INFORMAL INSTITUTIONS AND INFORMAL ENTREPRENEURIAL ACTIVITY: NEW PANEL DATA EVIDENCE FROM LATIN AMERICAN COUNTRIES

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ABSTRACT

Entrepreneurship is an extremely desirable mechanism to generate economic and social progress in a country. The previous literature systematically omitted the role of informal institutions in informal entrepreneurship, particularly in Latin America, a region with high informality. In this context, the purpose of this paper is to examine the influence of informal institutions on the level of informal entrepreneurial activity in Latin America countries. We used a panel data for the period 2004-2015, considering 18 countries in the region. 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 lower tax morale. However, generalized trust had no significance. In other words, the social acceptability of tax evasion reduces moral cost, about operating in informality, and therefore informal entrepreneurship is legitimized. Finally, the results suggest that both the formal and informal rules are relevant in the explanation for high rates of informal entrepreneurship in Latin America.

Keywords: Informal Entrepreneurship, Tax Morale, Institutions, Social Capital, Latin America, Panel Data.

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 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 each 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, p.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 despite

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 (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 paper attempts to incorporate and empirically test some of the ideas developed in recent years by academics of entrepreneurship (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.

THEORY AND HYPOTHESIS DEVELOPMENT

Helmke and Levitsky (2004, p.727) define informal institutions as *socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels.* For Raiser (1997, p.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, 1993).

For Putnam (1993, p.167), the *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, 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 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, 2000; 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 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, p.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 Saparito (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 Thai, 2013; Kozan and Akdeniz., 2014). Likewise, some scholars have emphasized the collective nature of informal entrepreneurship.

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, 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 (1997) 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), the rich and the poor have little reason to believe that they share common values, and thus might well be wary of each other's' motives. 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). 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 regarding 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 cannot 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, 2007:2009; 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.

METHODOLOGY

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[1].

Dependent Variables

The dependent variable comes from Latinobarómetro. 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 data[2]. The 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 entire survey is treated as a sizeable region-wide sample with the weights assigned in the whole dataset for everyone and country. Also, the survey ensures representation across gender, socioeconomic status, and age. 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. 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.

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. Therefore, 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[3]. This index was built based on 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 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 (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 and 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., 2006; Barro and Lee, 2013).

On the other hand, as suggested by several empirical studies, 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., 2006) 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.

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:

Informal Entrepreneurial Activity$=\beta 0+\beta 1GDP\_percapita+\beta 2Growth\_rate\_GDP+\beta 3Population\_Growth+\beta 4Agricultural\_Population+\beta 5Secundary\_Education+\beta 6Business\ regulation+\beta 7Total\_tax\_rate+\beta 8Rigid\_labour+\beta 19Rule\_of\_Law+\beta 10Trend(t)+\beta 11Generalized\_Trust+\beta 12Tax\_Morale+u$

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>chi^2=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 Haussmann test was applied (Wooldridge, 2002). The test consistently suggested that the random effects model was better suited to the data (Prob>chi^2=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>0.05 (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 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.

RESULTS

Table 1 shows the means and standard deviations for the variables analyzed and Table 2 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 3 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 that business regulation, rigidity of employment, and the rule of law index are statistically significance (Model 2). With

respect to the variables of interest, the results displayed in the Model 2 (Table 3) 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, 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, kept their significance and sign when the informal institutional variables were added.

In the Latin American context, informality is relevant because an important source of employment and income is generated in the informal sector of the economy. Another relevant result is that the regulation of business has a negative effect on informal entrepreneurship. There is empirical evidence that suggests that excessive procedures prevent the creation of new companies (Sørensen, 2007; Krasniqi, 2007). In fact, one of the strong barriers for the informal sector is the restriction imposed by the formal financial system, which implies a long list of procedures that an informal entrepreneur must perform (Alvarado et al., 2017; Stöhr and Linda, 2010). Also, small enterprises can be limited by the rigidity of the labor market, particularly when small firms enter the market (Van Stel et al., 2007). In all regressions, the effect of tax morale is negative on informal entrepreneurship, which is consistent with the conclusions obtained by Ahmed and Braithwaite (2005).

Table 1
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). *Latinobarómetro*	17.43	5.67
2. GDP per capita	USD	GDP per capita, purchasing power parities (log for analysis). *International Monetary Fund Data*	11220.52	5232.46
3. Growth rate GDP	percent	Growth rate GDP. *International Monetary Fund Data*	1.42	0.58
4.The population growth rate	percent	The population growth rate. *International Monetary Fund Data*	4.60	3.35
5. Agricultural population	percent	Percentage of economically active population working in agriculture. *World Bank Data Base*	19.25	10.15

Table 1 DESCRIPTION OF VARIABLES AND STATISTICS				
6. Secondary education attainment	index	Average Years of Secondary Schooling. *World Bank Data Base- Barro and Lee (2013)*	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. *Fraser Institute*	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. *Doing Business*	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). *Doing Business*	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. *World Bank Governance Indicators*	0.40	0.14
11. Generalized Trust	percent	"*Generally speaking, would you say that most people can be trusted*?" *Latinobarómetro*	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. *Latinobarómetro*	1.69	0.41

Table 2
INFORMAL ENTREPRENEURIAL ACTIVITY AND SOCIODEMOGRAPHIC/FORMAL/INFORMAL INSTITUTIONS FACTORS (CORRELATION MATRIX)

Informal entrep. activity rate	1	2	3	4	5	6	7	8	9	10	11	12	13
% of EAP self-employed ILO	0.463***	1											
GDP per capita	-0.437***	-0.635***	1										
Growth rate GDP	0.083	-0.00677	0.00133	1									
The population growth rate	0.292***	0.339***	0.395***	0.0855	1								
Agricultural population	0.323***	0.375***	-0.47 1***	-0.0588	0.357***	1							
Secondary educ. attainment	-0.287***	-0.163*	0.609***	0.121	-0.195**	-0.358***	1						
Businessregulations	-0.450***	0.0793	-0.0496	0.0254	-0.115	0.0343	0.10 1	1					
Total taxes % of profits	0.196**	-0.193**	0.0253	-0.0 173	-0.0708	-0.198**	-0.0639	-0.459***	1				
Rigidity of employment	-0.13	-0.154*	0.0273	0.0928	0.388***	0.145*	0.0779	-0.136*	-0.218***	1			
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		
Tax Morale	-0.247***	-0.548***	0.409***	-0.0546	-0.390***	-0.613***	0.0524	-0.210 **	0.171**	-0.05	0.185**	1	
Generalized Trust	0.12	0.147*	0.0263	0.0397	-0.104	0.048 1	-0.131*	0.210 *	-0.0385	-0.277•••	-0.233***	-0.099	1

Note: $^{*}p<0.10$; $^{**}p<0.05$; $^{***}p<0.01$.

Table 3
INFORMAL INSTITUTIONAL FACTORS AND INFORMAL ENTREPRENEUR ACTIVITY RATE

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

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 (Acs et al., 2008; Klapper et al., 2010; Dau and Cuervo-Cazurra, 2014). As shown in Table 3 (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 (period 2004-2015). 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.

DISCUSSION AND CONCLUSIONS

In this work, we have empirically analyzed the relationship between informal rules and 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 a panel covered the period 2004-2015 with a dataset containing 180 observations in 18 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 lower tax morale. However, generalized trust had no significance. 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. 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, about operating in informality, and therefore informal entrepreneurship is legitimized.

The results of this study have several implications for public policy. 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. 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.

END NOTES

1) There were two years when the survey was not conducted: 2011 and 2014.
2) All the information about sample design, method of selection of respondents, sample size, etc, can be found at http://www.latinobarometro.org
3) The index was constructed following to Torgler and Schneider (2009).

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