educ. attainment | -0.287*** | -0.165* | 0.609*** | 0.121 | -0.195** | -0.358*** | 1 | | | | | | |
| 8 Business regulations | -0.450*** | 0.0793 | -0.0496 | 0.0254 | -0.115 | 0.0343 | 0.101 | 1 | | | | | |
| 9 Total taxes % of profits | 0.196** | -0.193** | 0.0253 | -0.0173 | -0.0708 | -0.198** | -0.0639 | -0.459*** | 1 | | | | |
| 10 Rigidity of employment | -0.127 | -0.154* | 0.0273 | 0.0928 | 0.388*** | 0.145* | 0.0779 | -0.136* | -0.218*** | 1 | | | |
| 11 Rule of Law Index | -0.594*** | -0.569*** | 0.458*** | 0.0819 | -0.474*** | -0.387*** | 0.407*** | 0.426*** | -0.217*** | -0.0579 | 1 | | |
| 12 Tax Morale | -0.247*** | -0.548*** | 0.409*** | -0.0546 | -0.390*** | -0.613*** | 0.0524** | -0.210** | 0.171** | -0.0500 | 0.185** | 1 | |
| 13 Generalized Trust | 0.0120 | 0.147* | 0.0263 | 0.0397 | -0.104 | 0.0481 | -0.131* | 0.210** | -0.0385 | -0.277*** | -0.233*** | -0.0992 | 1 |

* p < 0.05, ** p < 0.01, *** p < 0.001

**Table VII. Informal institutional factors and informal entrepreneur activity rate
(econometric results)†**

| | Principal Models | | Robustness Checks | | |
|--------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | Model 1. [OLS] | Model 2. [RE] | Model 3. [GEE] | Model 4. [RE] | Model 5. [GLS] |
| <i>Controls</i> | | | | | |
| GDP per capita | -0.071 (0.070) | -0.078 (0.130) | -0.074 (0.110) | -0.105 (0.147) | -0.217*** (0.049) |
| Population growth | 0.007 (0.005) | 0.003 (0.004) | 0.004 (0.004) | 0.003 (0.005) | -0.001 (0.001) |
| Growth rate GDP | -1.349 (4.355) | 3.311 (4.524) | 0.964 (4.404) | -2.174 (4.728) | 0.107 (1.156) |
| Agricultural population | 0.000 (0.002) | -0.003 (0.004) | -0.001 (0.003) | 0.001 (0.004) | 0.000 (0.002) |
| Secondary education attainment | 0.025 (0.038) | 0.030 (0.043) | 0.028 (0.037) | 0.084 (0.051) | 0.027 (0.021) |
| Business regulations | -1.148*** (0.300) | -1.265*** (0.428) | -1.202*** (0.340) | -1.056** (0.435) | -0.095 (0.137) |
| Total taxes % profits | -0.049 (0.055) | -0.075 (0.106) | -0.059 (0.082) | -0.051 (0.101) | -0.056 (0.043) |
| Rigidity of employment | -0.536*** (0.117) | -0.575*** (0.135) | -0.555*** (0.132) | -0.570*** (0.131) | -0.281** (0.131) |
| Rule of Law Index | -1.361*** (0.213) | -1.294*** (0.464) | -1.320*** (0.397) | -1.591*** (0.410) | -0.418*** (0.134) |
| Trend | -0.032*** (0.008) | -0.033*** (0.012) | -0.033*** (0.010) | -0.038*** (0.013) | 0.009*** (0.003) |
| <i>Predictors</i> | | | | | |
| Tax Morale | -0.386*** (0.137) | -0.427** (0.167) | -0.395*** (0.141) | -0.290* (0.166) | -0.444*** (0.135) |
| Generalized Trust | -0.948* (0.484) | -0.815 (0.740) | -0.875 (0.649) | -0.972 (0.789) | 0.112 (0.485) |
| Constant | 1.388* (0.725) | 1.656 (1.071) | 1.469 (1.004) | 1.469 (1.315) | 6.455*** (0.486) |
| Observations | 180 | 180 | 180 | 162 | 215 |
| R2 within | | 0.309 | | 0.327 | 0.036 |
| R2 between | | 0.841 | | 0.826 | 0.726 |
| R2 adjusted / overall | 0.576 | 0.597 | | 0.604 | 0.700 |
| F / Chi2 | 21.69 | 611.1 | 857.0 | 644.26 | 96.92 |

† Estimators used: Ordinary least square [OLS]; Random effects [RE]; Generalized estimating equation [GEE]; Generalized least squares [GLS].

Standard errors in parentheses. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.6 Robustness checks

As a verification of the robustness of our results, we used an appropriate alternative method for data panels: a time-series generalized estimating equation (GEE) model (see Acs et al., 2008; Klapper et al., 2010; Dau and Cuervo-Cazurra, 2014). As shown in table VII (Model 3), the results were consistent to those obtained through random effects. Therefore, the results were robust to the estimation method used (RE or GEE).

Moreover, we lag each of the independent variables by one year (Model 4). The results were somewhat sensitive. Tax morale maintained its significance, but at the 10% level.

Finally, we used an additional measure of informal entrepreneurial activity. This measure comes from ILOSTAT database and corresponds to the percentage of the active workforce that is an own-account worker. As displayed in the Model 5, Tax morale maintains their high significance. Again, Generalized Trust was not significant. In general, the results proved robust against specification changes.

Therefore, the results are robust to the use of alternative methods, specifications, and samples.

Table VIII. Informal institutional factors (*Hypothesis testing*)

| Hypothesis | Description | Result |
|-------------------|--|---------------|
| H1: | Higher Generalized trust is related to lower levels of informal entrepreneurial activity | Rejected |
| H2: | A higher degree of tax morale is related to less informal entrepreneurial activity | Not rejected |

5. Formal and Informal institutions and formal entrepreneurial activity: panel data evidence from Latin American Countries

5.1 Introduction

Institutional arrangements that arise in society can lead to different economic outcomes and types of entrepreneurship. As argued by North (1990), institutions, together with the ordinary constraints of economic theory, determine the productive opportunities in society. In the same vein, Baumol (1990) argues that an institutional environment can either positively or negatively impact entrepreneurial decision-making, including decisions regarding what type of entrepreneurship to deploy. For instance, the allocation of entrepreneurial talent towards productive activities will largely depend on the incentives and payments offered by the institutional matrix (Minniti, 2008). For Acemoglu and Robinson (2012), many societies in developing countries are trapped in a kind of extractive institutional structure that does not generate incentives nor allow its inhabitants to fully participate in the type of entrepreneurial opportunities that flourish in developed societies under inclusive institutions. For these reasons, an analysis of the kind of incentives or game rules that promote or deter the allocation of entrepreneurial talent to productive activities is a field of enormous relevance, especially for developing countries (Boettke and Coyne, 2003; Desai, 2009; Naudé, 2010).

In recent decades, there exist more considerable agreement regarding the relevance of the entrepreneurial factor to economic processes (Baumol, 1968; Kirzner, 1973; Leibenstein, 1978; Audretsch et al., 2006) for its contribution to the creation of jobs, and the introduction of innovation and knowledge (Leff, 1979; Acs and Audretsch, 1988; Wennekers and Thurik, 1999; Audretsch et al., 2006). However, the empirical evidence has produced contradictory results concerning the contribution of entrepreneurship to economic development. For example, Van Stel et al. (2005) found that the impact of entrepreneurial activity on economic growth varies for countries at different stages of development. In the case of developed countries, a positive relationship was found. However, this link is not sustained for nations that are in the initial stages of development.

These paradoxical findings have led to the need to move the analysis towards the various types of entrepreneurial activities that arise in an economy (Baumol, 1990). Implicit in this argument is the fact that not all types of entrepreneurship are associated with economic development (Boettke and Coyne, 2003) and more specifically with employment, innovation, and welfare (Acs et al., 2008). Therefore, the ways in which diverse societies assign entrepreneurship can restrict or promote economic growth (Leff, 1979). For example, statistics coming from the Global

Entrepreneurship Monitor (GEM) show that Latin American countries exhibit one of the highest rates of entrepreneurial activity. However, that does not correspond to their ordinary rates of economic growth (Larroulet and Couyoumdjian, 2009).

Therefore, as noted by Desai (2009), in developing countries there are different types of entrepreneurial activities which, in turn, impact economic growth differently. For instance, formal entrepreneurship has been associated with economic development (De Soto, 1989, 2000). Formal entrepreneurs contribute to the provisioning of goods and public services and social welfare through the payment of taxes and their compliance with environmental and labor regulations (Loayza, 1996; Andrews et al., 2011). Also, economies with a majority of their activities developed within the formal sector minimize the levels of corruption in the Government and therefore contribute to better institutional quality (Dreher and Schneider, 2010). Finally, a vibrant formal sector is a reflection of a level playing field for all economic agents. Through it, entrepreneurs can obtain a productivity benefit from access to public services, such as access to courts to resolve disputes commercial or enforce their property rights (La Porta and Sheifler, 2008; Klapper et al., 2010). These same elements are associated with the development of impersonal markets, and therefore with the growth of enterprises (North, 1990).

The purpose of this Chapter, then, is to examine the relationship between formal and informal institutions and formal entrepreneurial activity in Latin American countries using information from two databases: The Latinobarómetro and The World Bank Entrepreneurship Survey (WBGES). These databases allow high comparability at the level of Latin America for various periods of time. We followed two definitions of formal entrepreneurial activity suggested in the literature: the productive and legal definition. In general, the empirical evidence shows different findings for each definition and those differences are therefore very important to take into account, especially from the point of view of public policy. The legal definition of formal entrepreneurship, but not the productive definition, seems to be associated with the type of entrepreneurial activity that promotes economic growth and development.

Besides this, the chapter complements empirical findings from the previous ones. The article will analyze the possible differential effect of institutions (formal and informal) on formal and informal entrepreneurial activity jointly. This comparative analysis could be valuable mainly for policymakers because it will allow for understanding of the institutional factors that underlie the decisions of entrepreneurs to operate in the formal or informal sector. Finally, another interesting

contribution is that the analysis considers the combined effects of both formal and informal institutions.

The article is organized as follows: Section 2 discusses theory and hypothesis development. Section 3 describes the variables and econometric method used in the empirical analysis. In Section 4 the statistical analysis is developed. Finally, the empirical results are presented.

5.2 Theory and hypothesis development

5.2.1 Defining formal entrepreneurial activity

Defining and measuring formal-informal activity is a complicated issue since the concept of "Informality" means different things to different people (Gasparini and Tornarolli, 2009). Therefore, there exists a limited consensus in the academic literature on how to define and operationalize these concepts in developing economies (Feige, 1990; Henley et al., 2009). For example, for Kanbur (2009: 2) "Informality is a term that has the dubious distinction of maximum importance and political salience with minimal policy combining conceptual clarity and coherence in the analytical literature."

Despite this ambiguity in the definition, two approaches have been dominant in the literature: the productive and the legal (Tornarolli et al., 2014). The productive approach is associated with the dual view of development (Lewis, 1954). According to this approach, the informal economy is related to those working in low-productivity, unskilled, marginal jobs (Castells and Portes, 1989; Maloney, 2004; Banerjee and Duflo, 2005; Gasparini and Tornarolli, 2009; La Porta and Shleifer, 2008; Tornarolli et al., 2014) and with low capacity of accumulation (Tokman, 1987; La Porta and Shleifer, 2008). At the empirical level, specific labor categories, such as unskilled own-account workers, are more likely to form part of such activities (Loayza and Rigolini, 2006).

For example, La Corporación Andina de Fomento (CAF, 2013), through its survey on access, quality and satisfaction with public services in Latin America (ECAAF, 2012) collected in several Latin American cities, found that three quarters of non-professional own-account workers are subsistence or necessity entrepreneurs. Likewise, Aguilar et al. (2013), using information from the Latinobarómetro database, found that own account workers enjoy a lower level of work satisfaction than business owners. On the other hand, Mondragón-Vélez and Peña (2010: 124), using information from household surveys, conclude "that while business ownership shares the main characteristics of what the literature associates with entrepreneurship, self-employment in

the Colombian context is more associated with a subsistence activity." Moreover, self-employed workers are more likely to hide their productive activities from the tax and registry authorities (Portes and Haller, 2005). In the study mentioned above, Mondragón-Vélez and Peña (2010) found that only five percent of own-account workers registered their activity in Colombia over the period 2002-2006.

Therefore, in Latin American countries, the self-employed have less human capital, smaller incomes, and lower levels of satisfaction than business owners (Saavedra and Chong, 1999; Mondragon-Velez y Peña, 2010; Tornarolli et al., 2014). These findings contradict the traditional models of occupational choice that have been developed primarily to understand the labor dynamics of developed countries. In these models, the decision of individuals to become entrepreneurs depends, among other things, upon the higher returns that they expect to obtain relative to wage employment (Lucas, 1978; Parker, 2004) and the preference of certain individuals for greater autonomy (Evans and Leighton, 1989; Blanchflower and Oswald, 1998).

From these findings, differentiating between own-account workers and businesses owners in developing countries seems quite relevant (Mondragón-Velez and Peña, 2010). Also, the fact that business owners have employees in their charge may be a good sign of a successful business which was started by opportunity, different from the marginal and low-productivity jobs that characterize the own account workers. For instance, Gindling and Newhouse (2014) classify entrepreneurs as successful whether the self-employed are employers (vs. own account workers). Based on these findings, in this article, business owners are considered a reflection of formal entrepreneurs. Below, Figure VIII.1 shows the percentage of the adult population per countries who identify themselves as owners of the non-agricultural business (average 2004-2015).

Regarding the legal definition of formal-informal activity, it is much more accurate at a theoretical level than the productive definition. However, it is more challenging to implement at the practical level (Gasparini and Tornarolli, 2009). Under the new institutional conceptual framework, Feige (1990: 5) argues that "an economic agent is regarded as a member of the 'formal' sector of any economy when his actions adhere to or are protected by the established institutional rules of the game." Therefore, the distinction between formal and informal entrepreneurial activity is determined by registration status (Desai, 2009). The above means that inclusion in the formal sector is not related to the nature of the business or labor status, but is connected with the non-compliance of regulations implemented by the State (De Soto, 1989). The legal definition has been

extensively used by scholars in the field of entrepreneurship, while the productive definition has been used primarily by those in the field of Labor Economics. Figure VIII.2 shows the number of newly registered firms with limited liability per 1,000 working-age people (ages 15-64) per country (Average 2006-2015).

**Figure VIII. Formal entrepreneurial activity in Latin American Countries (Productive definition)
(Average 2004-2015)**

Figure VIII.1. Productive Definition

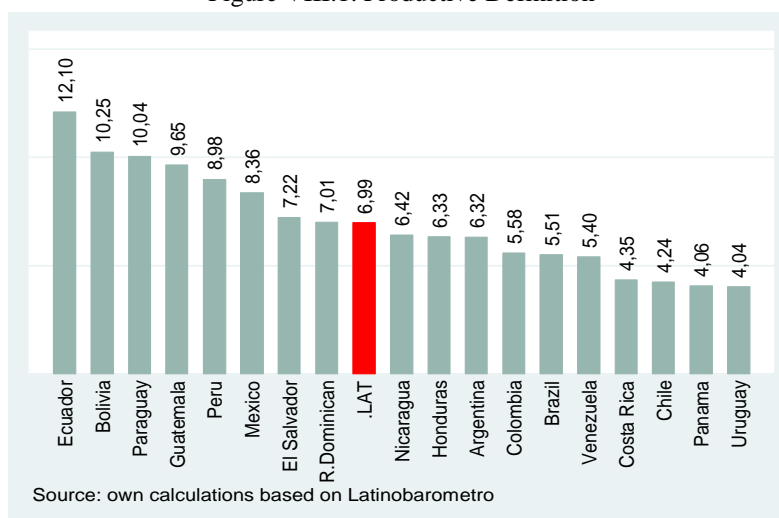
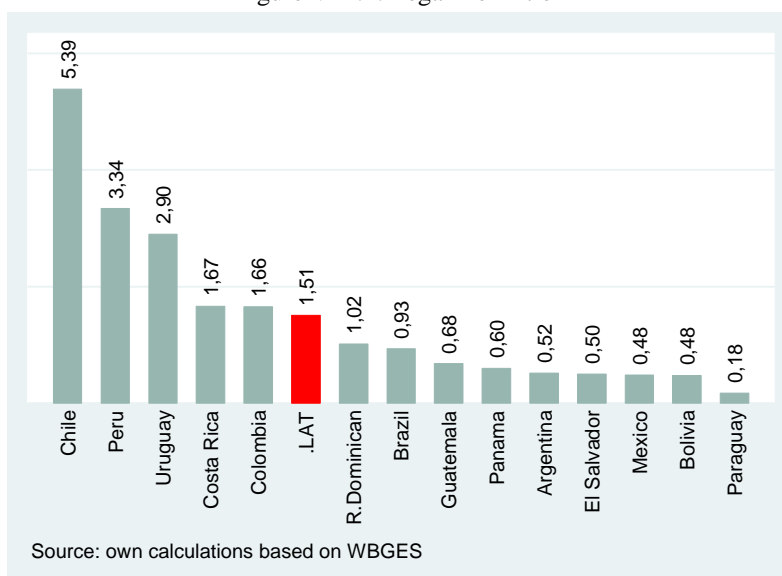


Figure VIII.2. Legal Definition



5.2.2 Formal Institutions and formal entrepreneurial activity

Formal institutions are those which are officially codified in written documents (Lauth, 2015). For North (1990), formal rules include political rules, economic rules, and contracts. Formal institutions are mainly related to the establishment of property rights and enforcement of contracts (North, 1990; Acemoglu et al., 2005). Empirical works carried out in recent decades by authors such as Knack and Keefer (1995), Acemoglu et al. (2000), and Rodrick (2000), among others, have confirmed the positive impact of institutions on economic development. At the same time, the empirical results suggest that institutional factors dominate other economic factors that have traditionally been considered as the fundamental causes of economic growth, such as investment and human capital (Solow, 1956; Romer, 1986) or factors such as geography (Gallup et al., 1999) and even from an older tradition such as culture (Weber, 2002; Landes, 2015).

If we follow the general definition of institutions from North (1990), institutions are the rules of the game in society. The evidence in the field of comparative economics suggests a diversity of legal frameworks among countries (Djankov et al., 2003; Rodrik, 2008), determined in part by its legal tradition (La Porta et al., 1998, 1999). Therefore, each legal framework will produce certain types of economic incentives. Some of these incentives will be aligned with the kind of entrepreneurial activity consistent with economic growth while others will not be (Boettke and Coyne, 2003; Coyne and Leeson 2004; Stenholm et al., 2013).

Property rights have been identified as a critical element that captures the essence of the quality of economic institutions. In those societies where property rights are well defined and contracts are enforced, individuals will have incentives to invest in physical or human capital or adopt improved technologies (Acemoglu et al., 2005). Likewise, in societies with a firm rule of law, the incentives that individuals obtain for participating in the formal sector, such as access to courts to resolve commercial disputes or the availability of credit in the official financial market, will offset the various costs associated with formality such as taxation or labor regulation (La Porta and Sheifler, 2008; Desai, 2009). On the other hand, in societies with a weak enforcement of contracts it is more likely that entrepreneurs operate outside the radar of the government authorities (Stephen et al., 2009; Almeida and Carneiro, 2012).

In the field of entrepreneurship, there is a relevant body of literature which has analyzed the relationship between property rights and different types of entrepreneurial activities at the empirical level. The previous chapters described some findings regarding the relationship between

institutions and forms of entrepreneurship that have been cataloged as less desirable in terms of productive efficiency such as informal or necessity entrepreneurship (Larroulet and Couyoumdjian, 2009). Now, we will focus on some findings in the literature on the relationship between institutions and types of entrepreneurial activities which are considered to have a more significant impact on the economic growth, such as opportunity or formal entrepreneurship (Naudé, 2010).

For instance, Simon-Moya et al. (2014) found that the degree of economic freedom is related to high levels of opportunity entrepreneurship. The authors built an Index of Economic Freedom from Heritage Foundation, which includes property rights (among other indicators). In the same vein, Nistrom (2008) uses an array of similar predictors. The author used COMPENDIA database covering 23 OECD countries. The results suggested that better legal structure and security of property rights tend to increase entrepreneurship measured as Self-employment rates. Meanwhile, McMullen et al. (2008) and Estrin et al. (2013), using data provided by the Global Entrepreneurship Monitor (GEM), also found that opportunity and high growth entrepreneurship is positively related to property rights. On the other hand, Desai et al. (2003) found that stronger protection of property rights is a critical factor in motivating the emergence and growth of new ventures in the emerging markets of Europe.

Concerning formal entrepreneurship, most studies have used The World Bank Entrepreneurship Survey (WBGES). This database collects information from several countries around the world on business registered in a public registry (Acs et al., 2008). For example, Klapper et al. (2011) found a positive relationship between formal entrepreneurship and a measure of national governance comes from the World Bank Worldwide Governance Indicators, which include the Rule of Law variable. This same relationship was found by Thai and Turkana (2014) and Dau and Cuervo-Cazurra (2014). Meanwhile, Autio and Fu (2015) found that the quality of political institutions measured by the Political Rights index from Freedom House has a positive relationship with formal entrepreneurship. According to Acemoglu et al. (2005), the quality of political institutions is a good predictor of the quality of economic institutions, because the latter are endogenous since the political system creates them.

In summary, the presence of secure property rights improves the exploitation of entrepreneurial opportunities, because this reduces the risk of expropriation from the Government and elites (Acemoglu and Robinson, 2012) and the transaction costs in the economy (North, 1990). For

instance, the existence of an impartial justice system facilitates the resolution of commercial disputes and minimizes the risks of opportunism in business (La Porta and Shleifer, 2008). The above, in turn, creates incentives for a higher number of people to engage in economic transactions, and furthermore, they can make long-term investments, mainly in high-productivity sectors such as industry (Knack and Keefer, 1995). According to Klapper et al. (2010), the industry is one kind of activity more inclined to formality. Therefore, based on these findings, we propose the following hypothesis:

Hypothesis 1: Stronger property rights are associated with higher levels of formal entrepreneurial activity.

In his famous book *The Other Path* (1989), Hernando De Soto described the results of the fieldwork carried out by him and his group of researchers from the Institute for Liberty and Democracy regarding the list of required procedures by actually going through the process of setting up a business in Peru. The research determined the existence of an excessive regulatory burden that stifled formal entrepreneurship, forcing many Peruvian entrepreneurs into the informal economy. In turn, this work inspired a group of researchers from the World Bank to replicate the study in several countries around the world. The results were published in the paper of Djankovic et al. (2002). In this work, the authors found that countries differ significantly in the way in which they regulate the entry of new businesses. From this study, the World Bank has each year been measuring indicators related to the procedures for operating a business, as well as the time and cost of following these procedures.

Based on information from The World Bank's Doing Business Surveys, several papers have analyzed the possible relationship between the regulatory framework and entrepreneurial activity. For instance, La Porta and Shleifer (2008) and Klapper et al. (2010) using information on registered firms from The World Bank Entrepreneurship Survey (WBGES) found that the number of procedures necessary to start a business is associated with fewer registered firms. These same findings were observed by Klapper et al. (2006), using information from a private database and focusing on new corporation creation in Western and Eastern Europe. On the other hand, the results of the work of Aparicio et al. (2016) ratified this relationship for the case of opportunity entrepreneurship. The authors used an unbalanced panel data with 43 countries for the period 2004-

2012. Finally, Levie and Autio (2011) using a panel of six years and 54 countries, found that the burden of regulation, which is based on several indicators from the World Bank's Doing Business, was related to a higher rate and relative prevalence of strategic entrepreneurial entry.

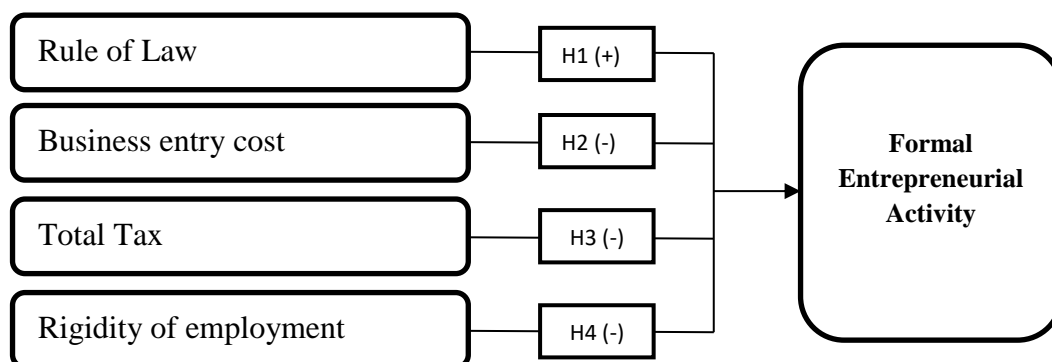
Regarding labor regulation, Scarpetta et al. (2002), in a study for the OECD countries, found that labor market regulations are negatively correlated with the number of new small and medium-sized companies. This same relationship was observed by Klapper et al. (2006) in labor-intensive industries in Western and Eastern Europe. Meanwhile, Van Stel et al. (2007), using data from the GEM for the period 2002-2005 and 39 countries, found that labor market rigidity hurts nascent entrepreneurship rates. In the same vein, McMullen et al. (2008) found a positive relationship between labor flexibility and opportunity entrepreneurship. However, Klapper (2010) and Djankov et al., (2010) did not find a significant association in the case of newly registered firms from the WBGES database. Finally, another relevant factor for formal entrepreneurship is taxation. For example, La Porta and Shleifer (2008) and Djankov et al. (2010) found that the corporate tax rate negatively affects business entry. The same findings were observed by Da Rin et al. (2011) for 17 European countries. Therefore, based on these results, we propose the following hypotheses:

Hypothesis 2: The number of days involved in starting a business is associated with lower levels of formal entrepreneurial activity.

Hypothesis 3: Higher tax rates are associated with lower levels of formal entrepreneurial activity.

Hypothesis 4: Stricter regulation of labor is associated with lower levels of formal entrepreneurial activity.

Figure IX. Formal entrepreneurial activity and formal institutions: hypothesis



5.2.3 Informal Institutions and formal entrepreneurial activity

According to North (1990: 2) focusing exclusively on formal rules gives inadequate and inaccurate notions about the relationship between formal constraints and economic performance. Likewise, in the process of economic change, formal institutions represent only part of the story. Traditionally, in the field of Economics, academic research has given greater relevance to formal rules, such as the so-called transaction-cost economics (Williamson, 1985) whose core of research are the contracts. However, informal rules are essential since the behavior of individuals not only depends on or is molded by written rules, but by the process of socialization in which individuals are embedded during their lifetime (Granovetter, 1985).

Informal rules include norms, conventions, and internally held codes of conduct (North, 2005). Sociologists have labeled these informal elements as "social capital" (Coleman, 1988; Putnam, 1993; Fukuyama, 1997). Usually, the dynamics of changes of informal institutions is quite slow (North, 1990; Williamson, 1998), and can therefore influence the effectiveness and depth of any deliberate institutional change process (North, 1990; Hoffman, 1999; Hodgson, 2003; Boettke et al., 2009). Therefore, following what has already been established in previous chapters, we will use two types of informal institutions identified in the literature on institutions and social capital: trust (see Putnam, 1993; Fukuyama, 1995; Knack and Keefer, 1997; Gambetta, 2000 ; Dasgupta, 2001; Keefer and Knack 2008; among others) and norms of behavior (see Putnam, 1993; Knack and Keefer 1997; Elster, 2000; Torgler, 2003; Akerlof and Kranton, 2005; Keefer and Knack, 2008; among others).

We hope that the strong presence of norms of civic cooperation and high levels of trust in society will reduce transaction costs and therefore generate higher levels of formal entrepreneurial activity against informal entrepreneurship. Likewise, a more significant presence of these elements should lead to reducing the gap between what some groups in society understand as legal and what others consider as legitimate (Webb et al., 2009). This asymmetry has been identified in the literature of entrepreneurship as a critical element in the explanation of the high prevalence of informal entrepreneurship in developing countries (Webb et al., 2009; Welter and Smallbone, 2011; Webb et al., 2014; Williams and Vorley, 2014). Therefore, a minor asymmetry in the society between formal and informal rules would mean that most people recognize and accept the formal rules as legitimate and adhere to compliance with them.

Why does this asymmetry seem to be most significant in developing countries? Denzau and North (1994:1) suggest that "Individuals with common cultural backgrounds and experiences will share reasonably convergent mental models, ideologies and institutions and individuals with different learning experiences (both cultural and environmental) will have different theories (models, ideologies) to interpret that environment." For instance, several studies have suggested those high levels of income inequality, and ethnic and linguistic fractionalization adversely affects economic growth (Easterly and Levine, 1997; Alesina et al., 2003; Easterly et al., 2006) and institutional quality (La Porta et al., 1999; Alesina et al., 2003). The argument goes according to the sense that the experiences, interests, and interpretation of reality diverge markedly in polarized societies with little social cohesion (North et al., 2000). Therefore, these societies usually lack consensus to achieve basic institutional rules in which citizens feel represented, and thus agreements become self-enforced and credible (North, 2008).

The above is very relevant in the context of Latin American, which is a region traditionally characterized by the highest levels of inequality by income in the world (Gasparini and Lustig, 2011), and where levels of ethnic fractionalization are critical for a large proportion of the countries (Easterly et al., 2006). Therefore, these types of societies will be prone to experiencing more significant asymmetry between what some groups in society understand as legal and what others consider as legitimate (Webb et al., 2009). Likewise, in societies with high fractionalization, there are lower levels of generalized trust and a lower willingness of citizens to engage in voluntary tax compliance (Lassen, 2007; D'Hernoncourt and Meon, 2012). As Fukuyama asserts (1995: 153) "...trust arises when a community shares a set of moral values in such a way as to create regular expectations of regular and honest behavior." Also, in societies with high levels of generalized trust, people have a sense that they are involved in a collective enterprise and facing shared challenges (Uslaner et al., 2002). Therefore, their inhabitants are more willing to cooperate, especially in times of severe economic crises (Easterly et al., 2006).

Informal rules such as norms of civic cooperation and generalized trust are essential for formal entrepreneurship, for several reasons. First, norms of civic cooperation minimize the problems of adverse selection and moral hazard arising during the entrepreneurial process (Venkataraman, 1997). This usually occurs due to conditions of ignorance and uncertainty prevailing in new ventures (Sarasvathy, 2001). Besides, norms of civic cooperation can reduce costs of monitoring and enforcement of contracts, and therefore the informal constraints can be feasible solutions to a

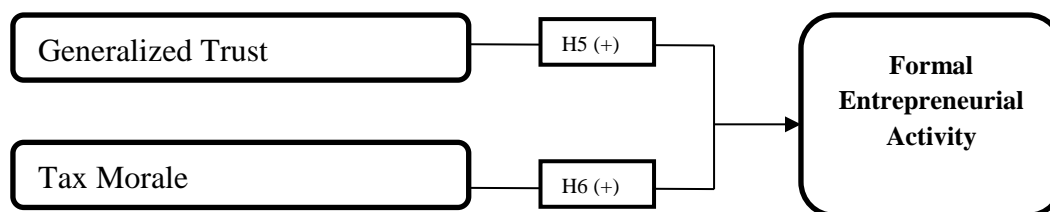
more complex exchange (North, 1990; Knack and Keefer, 1995). On the other hand, the presence of norms of civic cooperation can benefit formal entrepreneurial activity in an indirect way, through political channels. For example, in societies where citizens have internalized norms of civic cooperation, collective action is more likely (Putnam, 1993, Knack and Keefer, 1997). Therefore, governments will carry out more efficient provision of public goods and services that in turn are indispensable for the promotion of formal entrepreneurial activity, including the level and quality of regulations.

Second, social norms such as trust encourage participation in social networks. This is because participation in networks implies some underlying belief about the behavior of other people (La Porta et al., 1996). According to the theory of social capital, social networks are fundamental to economic activity, to the extent that individuals are involved in networks to make a profit (Lin, 1999; Lin et al., 2001; Burt, 2005). Unlike the neoclassical view and particularly the transaction cost approach, it is the economic life that is "embedded" in the social structure, and many opportunistic behaviors are discouraged when agreements are "embedded" within social networks (Granovetter, 1985). Also, it is through social networks that individuals gain access to different types of resources (Lin, 1999; Portes, 2010). Social networks are important for entrepreneurs to mobilize essential resources such as capital and skilled workers (Baker et al., 2005; Aldrich, 2008; Acs and Stough, 2008). Moreover, social networks facilitate the recognition of entrepreneurial opportunities through access to information and knowledge flows (Elfring and Hulsink, 2003; Stuart and Sorenson, 2005; Arenius and De Clercq, 2005). Based on these findings we propose the following hypotheses:

H5: A higher degree of generalized trust is related to higher levels of formal entrepreneurial activity.

H6: A higher degree of tax morale is related to higher levels of formal entrepreneurial activity.

Figure X. Formal entrepreneurial activity and informal institutions: hypothesis



5.3 Methodology

5.3.1 Data and Variables

As previously established, this article seeks to estimate the relationship between formal and informal rules and formal entrepreneurial activity for different Latin American countries over several time periods. For this purpose, we have built two panels. The first panel covers the period 2004-2015, and the dataset contains 180 observations in 18 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. The second panel covers the period 2006-2015, and the dataset contains 134 observations in 14 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Mexico, Panama, Paraguay, Peru, and Uruguay.

Dependent Variables

The data used for the analysis of the 'productive' definition of formal entrepreneurial activity comes from Latinobarómetro. The surveys have been conducted in the region since 1995 until the present date; however, since 2004, the surveys have presented national coverage of nearly one hundred percent for all countries and a standard questionnaire leading to harmonized data. The ten measurement surveys consist of approximately 1,000-1,200 surveys per country. The samples are representative of the adult population of each country, with a margin of error of approximately 3%. The design and focus of the surveys are comparable to that of the Eurobarometer survey for European countries. The data source allows different labor categories to be identified:

1. Professional (doctor, lawyer, accountant, architect)
2. Business owner
3. Farmer/fisherman
4. Self-employed, informal

As mentioned above, there are several empirical studies carried out in developing countries and Latin America in particular that suggest that significant differences exist in terms of human capital, incomes, work satisfaction and traits psychological associated with entrepreneurs, between own-

account workers and business owners (see Mondragon-Velez and Peña, 2010; De Mel et al., 2010; Aguilar et al., 2013; CAF, 2013; Tornarolli et al., 2014; among others). Therefore, a characterization of entrepreneurial activities is relevant. On the other hand, the own-account workers are more associated with subsistence and very low productivity. Furthermore, they have typically been associated with the informal sector (Hart, 1973; Tokman, 1987), given that in developing countries, a strong association has been found between self-employment and informal activity (Loayza and Rigolini, 2006; La Porta and Shleifer, 2008).

Therefore, the dependent variable which we use to measure the level of formal entrepreneurial activity from the 'productive' definition corresponds to the percentage of the adult population who are identified as owners of a non-agricultural business. The use of business ownership as a measure of entrepreneurship has been pointed out by Gartner and Shane (1995) and Van Stel (2005). Nevertheless, the inclusion of business owners as formal entrepreneurs is debatable, mainly because it includes micro-entrepreneurs (i.e., fewer than five employees) who also have been identified with enterprises of low productivity, low capital, and which do not comply with current regulations (Lederman et al., 2013).

The database used for the analysis of the 'legal' definition of formal entrepreneurial activity comes from The World Bank Group Entrepreneurship Survey (WBGES). The survey has been designed to be comparable across countries and formally measures entrepreneurship as the number of new officially registered limited liability corporations (Klapper et al., 2010). That is to say that it only includes enterprises incorporated as legal entities and registered in a public registry. Specifically, the dependent variable which we used to measure the level of formal entrepreneurial activity from the legal definition corresponds to the business entry density rate, which is defined as the number of newly registered firms with limited liability per 1,000 working-age people (ages 15-64) per the calendar year. Among the limitations of the data, it is questionable to assume that only limited liability corporations (LLCs) adhere to prevailing legal regulations.

Finally, it should be noted that the 'productive' measure of formal entrepreneurial activity reflects the stock of business owners in a given year. Therefore, it is a static measure of entrepreneurial activity. On the contrary, the 'legal' measure of formal entrepreneurial activity reflects the entry of new firms registered in the economy. Therefore, it is a measure closest to the definition of entrepreneurship.

Independent Variables

As noted above, two categories of independent variables were considered in this research: formal and informal institutions. Within formal institutions, we included Regulatory burden and Property rights. The Regulatory burden includes three variables: number of days to start a new business (World Bank Doing Business Project) and which reflect the difficulty of starting a business in the formal sector. The other two variables correspond to total tax rate paid by businesses after deductions and exceptions (World Bank Doing Business Project) and obeying government regulations such as labor regulations (World Bank Doing Business Project). To this end, we built the Rigidity of Employment index: a simple average of three sub-indices: Difficulty of Hiring Index, Rigidity of Hours Index and Difficulty of Firing Index (World Bank Doing Business Project). The index was constructed following Berg and Cazes (2007), based on the work of Botero et al. (2004).

Moreover, as a measure of Property rights, we used the Law and Order Index (Heritage Foundation). We prefer to use this measure instead Rule of Law (World Bank Governance Indicators), due to Law and Order includes the property rights index. According to Acemoglu and Johnson (2005), the Heritage Foundation's private property index captures adequately the risk of expropriation by the government and the elites, which in turn it is a fundamental element in investment decisions of entrepreneurs. Therefore, this measure it is most suitable for formal entrepreneurship.

On the other hand, following the argument developed by Webb et al. (2009) regarding the relevance of informal rules for formal-informal entrepreneurship, we used two variables from Latinobarómetro: Generalized trust and Tax morale. If there is congruence between formal and informal institutions as expressed in high generalized trust and tax morale, this should follow the highest levels of formal entrepreneurial activity. According to Webb et al. (2009), the existence of an asymmetry between the formal rules and what people consider as legitimate (informal rules) is what permits the emergence of formal-informal entrepreneurship.

As a proxy for generalized trust, we built an index of generalized trust, which corresponds to the percentage of adults who responded positively to the following question: "Generally speaking, would you say that most people can be trusted?" Moreover, we included the variable tax morale, as a proxy for norms of civic cooperation. This variable reflects the intrinsic motivation to pay taxes (Torgler and Schneider, 2007). This index was built based on the following question: On a

scale of 1 to 10, where one means "not at all justifiable" and ten means "totally justifiable," how justifiable do you believe it is to evade paying taxes? In all of these variables, the average of the period 2004-2015 was used with the aim of minimizing possible biases in the sample. Also, according to institutional theory (North, 1990), the change in the informal rules can be quite slow.

Control Variables

Several studies have found a relationship between the level of entrepreneurial activity and economic development (Acs et al. 1994; Carree et al. 2002; Wennekers et al., 2005; Van Stel et al., 2005; Acs et al., 2008; Levie and Autio, 2011; Estrin et al., 2013). For this reason, we have used GDP per capita (purchasing power parity) as a control variable. Similarly, we have used the economic growth rate (Dau and Cuervo-Cazurra, 2014) and population growth (Reynolds et al., 1994; Levie and Autio, 2011; Autio and Fu, 2015) as control variables. It is reasonable to expect that to an economy with a higher population, and economic growth rate should present better entrepreneurial opportunities for formal entrepreneurial activity.

Additionally, formal entrepreneurial activity is related to the productive structure of a country (Loayza et al., 2009; Klapper et al., 2010), and educational level (Parker, 2004; Bjornskov and Foss, 2010; Thai and Turkana, 2014). We controlled for productive structure by using the percentage of the economically active population working in the agricultural sector (Bjornskov and Foss, 2010). As a control for education level, we used the average years of secondary schooling of the adult population (Barro and Lee, 2013). Here, we include time-fixed effects to capture the business cycle of these countries.

Table IX shows the description of variables used in this research. In the figures X and XI, which are presented below, the scatter diagrams show simple correlations for each of the institutional variables with respect to the rate of formal entrepreneurial activity (productive and legal definition). However, these are simple correlations. A more appropriate analytical exercise requires evaluating the statistical significance of each one of them jointly, through a multiple regression analysis.

Figure XI. Formal entrepreneurial activity (productive definition) and institutions (Simple correlations)

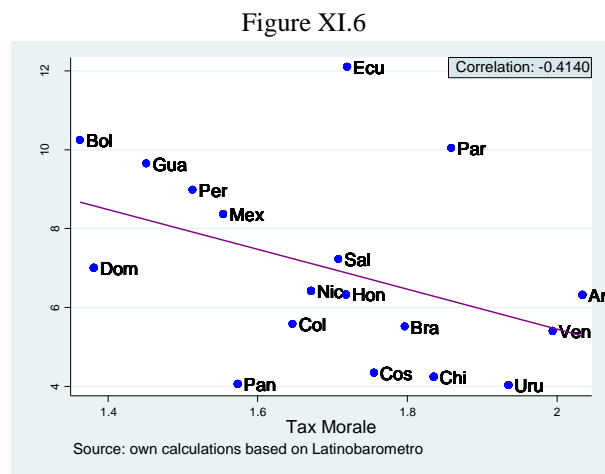
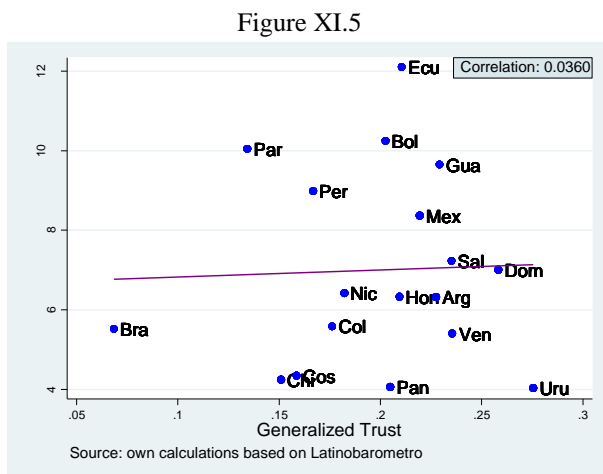
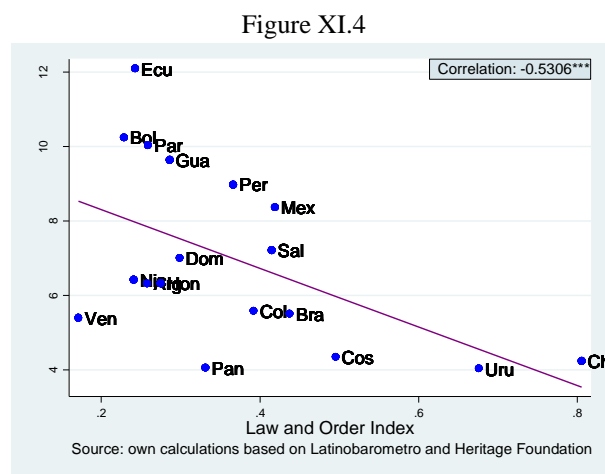
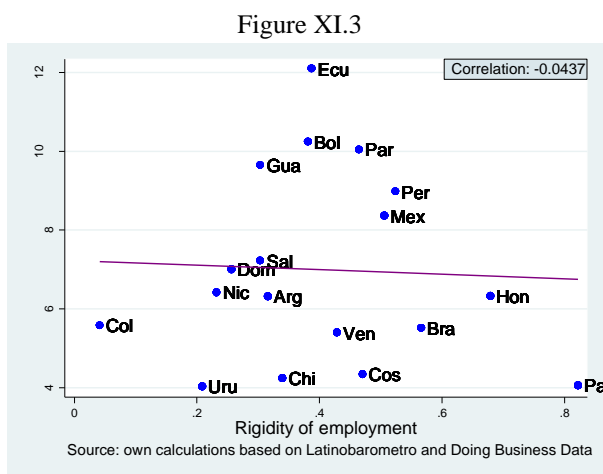
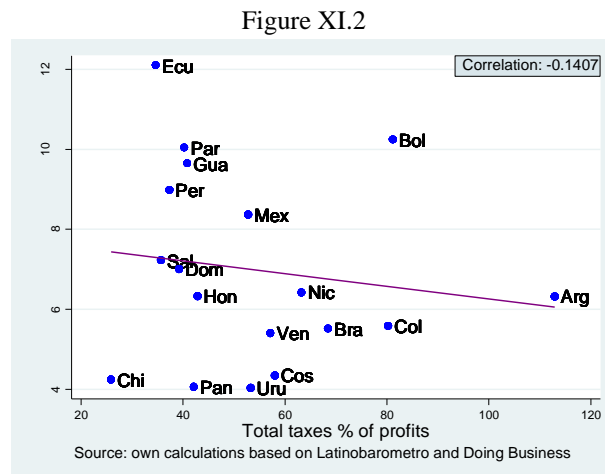
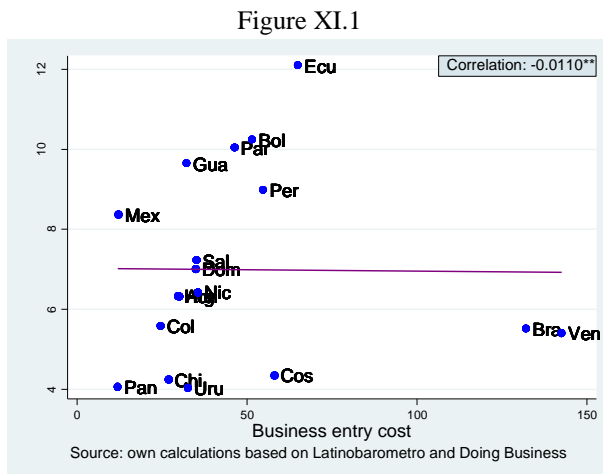


Figure XII. Formal entrepreneurial activity (legal definition) and institutions (Simple correlations)

Figure XII.1

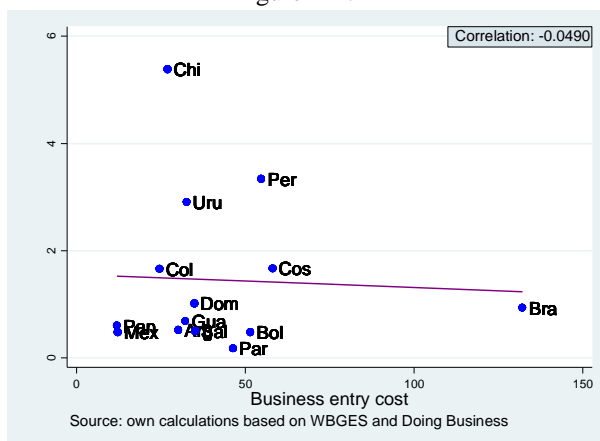


Figure XII.2

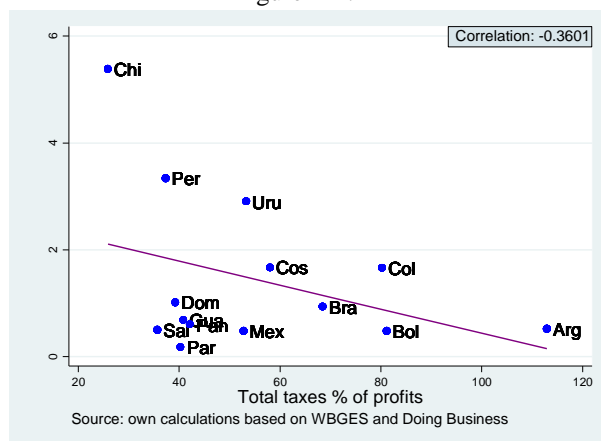


Figure XII.3

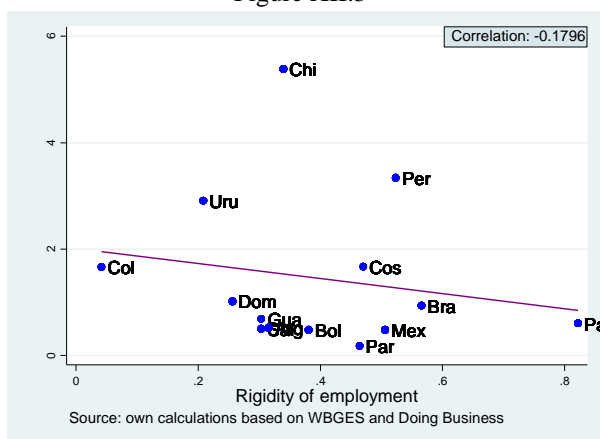


Figure XII.4

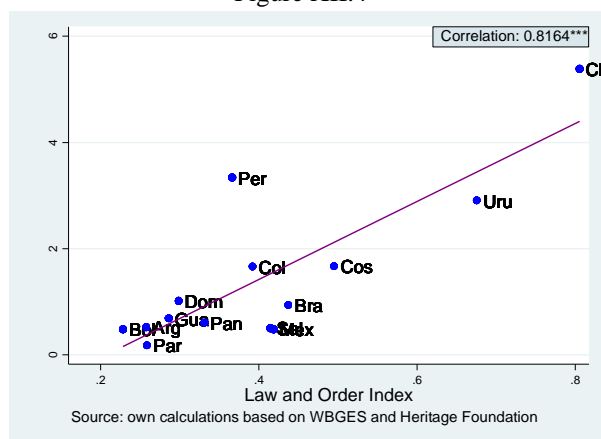


Figure XII.5

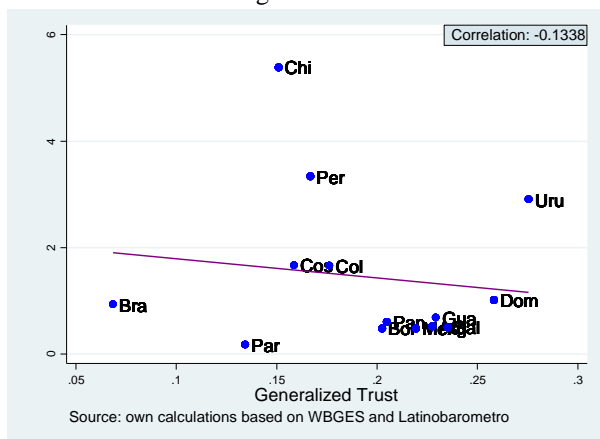
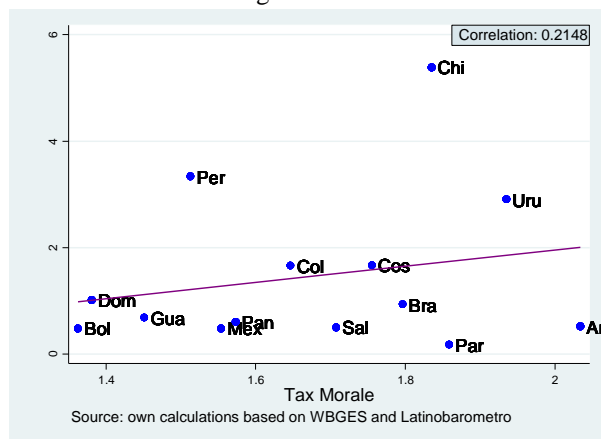


Figure XII.6



5.4 Statistical Analysis

To analyze the relationship between formal and informal rules and formal entrepreneurial activity in Latin America, we used two data panel settings. The first corresponds to a balanced panel of 18 countries, covering the period 2004-2015. The second is an unbalanced panel of 14 countries during the period 2006-2015. Therefore, we considered two models: model one shows the relationship between formal and informal rules and formal entrepreneurial activity from a productive definition; on the other hand, the two shows the relationship between formal and informal rules and formal entrepreneurial activity from a legal definition. We have estimated the following equations:

$$\begin{aligned} \text{Formal Entrepreneurial Activity} = & \beta_0 + \beta_1.GDP_percapita + \beta_2.Growth_rate_GDP + \\ & \beta_3.Population_Growth + \beta_4. Agricultural_Population + \beta_5.Secondary_Education + \\ & \beta_6.Trend(t) + \beta_7. Business_entry_cost + \beta_8. Total_tax_rate + \beta_9.Rigid_labour + \beta_{10}. \\ & Law_and_order + \beta_{11}. Generalized_Trust + \beta_{12}. Tax_Morale + u. \end{aligned}$$

Firstly, we verified whether the use of Panel Data versus a simple OLS regression was justified. This was done by applying the Breusch and Pagan test (Breusch and Pagan, 1980). We rejected the null hypothesis (Prob > chibar2 = 0.0000 in both models), which states that panel data are preferable to using a pooled dataset. To verify whether it was preferable to use fixed effects or random effects, we applied the Hausmann test (Wooldridge, 2002). The test suggested that the random effects model was better suited to the data in model 1 (Prob > chi2 = 0.22), but not for model 4 (Prob > chi2 = 0.016). However, the variables for informal rules are time invariant, and therefore the fixed-effect model was not possible (Cullen et al., 2014). We also verified the presence of autocorrelation. This was done by applying the test for serial correlation derived by Wooldridge (2002). We did not reject null hypothesis for the model 1 (Prob > F = 0.4609), but in model 4 the null hypothesis was marginally rejected (Prob > F = 0.053). Therefore, autocorrelation did not seem to be a problem in the model 1, but there is apparently a problem of autocorrelation in the model 4. Therefore, we re-estimated the equation through random effects generalized least squares (GLS) with panel-specific autocorrelation AR(1). Finally, we verified the existence of severe multicollinearity problems, mainly taking into account that the correlation matrix (Table X) included some correlations over 0.5. To this end, we applied the variance inflation factor (VIF).

The maximum value of VIF was 3.15. The average VIF was 2.13; which in any case shows values below the commonly accepted threshold of 5 and 10 (Dau and Cuervo-Cazurra, 2014; Cullen et al., 2014). Therefore, multicollinearity did not appear to be a problem.

5.5 Results

Table IX shows the means and standard deviations for the variables analyzed and table X shows the correlation matrix, where an asterisk identifies statistical significance. These univariate tests show that some dependent variables are significantly related to each other, although, as previously mentioned, this did not represent any multicollinearity problem.

The model 1 in Table XI presents the results based on the effect of institutional and control variables on formal entrepreneurial activity (Productive definition). No hypothesis was supported by the productive definition of formality. Contrary to hypotheses 1 and 6, Law and Order and Tax morale had a negative and strongly significant effect on formal entrepreneurial activity. One possible explanation for this finding is the presence of small-scale business owners (less than five employees) in the variable formal entrepreneurial activity. Therefore, the results suggest that stronger property rights not only will lead to a lower level of own-account workers but also implies a smaller number of micro-entrepreneurs. Also, a higher predisposition to pay taxes (Tax morale) will lead to a smaller number of micro enterprises in the economy. Hence, our productive definition of formal entrepreneurial activity is weak, and does not seem to capture the type of entrepreneurial activity positively related to higher economic dynamism.

On the other hand, model 4 in Table XI presents the results based on the effect of institutional and control variables over formal entrepreneurial activity (Legal definition). Hypothesis 1 and 4 were supported. Stronger Property rights are associated with higher rate of formal entrepreneurship ($p < 0.01$). This result is consistent with Klapper et al. (2011) and Stenholm et al. (2013) results. Besides, stricter labor regulation had an adverse effect on formal entrepreneurship ($p < 0.05$). This result differs from those obtained by Kapler (2010) and Djankov et al. (2010) who did not find any statistically significant effect on formal entrepreneurship using the WBGES database. Regarding informal rules, tax morale was significant ($p < 0.05$). However, the sign is contrary to that expected. Therefore, this result should be interpreted with some care.

In summary, an improvement in Law and Order by one standard deviation results in an increase in the formal entrepreneurial activity rate of about 0.444 standard deviations; while stricter labor

regulations by one standard deviation results in a decrease in the formal entrepreneurial activity rate of 0.344 standard deviations. On the other hand, we failed to find any effects of business entry and the tax rate on formal entrepreneurship. The entrepreneurs of registered firms likely pursue more valuable entrepreneurial opportunities and are willing to pay taxes and bear entry costs (La Porta and Shleifer, 2008). Finally, two control variables were significant: GDP per capita ($p < 0.05$) and Growth rate GDP ($p < 0.05$); both variables had a positive effect on formal entrepreneurship.

In the model 7, we have included results for the case of informal entrepreneurial activity discussed in previous chapters. The purpose was to conduct a comparative analysis allowing determining if institutional factors (formal and informal) had a different impact on formal and informal entrepreneurial activity. With the objective of achieving a higher degree of comparability with the findings of previous chapters; we used the variable rule of Law from World Bank Governance Indicators as a measure of property rights. First, we made a comparison between informal and formal entrepreneurial activity by the productive definition (Model 2 and Model 7). In general, the results suggested that formal and informal institutions impact both types of activities in the same direction. Therefore, stronger property rights and better civic norms will lead to less informal and formal entrepreneurial activity (productive definition). As already mentioned, this counter-intuitive result would suggest that a better institutional framework not only would lead to a less amount of own account workers, but also to a less amount of small-scale business owners. These paradoxical results seem to be consistent with several studies that have pointed out that one of the most serious problems of productivity and competitiveness of Latin American enterprises is their size and lack of capacity to grow (Lederman et al., 2013).

Second, when we compare informal and formal entrepreneurial activity by the legal definition (Model 5 and Model 7), the results are reasonably consistent with theory and previous empirical evidence. That is to say, there is strong support for the argument that institutional factors impact different formal and informal entrepreneurial activities, as suggested by several works (Dau and Cuervo-Cazurra, 2014; Thai and Turkina, 2014; Autio and Fu, 2015). For example, a better rule of law had a positive effect on the entry of new firms registered, but an adverse effect on the level of informal entrepreneurial activity. Moreover, business entry had a positive effect on informal entrepreneurial activity. Although, this variable was not significant for formal entrepreneurial activity, the sign of the coefficient was negative.

However, results for labor rigidity are slightly more complicated to interpret. Stricter labor regulation should lead to a lower level of formal entrepreneurship, which is effectively what the results showed (Model 5).¹⁵ However, the opposite effect should be expected for informal entrepreneurial activity. Instead, the results showed a negative relationship (Model 7).¹⁶ Beyond that, the results are consistent with the theory and previous evidence and support the importance of conducting analyzes that take into account the different types of entrepreneurial activities that are present in an economy.

It is important to point out that rule of law was a robust variable for all our models and specifications. The Stronger rule of law (property rights) leads to lower informal and formal entrepreneurial activity (productive definition) and a higher formal entrepreneurial activity under the legal definition.

¹⁵ Higher value indicates more labour flexibility

¹⁶ Higher value indicates more labour rigidity

Table IX Description of variables and statistics

| Variable | measure | Description | Mean | SD |
|--|---------|---|----------|---------|
| 1. Formal entrepreneurial activity Rate (<i>productive definition</i>) | percent | Percentage of the adult population who identify themselves as owners of the non-agricultural business. <i>Latinobarómetro</i> | 6.99 | 3.07 |
| 2. Formal entrepreneurial activity Rate (<i>Legal definition</i>) | rate | The number of newly registered firms with limited liability per 1,000 working-age people (ages 15-64) per the calendar year. <i>World Bank Group Entrepreneurship Survey</i> | 1.49 | 1.62 |
| 3. GDP per capita | USD | GDP per capita, purchasing power parities (log for analysis). <i>International Monetary Fund Data</i> | 11220.52 | 5232.46 |
| 5. Growth rate GDP | percent | Growth rate GDP <i>International Monetary Fund Data</i> | 4.42 | 3.24 |
| 4. Population growth | percent | The population growth rate. <i>International Monetary Fund Data</i> | 1.41 | 0.57 |
| 6. Agricultural Population | percent | Percentage of economically active population working in agriculture sector <i>World Bank Data Base</i> | 19.25 | 10.15 |
| 7. Secondary education attainment | percent | Average Years of Secondary Schooling. <i>World Bank Data Base- Barro and Lee (2013)</i> | 2.40 | 0.72 |
| 8. Business entry cost | number | Number of days to start a new business (log for analysis) <i>Doing Business</i> | 47.59 | 39.36 |
| 9 Rigidity of employment | index | It is a quantitative measure that considers aspects of the regulatory framework of a country's labor market. Normalized between 0 and 1. A higher value indicates greater rigidity. <i>Doing Business</i> | 0.40 | 0.18 |
| 8 Total taxes as percent of profits | percent | Total tax rate paid by businesses after deductions and exemptions (log for analysis) <i>Doing Business</i> | 53.66 | 21.54 |
| 11. Law and Order Index | Index | It is an average of two measures: Property Rights and Freedom from corruption. This index captures the extent to which private property is protected against of expropriation. Also, measure the level of corruption in a country. Normalized between 0 and 1. A higher value indicates stronger property rights. <i>Heritage Foundation</i> | 0.37 | 0.16 |
| 12. Tax Morale | Index | On a scale of 1 to 10, how justifiable do you believe it is to evade paying taxes? A higher value indicates greater motivation to pay taxes. <i>Latinobarómetro</i> | 19.70 | 6.91 |
| 13. Generalized Trust | percent | "Generally speaking, would you say that most people can be trusted?" <i>Latinobarómetro</i> | 1.69 | 0.41 |

Table X . Formal entrepreneurial activity and sociodemographic/formal/informal institutions factors (correlation matrix)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--|-----------|-----------|-----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---------|----|
| Formal entrepren (productive definition) | 1 | | | | | | | | | | | | |
| Formal entrepren (Legal definition) | -0.410*** | 1 | | | | | | | | | | | |
| GDP per capita | -0.342*** | 0.441*** | 1 | | | | | | | | | | |
| Growth rate GDP | -0.0174 | 0.0702 | 0.00133 | 1 | | | | | | | | | |
| Population growth | 0.318*** | -0.332*** | -0.395*** | 0.0855 | 1 | | | | | | | | |
| Agricultural Population | 0.469*** | -0.531*** | -0.471*** | -0.0588 | 0.357*** | 1 | | | | | | | |
| Secondary educ. attainment | -0.253*** | 0.402*** | 0.609*** | 0.121 | -0.195** | -0.358*** | 1 | | | | | | |
| Business entry | 0.00370 | -0.103 | -0.195** | 0.0687 | 0.0693 | -0.0656 | -0.284*** | 1 | | | | | |
| Total taxes % of profits | -0.0714 | -0.221** | 0.0253 | -0.0173 | -0.0708 | -0.198** | -0.0639 | 0.178** | 1 | | | | |
| Rigidity of employment | -0.0762 | -0.255** | 0.0273 | 0.0928 | 0.388*** | 0.145* | 0.0779 | 0.00273 | -0.218*** | 1 | | | |
| Law and order | -0.449*** | 0.699*** | 0.451*** | 0.00323 | -0.516*** | -0.316*** | 0.337*** | -0.240*** | -0.321*** | -0.145* | 1 | | |
| Tax Morale | -0.350*** | 0.0869 | 0.409*** | -0.0546 | -0.390*** | -0.613*** | 0.0524 | 0.215*** | 0.171** | -0.0500 | 0.215*** | 1 | |
| Generalized Trust | 0.0440 | 0.0181 | 0.0263 | 0.0397 | -0.104 | 0.0481 | -0.131* | -0.290*** | -0.0385 | -0.277*** | -0.147* | -0.0992 | 1 |

* p < 0.05, ** p < 0.01, *** p < 0.001

**Table XI. Formal/Informal institutions and formal entrepreneurial activity rate
(econometric results) †**

| | Formal activity –productive def. | | | Formal activity –legal def. | | | Informal |
|--------------------------|----------------------------------|----------------------|---------------------|-----------------------------|---------------------|---------------------|----------------------|
| | Model 1. [RE] | Model 2. [RE] | Model 3. [RE] | Model 4. [GLS] | Model 5. [GLS] | Model 6. [GLS] | Model 7. [RE] |
| <i>Controls</i> | | | | | | | |
| GDP per capita | 0.213 (0.151) | 0.132 (0.189) | 0.291 (0.177) | 0.962** (0.434) | 0.016 (0.389) | 0.595 (0.513) | -0.011 (0.100) |
| Growth rate GDP | 0.015*** (0.005) | 0.016*** (0.006) | 0.014** (0.007) | 0.017** (0.008) | 0.018** (0.008) | -0.013 (0.008) | 0.004 (0.004) |
| Population growth rate | -5.903 (4.336) | -6.594* (3.684) | -3.508 (9.639) | -2.176 (11.563) | -4.173 (11.620) | 1.991 (12.545) | 2.938 (4.605) |
| Agricultural population | 0.003 (0.007) | 0.005 (0.006) | 0.007 (0.008) | 0.003 (0.014) | -0.020 (0.013) | -0.002 (0.017) | 0.001 (0.003) |
| Secondary educ. attainm. | -0.264*** (0.095) | -0.247** (0.107) | -0.280** (0.130) | 0.112 (0.153) | 0.097 (0.150) | 0.298* (0.170) | 0.048 (0.041) |
| Trend | 0.013 (0.009) | 0.018* (0.011) | 0.021 (0.018) | -0.026 (0.024) | 0.011 (0.024) | -0.029 (0.030) | -0.029** (0.012) |
| <i>Predictors</i> | | | | | | | |
| Business entry cost | -0.063 (0.056) | -0.056 (0.058) | 0.025 (0.075) | -0.028 (0.083) | -0.055 (0.086) | 0.016 (0.088) | 0.114*** (0.041) |
| Total taxes % Prof | -0.109 (0.127) | -0.072 (0.095) | -0.580 (0.361) | 0.102 (0.272) | 0.074 (0.246) | -0.036 (0.294) | 0.043 (0.079) |
| Rigidity employment | -0.415 (0.529) | -0.828* (0.465) | -0.687 (0.443) | -1.939** (0.798) | | -1.619* (0.887) | -0.452*** (0.106) |
| Law and Order | -0.916** (0.425) | | -1.376** (0.544) | 2.426*** (0.831) | | 2.692*** (0.920) | |
| Tax Morale | -0.725** (0.286) | | -0.529 (0.389) | -1.689** (0.754) | -1.167* (0.696) | -1.688** (0.839) | -0.377** (0.148) |
| Generalized Trust | -1.843 (1.506) | -2.880 (1.783) | -2.613 (1.762) | -3.312 (2.567) | -0.417 (2.131) | -1.233 (2.807) | -0.729 (0.708) |
| Rule of Law | | -1.247** (0.570) | | | 2.508** (1.027) | | -1.505*** (0.324) |
| Civic norms | | -4.995*** (1.829) | | | | | |
| Labor freedom | | | | | 1.848*** (0.579) | | |
| Constant | -1.426 (1.231) | -2.272* (1.316) | -0.641 (2.113) | -6.359* (3.742) | -0.407 (3.521) | -3.417 (4.358) | -0.763 (0.947) |
| Observations | 180 | 180 | 108 | 134 | 134 | 118 | 180 |
| R2 within | 0.157 | 0.154 | 0.286 | 0.111 | 0.076 | 0.001 | 0.292 |
| R2 between | 0.380 | 0.473 | 0.425 | 0.651 | 0.759 | 0.713 | 0.893 |
| R2 adjusted/overall | 0.300 | 0.360 | 0.368 | 0.592 | 0.685 | 0.623 | 0.617 |
| F/Chi2 | 198.737 | 276.983 | 330.852 | 53.671 | 59.162 | 42.039 | 337.516 |

† Estimators used: Random effects [RE]; Generalized least squares [GLS].

Standard errors in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p < 0.01

5.6 Robustness checks

As a verification of the robustness of our results in the Model 1, we also employed two alternative measures for Law and Order and Tax Morale (Model 2). As an alternative proxy for Law and order, we used rule of Law index from World Bank Governance Indicators. Also, as an alternative measure to Tax Morale, we used an index of norms of civic cooperation from Latinobarómetro.¹⁷ As displayed in the Model 2 (table VII) the results are maintained. Therefore, the results proved robust against specification changes.

As a verification of the robustness of our results in the Model 4, we also employed two alternative measures for Law and Order and Rigidity of employment: Rule of Law index from World Bank Governance Indicators and Labor freedom from the Heritage Foundation. As displayed in the model 5 the results are similar to the Model 4. Therefore, the results proved robust against specification changes.

Finally, we lag each of the independent variables by one year (Model 3 and Model 6). In both models Law and Order maintained its high significance. However, in the model 3, Tax morale was not significant. On the other hand, in the model 6 Rigidity of employment maintained its significance but at the 10% level. Overall, the results corroborated the robustness of our previous findings.

¹⁷ The index was constructed following to Knack and Keefer (1997). The index corresponds to the behavior of the people with respect to the following question: “On a scale of 1 to 10, where 1 means 'not at all justifiable' and 10 means 'totally justifiable', how justifiable do you believe it is?”

- a) Pretending to be ill in order not to go to work
- b) Managing to avoid paying all one’s taxes
- c) Buying something you know was robbed
- d) Buying something you know was pirated”

Higher values indicate better social behavior.

Table XII. Formal-Informal institutions factors (productive definition). Hypothesis testing.

| Hypothesis | Description | Result |
|-------------------|--|---------------|
| H1: | Stronger property rights are associated with higher levels of formal entrepreneurial activity. | Rejected |
| H2: | The number of days involved in starting a business is associated with lower levels of formal entrepreneurial activity. | Rejected |
| H3: | Higher tax rates are associated with lower levels of formal entrepreneurial activity. | Rejected |
| H4: | Stricter regulation of labor is associated with lower levels of formal entrepreneurial activity. | Rejected |
| H5: | A higher degree of generalized trust is related to higher levels of formal entrepreneurial activity. | Rejected |
| H6: | A higher degree of tax morale is related to higher levels of formal entrepreneurial activity. | Rejected |

Table XIII. Formal-Informal institutional factors (Legal definition). Hypothesis testing.

| Hypothesis | Description | Result |
|-------------------|--|---------------|
| H1: | Stronger property rights are associated with higher levels of formal entrepreneurial activity. | Not rejected |
| H2: | The number of days involved in starting a business is associated with lower levels of formal entrepreneurial activity. | Rejected |
| H3: | Higher tax rates are associated with lower levels of formal entrepreneurial activity. | Rejected |
| H4: | Stricter regulation of labor is associated with lower levels of formal entrepreneurial activity. | Not rejected |
| H5: | A higher degree of generalized trust is related to higher levels of formal entrepreneurial activity. | Rejected |
| H6: | A higher degree of tax morale is related to higher levels of formal entrepreneurial activity. | Rejected |

6. Discussion and Conclusions

6.1 Discussion and Conclusions

In this work, we have empirically analyzed the relationship between formal and informal rules and formal-informal entrepreneurial activity in Latin American countries based on institutional theory (North, 1981, 1990, 2005; Scott, 2013; Webb et al., 2009, 2013). This was done using two panels. The first panel covered the period 2004-2015 with a dataset containing 180 observations in 18 Latin America countries, while the second panel covered the period 2006-2015 with a dataset containing 134 observations in 14 Latin America countries. Also, we have used the Latinobarómetro dataset, which has not been extensively used by scholars in the field of entrepreneurship and which could be useful for longitudinal research on entrepreneurial activity in Latin American countries.

In summary, using the percentage of the adult population identified as own-account workers as a proxy of informal entrepreneurial activity, the results suggest that informal entrepreneurial activity is more abundant in Latin American countries that have weak property rights, higher business regulation, and lower tax morale. However, stricter labor market regulation is associated with a less informal entrepreneurial activity rate. Regarding formal entrepreneurial activity, the impact of institutional variables depends on the definition employed: productive or legal. In the case of the productive definition, the results suggest that formal entrepreneurial activity is more substantial in Latin American countries that have weak property rights and lower tax morale. Conversely, from a legal definition, formal entrepreneurial activity is more significant in Latin American countries that have most secure property rights and fewer labor regulations. These contradictory results suggest that the legal definition of formal entrepreneurship, but not the productive definition, seems to be associated with the type of entrepreneurial activity that promotes economic growth and development. The results were maintained after controlling for some socio-economic factors, such as GDP per capita, the population growth rate, GDP growth rate, agricultural population, and education level.

We speculate that the negative and robust correlation between property rights and informal entrepreneurial activity does not necessarily imply a conversion of informal entrepreneurs to formal status. As suggested by Baumol (1990), it is very likely that positive changes in the rules of the game (in this case better property rights), rather than causing significant displacements from informal to formal entrepreneurial activity, lead to many individuals abandoning informality to join the labor market. On the other hand, those with skills adapted to formal entrepreneurship (e.g.,

best human capital and entrepreneurial talent), feel motivated to become entrepreneurs (La Porta and Shleifer, 2008, 2014) and generate new ventures with growth expectations. The above is in line with the evidence on the stages of economic development. As established by Acemoglu and Johnson (2005), stronger property rights involve higher economic development, and in turn, higher economic development means larger enterprises (Ayyagari et al., 2003; Acs and Amorós, 2008) and less total entrepreneurial activity (Van Stel et al., 2005). Likewise, stronger property rights are related to higher levels of investment in physical and human capital (Knack and Keefer, 1995), which in turn have a positive impact on productivity and therefore on the growth of firms.

The results obtained in the present study, through productive and legal definition of formal entrepreneurial activity, contribute to supporting the existence of the processes described above. For example, when we applied the productive definition, which includes micro-entrepreneurs, the findings showed a strong and negative correlation between property rights and formal entrepreneurial activity. That means that better property rights not only lead to a lower amount of own account workers but also business owners. On the other hand, the results show that better property rights are associated with an increased entry of registered firms (the legal definition of formal entrepreneurship), which are related to types of entrepreneurial activity with higher expectations of growth (Lederman et al., 2013). For instance, Klapper et al. (2011) found that the number of registered firms is higher in developed than in developing countries.

In line with the above, the results help to shed some light on the debate that exists in the literature between the dual view of informality and the position related to Hernando De Soto. From De Soto's viewpoint, if governments reduce their regulatory burden and improve the legal framework, informal entrepreneurs will channel their entrepreneurial energies to the formal sector, generating a virtuous cycle of employment and prosperity. On the other hand, from the dual-view of informality, their advocates do not deny the importance of the regulatory and legal framework. However, they consider that those institutional hindrances, rather than constraining informal entrepreneurs, are imposing high entry barriers to the formal sector on those potential entrepreneurs with more considerable human capital, entrepreneurial talent and technological capacity to establish enterprises with high growth potential. In turn, those new firms will absorb the millions of own account workers and micro-entrepreneurs who currently operate in the economies of developing countries. Based on the previous discussion, our findings favor the dual view of informality.

Also, the results provide some support for the U-shaped relationship found between economic development and the national rate of entrepreneurship (Wennekers et al., 2005; Van Stel et al., 2005) or self-employment (Carree et al., 2002). The evidence has suggested that as a country develops, the rate of entrepreneurial activity will tend to fall; however, at a high level of development, there will be a reversal of the trend. Our findings confirm that at a low development stage, informal entrepreneurship is typical in Latin American countries. Yet to the extent that nations improve the regulatory and legal framework, the number of own account workers and business owners tend to fall. At the same time, the number of limited liability corporations increase (formal entrepreneurship).

On the other hand, the results suggest that both the formal and informal rules are relevant in the explanation for high rates of informal entrepreneurship in developing countries. These findings support the theoretical framework proposed by Webb et al., (2009, 2013), who highlighted the impact of informal rules on the decision of entrepreneurs to operate in the formal or the informal sector. For it is the informal rules that make it possible for informal activity to be developed despite operating on the fringes of the law. For example, the results show that of Latin American citizens' low propensity to pay taxes, as reflected in their variable tax morale, leads to a higher level of informal entrepreneurial activity. In other words, the social acceptability of tax evasion reduces moral cost, as regards operating in informality, and therefore informal entrepreneurship is legitimized.

Finally, our results also suggest that if formal and informal rules are relevant, then polity, culture, and law matter. This has implications for entrepreneurship research. It is not possible to understand entrepreneurial activity as appealing only to strictly economic factors, mainly related to criteria of efficiency. By integrating polity and the law, this inevitably leads to the need to take historical and cultural factors into account that are often specific to countries and regions.

6.2 Limitations and Future Research

First, we must acknowledge the limitations of the proxy for informal entrepreneurial activity. A better empirical approach to the theoretical definition of informal entrepreneurship is required, closer to the conceptual framework of the new institutional economics (see Feige 1990; Desai, 2009). However, this work has managed to cover the entire set of Latin American countries over a significant period.

Second, the work has not explicitly addressed the possible, or not, substitution between formal and informal entrepreneurial activity. However, a joint analysis of all the results suggests that better institutional quality will lead not only to a smaller quantity of own account workers (informal entrepreneurship) but also to a lower number of business owners (formal entrepreneurship-productive definition). Therefore it is difficult to think that merely by improving the legal and regulatory framework there will be a massive conversion of informal entrepreneurs to official status. Nevertheless, future research on this topic is necessary.

Third, the results concerning the negative relationship between rigid labor regulations and informal entrepreneurial activity should be interpreted cautiously. This finding does not necessarily entail that stricter labor market regulation is better, but suggests that labor market deregulation cannot be an objective in itself and that multiple factors must be taken into account to choose an appropriate balance between efficiency and quality of employment. In any case, a robust possible explanation to this result is open to question.

Fourth, this research focused on a single level of analysis: the institutional level. However, the Latinobarometro database allows for the addition of another level. That is, it is possible to take micro-level factors into account. Therefore, future research could test multilevel models that cross these two levels (see Elam and Terjesen, 2010; Autio and Acs, 2010; De Clercq et al., 2013). For example, the database contains information on the financial, human, and social capital of each one of the individual respondents. On the other hand, according to Thai and Turkana (2014), there are several macro-level determinants of formal-informal entrepreneurship. Our research has focused on the institutional level. However, the database includes several questions that could permit including other macro-level determinants in the analysis, such as resources and abilities, performance-based culture, and socially-supportive culture.

Fifth, one of the limitations in the empirical research on entrepreneurship is the lack of databases that are representative at the individual level and mainly comparable between countries. However, the Latinobarómetro dataset contains valuable individual-level information on individuals' observable characteristics such as demographic variables, education, labor status, and even measures of subjective income and possession of certain household assets. The structure of the survey might be advantageous for carrying out studies on entrepreneurship at the individual level. For example, future research could identify, based on observable selected characteristics, the proportion of own-account workers who have a high potential to be successful entrepreneurs.

Likewise, the database could be suitable for researching gender and entrepreneurship, since gender is one of the characteristics that can be identified at the individual level.

Lastly, future research might include other types of entrepreneurial activities which are vital for Latin America's long-term growth perspectives, such as innovative entrepreneurship (Baumol et al., 2007), high growth entrepreneurship (Autio, 2008; Estrin et al., 2013; Stenholm et al., 2013), transformational entrepreneurship (Schoar, 2010), strategic entrepreneurship (Levie and Autio, 2011), among others.

6.3 Implications for Policy Makers

The results of this study have several implications for public policy. For example, the empirical findings suggest that an excessive regulatory burden affects the level of informal entrepreneurial activity, either because it encourages individuals to operate in the informal sector or because it discourages potential entrepreneurs with good entrepreneurial ideas from deciding to start new ventures and thus to absorb labor from the informal sector. Nevertheless, this provides notable leeway for public policy to seek a way to reduce those restrictions and therefore encourages informal entrepreneurs to formalize their activities, by increasing the benefits of operating formally. In practice, some critical factors for the success of any reform are related to the quality of bureaucracy and the level of coordination between the national government and sub-national governments, because many rules are executed at different levels of government.

The quality of bureaucracy is a critical factor in any strategy for reducing regulatory burden. As noted by De Soto (1989), most of the businesses regulations do not come directly from the legislative or executive branch, but straight from the bureaucracy. Also, these controls often respond to the interests of particular powerful interest groups. Therefore, Latin American governments should promote the strengthening of the capacities of its bureaucracy. This implies, among other things, the construction of a professional bureaucratic apparatus, where recruitment is carried out under the principles of the Weberian bureaucracy, as well as the merit and the expectations of promotion in the long term, which is different from the current characteristics of the Latin American bureaucracy, historically related to clientelistic ties or loyalties to the governing party.

Likewise, a high level of coordination and interaction between the public and private sectors is necessary, allowing for a continuous flow of information from private actors regarding the various

bottlenecks that might inadvertently be generating public regulation. Therefore, the construction of external networks that connect the public sector with the private sector is necessary. However, this presents a dilemma. Such connection with the private sector can lead to institutional capture by the elite for predatory purposes (Evans, 2005). Therefore, the development of a bureaucracy must not only be professional but also autonomous, or what Peter Evans (2012) calls "embedded autonomy".

On the other hand, the results consistently show a negative and robust relationship between the rule of law and informal entrepreneurial activity. As already explained above, we believe that this mechanism operates through better incentives to affect the decision-making of entrepreneurs, encouraging them to invest in new ventures and pursue new ideas in the formal sector, rather than by way of a massive conversion of informal entrepreneurs to official status. The results are quite robust in pointing out that institutions matter and that the establishments of secure and stable property rights are essential elements for allocation of entrepreneurial talent towards types of entrepreneurial activities consistent with economic growth. Hence, policymakers should place institutions and especially rule of law at the core of their agenda and political reform.

While there exists agreement in the literature on the importance of property rights institutions for economic development (Knack and Keefer, 1995; Acemoglu et al., 2000; Rodrick, 2000), less is known about "how does one acquire them?" (Rodrik, 2000: 3). Authors such as North et al. (2000) and Acemoglu et al. (2005) have pointed out institutional plurality as a critical element for building an institutional framework that promotes economic development. At the same time, institutional plurality depends on the distribution of political power among the various groups of society (Acemoglu et al., 2005). Unfortunately, statistics on income inequality have situated Latin America as the most unequal region in the world (Gasparini and Lustig, 2011). For example, Baumol et al. (2007) have categorized the Latin American economies as Oligarchic Capitalism. Therefore, if institutions matter for entrepreneurship, as suggested in this research, and in turn, institutional quality depends on political pluralism, then politicians and policymakers should pay more attention to redistributive policies and the enhancement of civic participation in Latin American countries.

Moreover, the lack of motivation to pay taxes (tax morale) is a symptom of institutional distrust. If individuals in a country distrust their institutions, it is very likely that entrepreneurs and even employees do not perceive the benefits of formality, such as police protection, conflict resolution

in the courts, access to formal credit, and social security, among others. Therefore, some entrepreneurs may think that there will be no return for the payment of taxes, and some workers would instead receive the total remuneration without the employer deducting their social security payments. In the end, there may be the legitimacy of both employers and employees regarding the non-payment of taxes and non-compliance with the labor legislation, particularly for contributions to social security.

The above suggests that focusing public policy on improving formal rules is a limited strategy if it does not address issues such as legitimacy (informal rules). At the same time, legitimacy is related to the quality of goods and public services. If citizens feel that their governments are corrupt, they do not enforce the rule of law and misuse fiscal resources, then there is a higher incentive to operate in the informal economy, either entirely or partially. Therefore, a more legitimate and responsible state apparatus is a fundamental element in any strategy to reduce informal entrepreneurship as well as to encourage formal entrepreneurship.

On the other hand, the research also shows that labor rigidity is a barrier to entry for new formal firms. However, a labor reform of broad scope is quite complicated to implement due to its distributional consequences. Therefore, a more pragmatic labor policy could concentrate on offering advantages in labor contracts to new firms. For instance, the government could provide benefits during the first years of the enterprises, which is a crucial period for its growth and consolidation. In other words, the benefits of public policy should be directed to young companies and not by size.

A relevant contribution of this research, useful as far as public policy is concerned, is that it provides evidence of the existence of different types of entrepreneurial activities, which in turn respond differentially to the incentives arising from the institutional framework. Therefore, the primary policy implication is that each of these entrepreneurial activities requires different types of public policy. For example, despite the results supporting the dual vision of informality neither is it possible, given the enormous size that informal entrepreneurship occupies in the region, discard that within this group there are entrepreneurs with growth potential which possibly are restricted for an inadequate regulatory and legal framework. Therefore, public policy should be directed to identify who restricted entrepreneurs are, and to help them move towards formality. This means that public policies must take into account the realities and particularities of the sector.

These include issues like reduced costs of entry, the recognition of property rights, access to microfinance, training programs, among others.

However, in line with the dual vision of informality, the public policy which is most efficient to reduce high levels of informality is related to a one growth strategy for formal firms and incentives for the creation of highly productive formal firms. In both cases, the aim is to create quality employment that enables the absorption of informal entrepreneurs. For example, the evidence on entrepreneurial demography in Latin American shows the existence of a large number of small firms, many of them unproductive. However, at the same time, there are a small number of medium-sized enterprises. This fact is primarily associated with the low productivity of micro-enterprises that do not allow them to transit towards larger, dynamic entrepreneurial structures. Therefore, public policy must address the factors that underlie this lack of growth. For example, as shown by the research, a key factor is the rule of law. In countries with a better rule of law, employers have a greater incentive to invest. On the other hand, a firm rule of law reduces the level of uncertainty, which in turn encourages entrepreneurs to move their investments from less risky sectors like trade towards areas of higher risk and productivity such as industry, where it is necessary to achieve economies of scale. Also, industry is one of the sectors with a higher capacity to absorb unskilled labor, which is precisely the factor that abounds in the informal sector.

The other channel to reduce the high levels of informal entrepreneurial activity is related to formal or productive entrepreneurship. According to the dual vision of informality, the reduction of the informal economy will depend to no small extent on new-entry formal firms run by new and better-educated managers (La Porta and Shleifer, 2008). Hence, public policy should create the right incentives to achieve a better allocation of entrepreneurial talent. The present work has shown that the rule of law is a critical element. In a society where there is a firm rule of law, individuals will have incentives to invest in physical or human capital or adopt improved technologies (Acemoglu et al., 2005). Also, individuals will be more willing to take risks, since they expect that profit returns will not be expropriated by the Government or powerful groups (Acemoglu and Johnson, 2005).

However, entrepreneurship policy should operate at various levels. For example, according to Leibenstein (1978), the lack of entrepreneurship in developing countries is one of the causes of its underdevelopment. He attributed this problem to the shortage of management capacities. Moreover, Shane (2000) found that prior knowledge is a crucial factor for identifying valuable

entrepreneurial opportunities. Therefore, public policies aimed at improving human capital and, specifically, management skills are essential.

On the other hand, the results can contribute to the discussion that exists in civil society concerning whether governments and the general population should be permissive with informal entrepreneurial activity; or whether, by contrast, it is necessary to force them to comply with government regulations. The latter option seems to be unsuitable. For instance, our results suggest that the reduction of informality depends more on the entry of formal firms than through conversion to the legal status. In other words, in the absence of improvement in the rule of law and regulatory burden, which encourages formal entrepreneurship, probably an aggressive policy forcing the informal entrepreneurs to comply with legal regulations will lead to higher unemployment and poverty, taking into account that around 50% of the economically active population in Latin America participate directly or indirectly in the informal economy. Therefore, civil society must take into account all these elements to promote and contribute to a positive and realistic debate over informality.

In summary, we suggest that the objective of entrepreneurial policy in Latin America should focus on the quality of entrepreneurship. Nonetheless, while Latin America countries manage to stimulate formal entrepreneurship, informal entrepreneurial activity is essential as a source of employment that provides a livelihood for millions of economically disadvantaged individuals. Therefore, the improvement of property rights, the regulatory burden or social norms should aim, as its primary objective, to reward and encourage individuals with the best human capital and entrepreneurial talent to become entrepreneurs. In turn, they will generate quality employment, absorbing millions of informal entrepreneurs currently inventing jobs to escape poverty.

7 References

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