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The effect of institutional asymmetry on informal entrepreneurship

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Abstract: Scientific literature represents the informal economy in two opposite ways, either as a sector characterised by low wages and productivity, and as a provider of livelihood for billions of people around the world. Macroeconomic theories and studies provide contrasting explanations of this complex phenomenon. Using institutional theory, we develop a microeconomic approach from an individual perspective to understand the social dynamics that can explain the choice of informal entrepreneurship. Drawing from a rich tradition of cognitive models and institutional theories, this study provides evidence of the differential effect of institutional asymmetry on nascent entrepreneurs through attitudes and subjective norms. Social pressure exerts a critical role in differentiating the entrepreneurial process between formal and informal nascent entrepreneurs. The theoretical and practical implications are discussed.

Keywords: informal entrepreneurship; Bolivia; institutional asymmetry; social pressure; emerging economies; pervasive informal economy.

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1 Introduction

The informal economy is a sector that provides the livelihood for billions of people around the world, accounting for more than 60% of economic activity in developing countries (Jütting and Laiglesia, 2009; Schneider and Enste, 2013). The informal (or shadow) economy has been studied increasingly in the past few decades (Baily et al., 2005; De Castro et al., 2014; Feige, 1990; Johnson et al., 1997; London et al., 2014; Schneider et al., 2010). There is little consensus, however, about its role in entrepreneurial economic development. A dominant macro-economic school of thought depicts the informal economy as populated by unregistered, or partially registered, wage workers, and out of necessity, by marginalised people (Ahmad, 2008; Gaetz and O'Grady, 2002; Maritz, 2004; Williams, 2007). This bleak portrait describes informal firms as parasites harming economic development through unfair competition, low wages and productivity, and tax and regulation avoidance (Farrell, 2004). In contrast, recent literature on the entrepreneurial process acknowledges that the informal economy can play a crucial role to counter poverty in emerging and developing countries (Collier, 2008; Raimi and Aslani, 2019; Rezaei et al., 2019; Tobias et al., 2013; Yunus et al., 2010), where a significant portion of informal workers are self-employed (ILO, 2002).

These entrepreneurs voluntarily choose to operate informally to avoid the subsequent costs of registration (Becker, 2004; De Soto, 2000; Johnson et al., 1997; Maloney, 2004).

The problem with the divergent opinions is that these two different schools of thought inherently lead to opposing policies. The first calls for greater regulation and enforcement to stop illegal business operations and impede the ability of entrepreneurs in the shadow economy (Gallin, 2001; Portes et al., 1989). Conversely, the latter proposes smaller barriers to entry, tax reductions, and less regulation to encourage informal entrepreneurs to enter the formal economy (De Soto, 2000). Both policies argue they will result in a larger portion of formal entrepreneurs and thus improve overall economic conditions. In addition, past research on this topic relies only on macroeconomic data. Typically, studies leverage official OECD data sources and World Bank development indicators to explore the relationship between the size of informal economy in 33 countries and some macroeconomic and socio-economic indicators, such as the modernisation of work, welfare arrangements, GDP, the corruption perceptions index, the expenditure on social protection, and labour market intervention to protect vulnerable groups (Williams, 2015). Unfortunately, little attention if any has been devoted to the behaviour of individual agents that decide to operate in the informal sector (Gerxhani, 2004). The shift of research from macro-economic arguments to the social and anthropological side of this phenomenon can unveil a new perspective on social relations and the motivations underpinning informal entrepreneurship (Pisani, 2019; Rodgers and Williams, 2019; Williams, 2013), thus triggering more research on this topic (Bruton et al., 2012). The goal of this paper is to leverage institutional theory to explore the informal economy from an individual perspective.

Informal entrepreneurship includes a range of enterprises. At one end of the spectrum are small individual businesses that do not register or comply with regulations, do not pay taxes, and do not have bank accounts. At the other end are registered firms in transient and developing economies that hide sales to avoid taxes or attempt to establish new operations outside normal business regulations (Johnson et al., 1997; Lee and Hung, 2014). Although these entrepreneurs operate outside formal institutional boundaries (i.e., they are not legally registered businesses), they offer services or products in a manner that remains acceptable to large societal groups (Bruton et al., 2013; Gold, 2019; Mason et al., 2019; Webb et al., 2013). Literature explores informal entrepreneurship as a manifestation of the relationship between economic agents, namely entrepreneurs and formal institutions, and focuses on two different facets of informality (Perry, 2007). The push (exclusion) point of view proposes that micro-economic factors such as lack of opportunity (Mehtap and Al-Saidi, 2019), burdensome entry regulations, and perceived mistrust of formal institutions prevent entrepreneurial activity (Ramadani et al., 2013) and force individuals towards shadow entrepreneurship in the informal economy (Bruton et al., 2016; Heilbrunn, 2019; Maloney, 2004; Perry, 2007; Prada et al., 2019). The pull (exit) point of view acknowledges that informal operation provides a broader landscape in which to exploit opportunity (Mallet et al., 2019). From this perspective, the decision to enter the informal economy comes from a cost-benefit analysis (Honyenuga, 2019), balancing the positive potential for private gains with the possibility of deleterious outcomes resulting from tax evasion or regulation avoidance (Neuwirth, 2012; Perry, 2007; Siqueira et al., 2014). Institutional theory reflects this point of view. Entrepreneurs operate in the informal economy when norms, values, and beliefs shared among much of the society differ from laws and regulations (Williams and Shahid, 2016). This group-level institution defines the framework of constraints within which human

behaviour takes place (Webb et al., 2009). The asymmetry between formal and group-level institutions, a gap named institutional asymmetry, is a crucial factor in the entrepreneur's choice to operate informally. As a consequence, we must account for the dynamics of these intentions and behaviours to fully understand this phenomenon (Williams, 2008).

Scholars acknowledge the importance of motivation-related theories in understanding the role of various economic and social factors in an entrepreneur's decision to operate formally or informally (Perry, 2007; Siqueira et al., 2014; Webb et al., 2013). In emerging economies, institutional asymmetry clouds the boundaries of daily life such that younger generations view informal entrepreneurship as the norm (Cross, 2007). Group-level institutions redefine what is socially legitimate through rules, conventions, and codes of behaviour, with critical effects on the attitudes, intentions, and behaviours of nascent entrepreneurs (Mikić, 2019; Ojo, 2019). The outcome of this interaction plays a significant role in the socio-economic environment (Pathak and Muralidharan, 2016). Nevertheless, the cognitive process at the core of the interaction between institutions and economic actors are not well understood (Webb et al., 2014). We address this gap in the literature by investigating the effect an informal economy has on forming attitudes and intentions in nascent entrepreneurs (Ajzen, 1991; Shapero, 1975). Furthermore, we test for differences in this effect between formal and informal entrepreneurs.

A sample of 925 students from Bolivia's top university participated in the research for this paper, which studies the effect that the perceived magnitude of the informal sector has on the intention to start a business. We present a thorough background literature review of the topic, develop our hypotheses, and provide a detailed overview of our methodology, including instrument design and validation. By applying both institutional theory and cognitive theory, our work sheds new light on the effect of institutional asymmetry on entrepreneurial behaviour. First, we provide empirical evidence of differences in the entrepreneurial process between formal and informal nascent entrepreneurs. Second, we uncover the differential effect of institutional asymmetry on social norms (SN) depending on the expressed likelihood of starting an informal venture, which provides the first empirical evidence supporting Webb et al.'s (2013) theoretical proposition. Third, our findings highlight the expected role of support by reference people in the influence of institutional asymmetry on entrepreneurial intention (EI). Finally, we provide evidence that the use of an alternative specification of the theory of planned behaviour (TPB) cognitive model (Liñán and Chen, 2009) offers more detailed and intriguing findings. In addition to these contributions to both literature and practice, this research also provides the first large dataset that investigates the impact of the informal economy on cognitive models. The new insight provided by our findings may have broader implications for future research into the role of institution asymmetry on entrepreneurial cognitive models.

2 Background literature

2.1 Informal entrepreneurship

Informal entrepreneurship refers to an individual's decision to operate a business outside of formal institutional boundaries (i.e., in an informal economy), which is pervasive in society (Neuwirth, 2012; Schneider and Enste, 2013). During the last decades, literature

has discussed determinants and effects of informal economies at a macro-economic level (De Soto, 1989; Farrell, 2004; Harris and Todaro, 1970; Helberger and Knepel, 1988; La Porta and Shleifer, 2008). Only recently have scholars noted that the individual entrepreneurial decision process should be considered through micro-economic, micro-sociological, and psychological analysis to make effective economic policy decisions (Mazonde and Carmichael, 2016; Schneider and Enste, 2013). Conventional wisdom assumes that constraints pushed individuals into the informal economy, that is, no other options were available to them (Williams, 2008). In this vein, the costs of registering and operating a formal company or the immigration status represented a significant barrier to entry into the formal sector, thus excluding these 'marginalised' entrepreneurs (De Soto, 1989; Rezaei et al., 2014). Additionally, many entrepreneurs in developing countries report following an informal path to avoid the costs of registration and taxes (Becker, 2004; Grosh and Somolekae, 1996) or the costs related to trade tariffs and quotas, labour regulations, health and safety standards, and other regulatory controls (DiMaggio and Powell, 1983). As a consequence, the business model of many informal firms would not allow them to shift into the formal economy, thus improperly allocating resources and eroding economic development (Williams, 2005).

In recent years, this representation of entrepreneurial motives has been questioned (Williams, 2004; Williams and Nadin, 2011). Within institutional theory, excessively restrictive regulations may unnecessarily increase the costs of formality. Thus, informal entrepreneurship may provide for the most efficient allocation of resources in that institutional setting (Webb et al., 2013). Further, some scholars argue informality as a voluntary individual choice to pursue opportunities (Neuwirth, 2012). In this context, the individual makes a decision to operate in the informal economy weighing the perceived value (Shane and Venkataraman, 2000). Consequently, the entrepreneurial process of recognising and exploiting opportunities arrives at the intersection of social and cognitive frameworks, resource management skills and institutional environment influences. Entrepreneurs evaluate opportunities using these processes, acquired through experience, to detect meaningful patterns among connections, independent events or trends (Baron and Ensley, 2006). To create value from a detected opportunity, entrepreneurs need to acquire and manage resources, successfully balancing their allocation among competing needs (Porter et al., 2010; Sirmon and Hitt, 2003). Finally, characteristics of the institutional environment influence the entrepreneurial process. Through policies and regulations, institutions define the boundaries and rules of the entrepreneurial arena, thus affecting opportunity recognition and exploitation (Clemens and Cook, 1999).

As a result, there are a myriad of reasons proposed for entrepreneurs to enter the informal economy. Resource allocation theory proposes that entrepreneurs choose to operate informally in order to be able to manage resources without incurring costs derived from bureaucratic and regulatory controls (Guirkinger, 2008; Kanfer and Ackerman, 1989; Vaknin, 2000). Industry dynamism increases the likelihood of informal entrepreneurship, while industry concentration and an abundance of critical resources may pull entrepreneurs toward the formal economy (Siqueira et al., 2014). Motivation-related theories propose informality as a consequence of economic and social motivations, such as monetary success, income gap (Kim, 2005) and tax avoidance (Quintin, 2008). From this perspective, informal entrepreneurs operate small businesses to improve their current income or to reach a desired lifestyle (Stebbins, 2004; Williams, 2008). Ambiguous jurisdictions, policy stringency, distrust in formal institutions (Rezaei et al., 2013b), and bureaucratic complexity are also factors facilitating informal

entrepreneurship (Maloney, 2004; Wallace and Latcheva, 2006; Webb et al., 2013). All these factors define an asymmetry between formal institutions and what is considered legitimate by much of society. As North (1990) proposed, institutions shape human interaction and societies' evolution. They represent the rules of the game, while organisations and individuals are the players. Laws, policies, and regulations enacted by public authorities and governments define formal institutions, while conventions, values, and codes of behaviour shared among groups of individuals define group-level (or informal) institutions. Institutional theory suggests that differences in formal and informal institutions' definitions of social acceptance provide an explanation for informal entrepreneurship, creating situations in which opportunities fall outside formal institutional boundaries (Centeno and Portes, 2006; Uzo and Mair, 2014). The greater the asymmetry between a society's formal and informal institutions, the more entrepreneurs operates in the informal sector (Williams and Shahid, 2016). Ethnic, indigenous, and enclave entrepreneurship are phenomena that reflect such asymmetry (Peredo et al., 2004; Ramadani et al., 2019). Unfortunately, many policy interventions exacerbate this gap (Carter et al., 2015).

Institutions are evolving, and therefore, are continually altering both constraints and available choices (North, 1990). Adapting to these changes is not easy, since it requires both a cognitive shift that internalises new conventions and values and new policies that are culturally sensitive (Dana, 2010). Unfortunately, the resulting effect of this change is that informal businesses do not formalise and the informal economy keeps growing. As a result, countries with emerging economies exhibit significant informal sectors, peaking at well over 70% of GDP (Schneider and Enste, 2013). There is a consensus on the effect of these changes on human behaviour, but current research frameworks do not consider the individual cognitive point of view or how institutional asymmetry affects EI and action in the informal economy (Bashir, 2019; Light and Dana, 2013). Informal entrepreneurs share common norms, expectations, and beliefs that lead to formation of a group-level (informal) institution (Saxton et al., 2016; Scott, 2008). Often, informal businesses hire and operate within these informal institutional boundaries. For instance, informal organisations embedded in diverse institutional domains such as family, friendship, ethnicity and religion tend to exclusively hire members of the same socio-cultural group (Uzo, 2019). In addition, the individual identification with an informal institution plays a crucial role in recognising and exploiting opportunities (Bashir, 2019). Indeed, Webb et al. (2013) propose that: "The formation of group-level institutions is positively related to effective exploitation of opportunities in the informal economy" (Proposition 6). Starting from this call, we present a quantitative study focused on the perceived magnitude of institutional asymmetry as a facilitating factor of informal entrepreneurship. In more detail, because of their linear relationship, we use this perception as a proxy for institutional asymmetry (Williams and Shahid, 2016). To explore this relationship, we conducted our research in a developing economy with a pervasive informal economy (Cross, 2007).

Literature shows that perceptions affect the individual's intentions and behaviours (Fishbein and Ajzen, 1974, 1977; Reibstein et al., 1980). From a cognitive point of view, the perceived magnitude of informal economy (PIE) facilitates entrepreneurs to believe that informality is an acceptable norm. Consequently, they feel free to exploit entrepreneurial opportunities without having to face barriers, constraints, or legal boundaries (Cross, 2007; Williams, 2005). By affecting perception of the behaviour's

likely consequences, this belief can influence attitudes toward behaviour (ATB), and eventually, intentions and actions (Ajzen, 2005). From a theory-building standpoint, we expect the magnitude of the informal economy, which is a proxy for perceived institutional asymmetry, to affect cognitive processes of formal and informal entrepreneurship in different ways. To test this proposition, we explore the effect of institutional asymmetry on entrepreneurship through a reliable proxy for entrepreneurial behaviour and intentions (Ajzen, 1985; Bird, 1988; Krueger, 2007; Schlaegel and Koenig, 2014; Shapero, 1975; Sheeran, 2002).

2.2 Intention-based model

Empirical evidence supports the predictive power of intentions for human behaviour (Armitage and Conner, 2001). Ajzen (1991) defines individual intention as the degree to which a person is ready to perform the given behaviour. Intention aggregates the motivational factors that influence behaviours, capturing the amount of effort and will that people are exerting to perform them (Ajzen, 1987). The TPB (Ajzen, 1991) operationalises this framework of behaviour-specific factors applied in many different research domains, including entrepreneurship research (Kautonen et al., 2013). In its current form, TPB proposes three determinants of intention, namely ATB, subjective norms (SN) and perceived behavioural control (PBC) (Ajzen, 2011).

ATB refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991). According to the expectancy-value model (Fishbein and Ajzen, 1977), attitudes develop from the individual's beliefs about the given behaviour. Each belief links to the expected value of the corresponding outcome (positive or negative), so an individual will acquire an attitude toward the behaviour by combining the beliefs related to the given behaviour (Ajzen and Madden, 1986). Although attitudes are stable over time and resistant to persuasion (Ajzen, 2001; Visser and Krosnick, 1998), they may be influenced by external factors in two ways. First, social groups exert influence on an individual's attitudes through agreement from others categorised as similar (Turner, 1982). By defining socially acceptable behaviours and outcomes (Clemens and Cook, 1999), the group-level institution of informal entrepreneurship provides community benefits and behavioural beliefs that are related to entrepreneurial attitudes (Shapero and Sokol, 1982). Categorising their social identity as belonging to the informal economy institution, nascent entrepreneurs adopt the prototypic group's attitudes and beliefs, and are more likely to opt for informal entrepreneurship (Rezaei et al., 2013a; Wood, 2000). The second factor affecting ATB resides in the same nature of this construct. There is general agreement that attitude represents the positive or negative evaluation of a target behaviour. Such beliefs relate to outcomes of specific behaviours, such as personal wealth, autonomy, need for achievement, locus of control and community benefits (Hansemark, 1998; Hockerts, 2015; Kaufmann et al., 1995; Shapero and Sokol, 1982; Stevens et al., 2015). A positive evaluation of personal wealth contributes to better attitudes toward entrepreneurship. Perhaps, institutional theory proposes that perceived high tax rates and public sector corruption lead entrepreneurs to exit formal economy. The perception that taxpayer's money is not fairly returned as services and support drives the entrepreneur to perceive taxes as a loss in personal wealth, thus leading an individual to form a more favourable attitude toward informal entrepreneurship. Furthermore, an individual operating in the informal economy avoids compliance with policies and

regulations, thus increasing the perceived autonomy and locus of control. As a consequence, the rejection of what formal institutions establish to be legal in favour of what informal institutions define to be socially acceptable positively affects the individual's attitude toward entrepreneurship (McClelland, 1987; Van Gelderen and Jansen, 2006). Therefore, we expect perceived institutional asymmetry to positively affect ATB for entrepreneurs who plan to operate informally, resulting in the following hypothesis:

Hypothesis 1a Perceived institutional asymmetry positively affects ATB for informal entrepreneurship.

Institutional theory states that institutional forces exert influence on an individual's attitudes through agreement (Nguyen, 2020). Moreover, social groups of people perceived as similar exhibits many of the characteristics of social institutions (Cloyd, 1965). Individuals interact mainly with members of their social group (Greif, 1994), and this effect is enhanced in collectivistic societies. In social environments, people look to group membership as a guide. In a society with a pervasive level of informal economic activity it is likely that an individual interacts more with informal economy agents than with formal economy agents. This is classified as a minimal-group situation, where links between members of a particular group (the formal economy agents) are weak or non-existent because of the sparsity of the agents (Eckel and Grossman, 2005). When an individual does not consider herself as belonging to a group of people, the effect of social groups on her behaviour is marginal. Thus, we expect that:

Hypothesis 1b Perceived institutional asymmetry does not significantly affect ATB for formal entrepreneurship.

Subjective norms (or social norms – SN) capture normative beliefs, which refer to the perceived social pressure exerted by family, friends, or mentors to perform (or avoid) an action. This predictor is strengthened when conditions are uncertain, as is the case of starting a business (Cialdini and Trost, 1998). Social learning theory also supports the inclusion of this construct in TPB (Bandura, 1977b). Although some studies did not find a significant relationship between SN and intentions (Krueger et al., 2000), empirical research confirms its predictive power of intentions (Engle et al., 2010; Kolvereid, 1996). Family or close social groups exert a strong influence on the entrepreneurial intent of individuals (Awang et al., 2016). Institutional theory proposes that the asymmetry between laws, codes, and regulations of the formal institutions and the norms, expectations, and beliefs of informal institutions lead to the legitimation of illegal activities seen as socially legitimate (Webb et al., 2013, 2009). The social pressure resulting from this asymmetry will exert influence on the intentions of nascent informal entrepreneurs through the construct of SN. We thus propose that:

Hypothesis 2a Perceived institutional asymmetry positively affects SN for informal entrepreneurship.

For the same reasons, we also expect that social pressure coming from institutional asymmetry does not affect the intention of nascent formal entrepreneurs. Indeed, a socio-economic environment that is characterised by a pervasive informal economy does not offer any incentive supporting the formal choice until socio-economic agents are made aware of the benefits of the formal economy (Salamzadeh et al., 2013). Therefore:

Hypothesis 2b Perceived institutional asymmetry does not significantly affect SN for formal entrepreneurship.

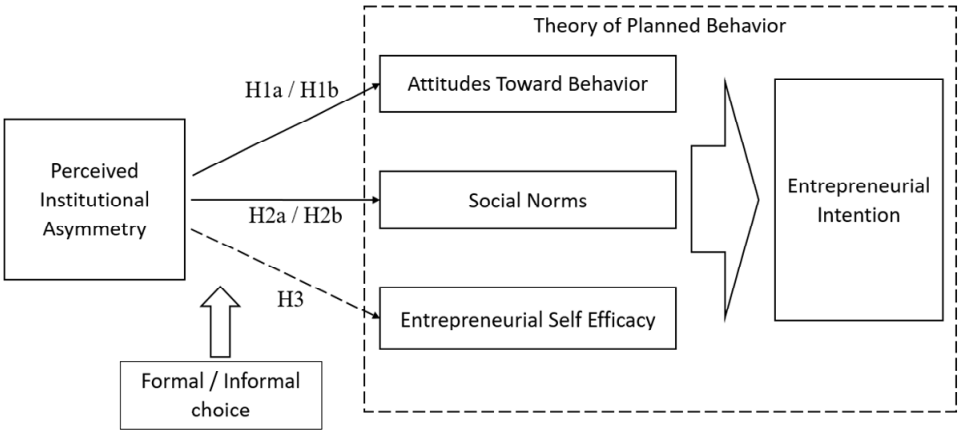
PBC is a construct compatible with Bandura's (1977a) concept of perceived entrepreneurial self-efficacy (ESE). Empirical research confirms ESE as a strong predictor of intentions and behaviour (De Noble et al., 1999; Hallam et al., 2016; Krueger et al., 2000; Schlaegel and Koenig, 2014). This predictor reflects "self-referent judgments arrived at through cognitive processing of diverse sources of efficacy information" (Bandura, 1986), and is concerned with the perceived ability to successfully perform a particular job, or set of tasks, associated with the behaviour. Self-efficacy is acquired gradually through experience, education, and the individual's assessment of the availability of resources and constraints that may affect future performances (Bandura, 1982). According to social cognitive theory, there are four ways to strengthen self-efficacy. *Enactive mastery*, the most effective way to develop a strong sense of self-efficacy (Gist, 1987), provides direct experiences that develop positive confidence for future performances. *Role modelling*, while slightly less effective, develops self-efficacy through observational learning. Individuals estimate the relevant skills and effort needed to perform a task by comparing themselves to role models. *Social persuasion* improves the sense of self-efficacy through positive feedback regarding a person's ability to perform a given task and is effective when associated with enactive mastery (Bandura, 1982; Gist, 1987). The last way to enhance self-efficacy is *self-assessment* of one's state including such factors as emotional arousal, anxiety and tension. These may be interpreted as vulnerabilities and contribute to low levels of self-efficacy (Bandura, 1982; Boyd and Vozikis, 1994). Thus, to strengthen self-efficacy, people should take steps to enhance their emotional and physical status (Gist, 1987).

Among the four processes, only role modelling may be affected by the perceived institutional asymmetry. We expect that the magnitude of an informal economy does not affect ESE for two reasons. First, ESE is a motivational factor, designed to explain task-specific self-confidence (Baum and Locke, 2004). Second, SN already capture the role of mentors, a construct designed to measure social pressure (Ajzen and Madden, 1986). Consequently, we propose that:

Hypothesis 3 Perceived institutional asymmetry does not significantly affect ESE.

The contribution of these three motivational factors to explaining EI has been established empirically. However, the role of SN needs more detailed discussion. From a social-capital point of view, the values transmitted by reference people would cause more favourable attitudes toward entrepreneurial behaviour, and thus indirectly affect intention (Mathews and Moser, 1995). Furthermore, describing SN as a particular form of social capital suggests a causation effect over the perception of behavioural control. In other words, the perceived support from reference people positively affects the perception of control on the entrepreneurial process (Liñán and Chen, 2009). This effect would be stronger in collectivistic cultures. Consequently, we expect that a model thus specified would better fit our sample. Figure 1 shows the proposed theoretical model and the related hypotheses.

Figure 1 Hypothesised model of perceived institutional asymmetry effect on the TPB model



3 Methodology

3.1 Sample

A research collaboration with a top university in Bolivia helped us conduct this study. The International Monetary Fund (IMF) reports that Bolivia's economic growth rates have been significantly above the average in South America, thanks to political stability, controlled inflation and fiscal surpluses (Vargas and Garriga, 2015). Further, Bolivia has registered dramatic declines in inequality and poverty since 2000. However, Bolivia still has a highly pervasive informal economy (Dana, 2019), which accounts for about 70% of the GDP (Schneider and Enste, 2013). We targeted the top university to understand how asymmetry between formal and informal institutions affects nascent entrepreneurship. The university's student population may be considered a convenience sample because, especially in developing countries, university studies are usually very restricted to the upper classes. Such students typically aim for high positions in public administration or in large (possibly foreign-owned multinational) companies and could thus threaten the generalisability of the results with extraordinarily low intentions. However, the research limitation associated with the choice of this convenience sample was less a concern given the relatively high measured intention to start a business (see Table 1). Our sample does represent a segment of the population that is highly educated and will likely exploit opportunities in their country.

The instrument, originally designed in English, was translated to Spanish by a local panel of experts and faculty, and then back translated to English to check for content validity. Furthermore, the items' order has been carefully planned and tested to avoid endogeneity and common variance biases (Podsakoff et al., 2003). For example, the instrument measured the PIE at the very beginning, among few demographic questions, while the measure of the (formal or informal) EI came at the end.

During the summer of 2016, 1,466 students from different colleges and majors were asked to take the online survey. At the end of the semester, we had 932 respondents, and 925 fully completed the survey. Based on the completed surveys, the response rate was

about 63%. The average age of the respondents was 22.3 years (SD = 3.6), 64% were female, and 36% indicated they were more favourable towards starting an informal business than a formal one. For sake of brevity, in the following sections, we call informal entrepreneurs the students who indicated being more favourable to operate in the informal economy, and vice versa for formal entrepreneurs.

3.2 Measures

We used five variables in our model, namely ATB, SN, perceived ESE, EI and PIE. The four variables representing the classic TPB model were chosen from validated instruments in entrepreneurship literature, while the PIE measure was developed and validated in this research effort (Appendix).

3.2.1 Attitudes toward behaviour

ATB has been operationalised through an aggregate attitude scale. Ajzen (2001) states that the aggregation of the beliefs associated with the given behaviour determine attitudes. Consequently, literature presents two different ways to measure attitudes: a belief-based measure (Fayolle et al., 2006; Kolvereid, 1996) and an aggregate measure (Krueger et al., 2000; Liñán and Chen, 2009). Although both have been used successfully in empirical research, the belief-based measure sometimes gives disappointing results (Kolvereid and Isaksen, 2006). For this reason, we operationalised ATB through an aggregate measure derived from Gundry and Welsch (2001) and Kolvereid and Isaksen (2006). The five questions asked participants their degree of commitment to start a new business and how much they were willing to sacrifice to be entrepreneurs, using a seven-point Likert scale (see Appendix). All items loaded on the same factor with a reliability of 0.80, very close to past research results [Cronbach's $\alpha = 0.81$ in Kolvereid and Isaksen (2006)].

3.2.2 Subjective norms

SN are considered the weakest predictor of intentions. Prior empirical research found inconsistent results about its predictive power (Engle et al., 2010; Sheppard et al., 1988). However, scholars explained the poor performance of this predictor with measurement issues and the need to re-conceptualise the mechanism by which social pressure is exerted (Krueger et al., 2000; Liñán and Chen, 2009). Meta-analytic review shows the need to operationalise SN through a multiple-item measure (Armitage and Conner, 2001). SN are a measure of perceptions of social pressure derived from the judgment of salient others and needs to be weighted by the motivation to comply with these groups or individuals (Kolvereid, 1996). For these reasons, we adopted a three-item composite measure of SN. Participants were first asked to measure their perception of social pressure exerted by:

a closest family

b closest friends

c people who are important to me.

They were then asked about their motivation to comply with each of these groups of salient others. Each belief measure was weighted by the corresponding motivation and rescaled to a seven-point Likert scale, as suggested by Kolvereid and Isaksen (2006). In our research, the three items loaded on the same factor, with a Cronbach's α of 0.82.

3.2.3 Entrepreneurial self-efficacy

Measures of perceived self-efficacy need to focus on domain-specific tasks and processes because the 'one measure fits all' approach has limited explanatory and predictive power (Bandura, 2006). Following this recommendation, scholars have proposed several different scales to measure ESE. Chen et al. (1998) used a 22 item scale loading on five factors to distinguish entrepreneurs from managers through the measure of ESE. In contrast, Zhao et al. (2005) used an aggregate scale of four items, loading on one factor to study the effect of education on intentions. Although we do not advocate asking one question for a measure of self-efficacy (Tominc and Rebernik, 2007), we decided to use a single-factor measure for two reasons. First, research that focuses on identifying specific cognitive areas that are most effective in strengthening self-efficacy requires a multiple-factor disaggregated measure of ESE (McGee et al., 2009). That is not the objective of this study. Second, we kept our instrument as parsimonious as possible to increase the response rate and the quality of the answers. Consequently, we adapted a multiple-item, one-factor measure from Hallam et al. (2016). This scale aggregates in one factor the different dimensions of ESE, namely marketing, innovation, management and financial control. We added three items to the original scale, representing the *searching* and *marshalling* phases of the start-up process (McGee et al., 2009). The final scale comprised nine items, loading on one factor, with high internal reliability (Cronbach's $\alpha = 0.91$).

3.2.4 Entrepreneurial intentions

With regard to the efficacy of measures of EIs related to the TPB model, Armitage and Conner (2001) concluded that self-predictions and intention measures are more strongly related to behaviour than desire-based measures. Therefore, we decided to measure EI through a three-item, seven-point Likert scale, based on intentions (Hallam et al., 2016):

a after you graduate you intend to start your own company or business

b you intend to start a company in two years after graduation

c you intend to get a job working for a company after graduation.

The last item did not load significantly during the confirmatory factor analysis (CFA) and was, therefore, discarded from the analysis, resulting in a two-item factor (Eisinga et al., 2013). The remaining two items loaded on the same factor (Cronbach's $\alpha = 0.57$). Following the methods of Loewenthal (2001), we verified the unidimensionality of this dependent variable measure and confirmed validity through CFA fit indexes. To avoid unwanted endogenous interactions, the wording was carefully checked to ask exclusively about the intent to start a business, eluding potential contaminations from a respondent's judgement about informality. Informality in entrepreneurship has been measured as a dichotomous variable moderator or dependent variable, directly asking employees and entrepreneurs about the registration status of their business. Consequently, we used this

kind of dichotomous indicator to characterise our dependent variable as an intention to start an informal or formal business. The question in the survey was used to categorise the respondent's preference to start a business as either formal or informal, thus enabling our categorisation of the sample.

3.2.5 Institutional asymmetry

Institutional literature provides empirical evidence that there is a linear relationship between institutional asymmetry and informal entrepreneurial activity (Williams and Shahid, 2016). The greater the incongruence between formal and informal institutions, the more likely it is that individuals decide to operate in the informal economy. For this reason, the perception of the magnitude of informal activity is a proxy for the measure of the perceived institutional asymmetry. Furthermore, we carefully worded the questions to avoid personal judgement or preferences about formality and informality which could potentially distort the results (Feige, 1990). This operationalisation was crucial to ensure a measure of perceived institutional asymmetry accurate for both nascent formal and informal entrepreneurs.

We propose that the new measure of perceived magnitude of informality is an antecedent of the TPB model. Perceptions of the size of the informal economy affect an individual's intentions and behaviours (Fishbein and Ajzen, 1974, 1977; Reibstein et al., 1980), which are the focus of our study. The proposed measure of PIE uses two questions to capture potential differences between perceptions about the local community where the survey respondents live and the nation's entrepreneurial ecosystem in general. The measure (mean = 5.05, variance = 2.84) reflected the real informality level, which was recently estimated to be over the 81% of GDP in Bolivia (Querejazu et al., 2015). The two-item, one-factor construct showed decent internal consistency (Cronbach $\alpha = 0.81$).

4 Results

After verifying for internal reliability, we tested the measurement and structural models through three steps using structural equation modelling (SEM) implemented in AMOS 23.0. The SEM allowed us the examination of a set of relationships between one or more independent or dependent variable, either continuous or discrete (Tabachnick et al., 2007). We followed the best practices to evaluate the SEM model (Bagozzi and Yi, 1988). First, single-group CFA was conducted to verify construct validity within each group (i.e., formal and informal) (Byrne, 2004). Second, we performed multi-group confirmatory model analysis (MGCFA) (Byrne, 2004; Byrne et al., 1989) to investigate the measurement equivalence and invariance across the groups [Table 2(a)]. As recent literature suggests (Hu et al., 2011; Wu et al., 2007), to evaluate the MGCFA we used a comparative fit index of nested models (ΔCFI) instead of the chi-squared test ($\Delta\chi^2$). This latter measure may be questionable as evidence of measurement invariance due to the sample size (Cheung and Rensvold, 2002). Finally, SEM analysis was performed to understand the causal model and verify the research hypothesis.

4.1 Analysis

We first checked for common method variance (CMV). The Harman's one-factor test reported a value of 27.7%, well below the critical value of 50% first suggested by Podsakoff and Organ (1986). In a more recent study, Fuller et al. (2016) suggest that, in typical reliability settings, there is no evidence that a CMV up to 70% inflates correlations. Thus, we were confident that CMV was not introducing biases in our results. We verified our data for normality assumptions. Kurtosis indexes for univariate normality check were acceptable, having absolute values between 0.1 and 1.7, less than the suggested critical value of 7 (Hancock and Mueller, 2013). The skewness index was smaller than 2 for all the variables, confirming that non-normality was not a concern in our sample. Table 1 shows internal reliability (Cronbach's alpha), construct reliability (CR), Pearson correlation, and average variance extracted (AVE) among the factors for both groups.

Table 1 Internal reliability, Pearson correlation and AVE

		Informal entrepreneurs N = 329								
		Alpha	*CR*	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*
1	PIE	0.78	0.79	4.992	1.82	*0.806*				
2	ATB	0.81	0.79	5.551	1.20	0.350	*0.660*			
3	SN	0.83	0.83	3.960	1.56	0.167	0.266	*0.789*		
4	ESE	0.92	0.92	5.257	1.54	0.058	0.230	0.263	*0.740*	
5	EI	0.64	0.64	5.892	1.44	0.208	0.576	0.440	0.517	*0.688*
		Formal entrepreneurs N = 596								
		Alpha	*CR*	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*
1	PIE	0.83	0.89	5.076	1.84	*0.905*				
2	ATB	0.80	0.80	5.485	1.13	0.144	*0.666*			
3	SN	0.82	0.82	3.896	1.49	0.017	0.255	*0.778*		
4	ESE	0.91	0.90	5.283	1.46	0.003	0.240	0.324	*0.719*	
5	EI	0.55	0.55	5.820	1.42	0.107	0.538	0.214	0.353	*0.618*

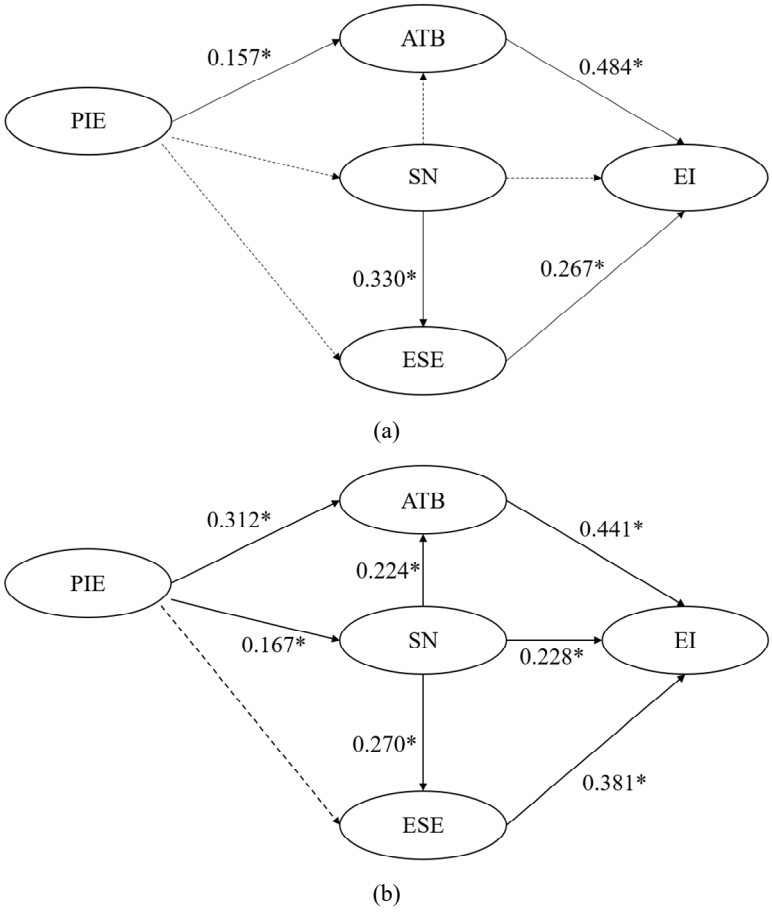
4.2 Measurement model

To establish a robust baseline model, we added four co-variances as proposed by the modification indexes. These co-variances were not unexpected because the items to correlate were asking questions that partially overlapped one another. Variance inflation factors (VIFs) between 1.6 and 3.1 supported that multicollinearity was not an issue. Consequently, items ESE1–ESE5, ESE2–ESE8, ESE3–ESE4, and ESE6–ESE7 were left free to covariate (see Appendix). Next, single-group CFAs were conducted to assess construct validity of the instrument within each sample (Anderson and Gerbing, 1988). In the informal entrepreneurs' group (N = 329), the unconstrained five-factor model demonstrated good fit ($\chi^2_{(175)} = 282.340$, $\chi^2/df = 1.613$, CFI = 0.962, RMSEA = 0.043).

Convergent and discriminant validity were supported, as all factor loadings were significant at $p < .01$, and all chi-square difference tests (CDT) for the ten nested models

with one construct correlation fixed to 1 were significant ($\Delta\chi^2_{(1)}$ ranged between 5.587 and 127.43). The CFA for the formal entrepreneurs' sample showed good fit and validity as well. All fit indexes for the unconstrained five-factor model were good ($\chi^2_{(175)} = 327.914$, $\chi^2/df = 1.874$, CFI = 0.966, RMSEA = 0.038). All factor loadings were significant at $p < .01$, and all CTDs for the nested models were significant at $p < .01$ ($\Delta\chi^2_{(1)}$ ranged between 35.734 and 81.256).

Figure 2 SEM results for (a) formal and (b) informal entrepreneurs



Note: Dotted paths are not significant.

With the baseline models supporting the five-factor structure in both samples, we tested the measurement model for multi-group invariance, following the procedure suggested by Vandenberg and Lance (2000). First, we verified the covariance matrix invariance across groups. Although the Box test of equality provided evidence of invariance ($p = 0.57$), we decided to continue with the subsequent measurement model invariance tests to avoid contradictory findings on equivalencies across groups (Byrne, 2013). The acceptable fit of the unconstrained model [see Table 2(b), Model 1] provides evidence of configural

equivalence ($\chi^2_{(350)} = 610.222$, CFI = .964, RMSEA = .028). We tested metric equivalence by constraining corresponding factor loadings to be equal across the two groups (Model 2). The constrained model shows acceptable fit, and the CDT suggests the factor loadings are invariant across samples ($\chi^2_{(16)} = 20.375$, $p < 0.01$, ΔCFI = 0.0). Scalar equivalence was tested by further constraining the items' intercepts on the latent constructs to be invariant across groups (Model 3). The model fit indexes provide evidence that the cross-group loadings and the intercepts are equal ($\chi^2_{(37)} = 42.841$, $p < 0.01$, ΔCFI = 0.0). Scalar equivalence, also referred to as strong invariance, ensures that observed indicators have identical relationships with the latent variable across samples, and is the prerequisite for the quantitative comparison of latent means between groups (Byrne et al., 1989; Cheung and Rensvold, 2002). We tested for strict invariance (Wu et al., 2007) by constraining the equivalence of regression residual variance across groups (Model 4). Although under the less restrictive critical value for ΔCFI of 0.01, we provide evidence of strict invariance (Cheung and Rensvold, 2002), we decided to use the more selective critical value of 0.002 to account for multiple data conditions and statistical power (Meade et al., 2008). Following a sequential model-fitting procedure, we identified the residual error variance of ESE1 (see Appendix) to be the source of non-strict invariance. Model 5 [Table 2(b)] provides evidence of partial strict invariance without the constraint on the residual error variance of ESE1 ($\chi^2_{(61)} = 79.573$, $p < 0.01$, ΔCFI = 0.002). The overall procedure provides evidence of full scalar equivalence and partial strict invariance of the instrument across groups.

Table 2(a) MGCFA nested models comparison

Model		χ^2	*df*	χ^2/df	*CFI*	*TLI*	*RMSEA*	$\Delta\chi^2$	*ΔCFI*
1	Unconstrained	610.222	350	1.743	0.964	0.953	0.028	-	-
2	Metric equivalence	630.597	366	1.723	0.964	0.954	0.028	20.375*	–0.000
3	Scalar equivalence	653.063	387	1.688	0.964	0.957	0.027	42.841*	–0.000
4	Strict invariance	694.841	412	1.687	0.961	0.957	0.027	84.619	–0.003
5	Partial strict invariance	689.795	411	1.678	0.962	0.957	0.027	79.573*	–0.002

Note: *Significant at $p < 0.05$.

Table 2(b) Nested structural models comparison

Model		χ^2	*df*	χ^2/df	*CFI*	*TLI*	*RMSEA*	$\Delta\chi^2$
1	Classical TPB with PIE on ATB and SN	725.629	360	2.016	0.950	0.936	0.033	-
2	Hypothesised Liñán's TPB with PIE on ATB and SN	627.220	356	1.762	0.963	0.952	0.029	98.409*
3	Liñán's TPB with PIE on ATB	633.710	358	1.770	0.962	0.951	0.029	6.490*
4	Liñán's TPB with PIE on SN	659.625	358	1.843	0.959	0.947	0.030	32.405*
5	Model 2 + PIE on ESE	627.091	354	1.771	0.963	0.951	0.029	0.129
6	Model 2 + PIE on ESE and EI	626.510	352	1.780	0.962	0.951	0.029	0.710

Note: *Significant at $p < 0.05$.

4.3 Structural model

With the measurement model successfully tested for validity and between-group invariance, we tested the research hypotheses outlined in Figure 1. In the structural models, we maintained the CFA's baseline configuration with four co-variances between residual errors of the self-efficacy items. Our model incorporates the causal paths between the three antecedents, namely attitudes (ATB), SN, and self-efficacy (ESE), as well as the intention (EI), as proposed by the classic TPB (Ajzen, 1991). We also included the causal paths between the PIE and the antecedents. Further, we incorporated the causal paths between SN and ATB and between SN and ESE, as proposed by Liñán and Chen (2009). Liñán and Santos (2007) describe SN as a form of social capital and suggest that values transmitted by 'reference people' would positively affect attitudes and self-efficacy. A cross-cultural quantitative study found a significant effect of SN on both attitudes and self-efficacy (Liñán and Chen, 2009). Consequently, we tested several structural models against the data. Model 1 incorporates our hypothesised causal model in the classical TPB, while Model 2 tests if the improved TPB of Liñán and Chen (2009) better fit the data. Table 3 presents the fit indexes of the SEM analyses. The significant CDT ($p < 0.001$) and the $\Delta CFI > 0.002$ suggest that Model 2 is significantly different from Model 1. Consequently, in this paper, we use the causal paths tested with Model 2 to verify the hypotheses. Models 3 and 4 confirm the significant effect of PIE on both SN and ATB, while Model 5 confirms that PIE does not directly affect ESE (Hypothesis 3). Finally, we verify that PIE does not directly affect EI (Model 6).

Table 3 Causal standardised effects and hypotheses for formal entrepreneurs and informal entrepreneurs

Causal path	*Informal entrepreneurs*			*Formal entrepreneurs*		
	Total	*Direct*	*Indirect*	*Total*	*Direct*	*Indirect*
PIE -> ATB (H1a/H1b)	0.349*	0.312*	0.037*	0.162*	0.157*	0.005
PIE -> SN (H2a/H2b)	0.167*	0.167*	-	0.018	0.018	-
PIE -> ESE (H3)	0.045*	-	0.045*	0.006	-	0.006
PIE -> EI	0.209*	-	0.209*	0.080*	-	0.080*
SN -> EI	0.430*	0.228*	0.202*	0.219*	0.003	0.215*
SN -> ESE	0.270*	0.270*	-	0.330*	0.330*	-
SN -> ATB	0.224*	0.224*	-	0.263*	0.263*	-
ATB -> EI	0.441*	0.441*	-	0.484*	0.484*	-
ESE -> EI	0.381*	0.381*	-	0.267*	0.267*	-

Note: *Significant at $p < 0.05$; standardised effects are presented.

4.4 Hypothesis testing

We present the total, direct, and indirect effects between the two groups of informal and formal entrepreneurs to verify the research hypotheses. Table 3 reports the causal effects of interest in our study, whereas Figures 2(a) and 2(b) visually illustrate the relationships between factors and their standardised direct effects.

Hypothesis 1 tests the effect exerted by PIE on ATB. For the sample of informal entrepreneurs (N = 329), we confirm Hypothesis 1a, that PIE significantly affects ATB,

with a medium direct effect and a small indirect effect, through SN. The medium total effect size ($\beta = .349$, $p < .05$) provides evidence that the perception of a pervasive informal economy causes more favourable beliefs toward informal entrepreneurship. Unexpectedly, PIE exerts a small significant effect on ATB for the formal entrepreneurs as well (thus Hypothesis 1b is not confirmed). Although the indirect effect is not significant, a small total effect ($\beta = .162$, $p < .05$) indicates that perception of a pervasive informal economy helps formal entrepreneurs to form more favourable beliefs regarding entrepreneurship.

Hypothesis 2 tested the effect that PIE exerts on SN. As proposed, SN transmit positive beliefs about the pervasive informal economy from reference people to the entrepreneur, thus causing more favourable perceptions related to informal entrepreneurship. The small total effect ($\beta = .167$, $p < .05$) of PIE on SN for the informal entrepreneur sample confirms Hypothesis 2a. We point out the non-significant effect ($\beta = .018$, $p > .05$) of PIE on SN for formal entrepreneurs, providing evidence for a different effect of perceived pervasive informality among formal and informal nascent entrepreneurs (Hypothesis 2b).

Establishing that Model 2 (Table 3) shows the best fit against the data provides evidence that PIE does not directly affect ESE. However, for the informal entrepreneur sample, PIE exerts a very small yet significant effect on ESE through SN ($\beta = .045$, $p < .05$). Thus, we suggest that Hypothesis 3 is partially confirmed for the formal entrepreneurs and the small effect size is potentially negligible for the informal entrepreneurs in this sample.

These findings provide insight into the effect of a perceived pervasive informal economy on EIs. PIE is significant in forming favourable beliefs about informal entrepreneurship ($\beta = .209$, $p < .05$), thus encouraging new informality. Formal entrepreneurs are indirectly and marginally affected by this mechanism. The causal paths in the model explain 52% and 33% of the total EI variance respectively for the informal and formal entrepreneur samples.

5 Discussion

This study contributes to the growing literature focusing on institutional and cognitive theories to explain entrepreneurial activity (Fayolle, 2005; Heuer and Liñán, 2013; Mueller, 2011; Nguyen, 2020; Peredo et al., 2004; Quagrainie, 2016; Salamzadeh et al., 2013; Williams and Nadin, 2011). These theories enable us to shed light on the cognitive processes surrounding the influence of institutions on an individual's entrepreneurial behaviour. Our findings provide new insights on differences in the cognitive processes between formal and informal nascent entrepreneurs, with potential implications for future research. First, we provide evidence of the differential effect of the ecosystem in which individuals live and operate on the cognitive process associated with entrepreneurship. In particular, our findings provide evidence that the perception of institutional asymmetry has a positive effect on informal entrepreneurship, thus providing empirical evidence that partially supports Webb et al.'s (2013) proposition: "The formation of group-level institutions is positively related to effective exploitation of opportunities in the informal economy." This finding highlights the collective nature of informal entrepreneurship (Ødegaard, 2008), and it indicates that group-level institutions legitimise and encourage

individuals to exploit their venture opportunity despite being in conflict with legal prescriptions and formal institutions. Unexpectedly, this effect is also significant for formal nascent entrepreneurs, although smaller in size. Two potential explanations exist for this finding. First, social and behavioural science generally agree that attitudes represent a summary evaluation of a behaviour as desirable/undesirable, pleasant/unpleasant and good/bad (Ajzen and Fishbein, 2000). Where the informal economy is the norm, individuals evaluate entrepreneurship positively regardless of the choice to operate informally. The second potential factor that could explain the unexpected finding is the ambivalence of attitude (Ajzen, 2001). Ambivalence reflects the co-existence of positive and negative dispositions toward the behaviour that can derive from a conflict between cognition and affect (Maio et al., 2000). Because cognition and affect could lead to different and opposite evaluations of the same behaviour, ambivalence can affect the outcome of judgments and the behaviour. We suggest that further research is needed to explain this casual effect fully.

The second finding suggests a differential role of SN on EI. In particular, for nascent informal entrepreneurs, the perception of institutional asymmetry has a direct effect on SN, which, in turn, has a direct positive effect on EI. In this way, reference people transmit a positive belief about perceived institutional asymmetry to nascent informal entrepreneurs, thus encouraging informal entrepreneurship. The resulting effect is a self-reinforcing loop that drives growth in the informal economy. On the other hand, formal entrepreneurs' SN are not affected by the perceived institutional asymmetry and do not directly affect intention. This differential role of SN in the TPB model supports and may explain the controversial results of past research (Autio et al., 2001; Kolvereid, 1996; Kolvereid and Isaksen, 2006; Krueger et al., 2000; Sadiku-Dushi, 2019). Our result is perhaps consistent with the causal model found by Liñán and Chen (2009) in a study conducted in Taiwan and Spain, both of which have low levels of informal economy (23% and 26%, respectively) (Schneider and Enste, 2013). The total effect of perceived institutional asymmetry on EIs is significantly stronger for informal than for formal nascent entrepreneurship, providing evidence of the social acceptability of informal entrepreneurship.

Third, the better fit of the Liñán's alternative to the original specification of the TPB model provides more evidence of the causation effect of SN on attitudes and PBC. Some authors argue that beliefs and values transmitted by reference people have a positive influence on individual's perceptions about the behaviour (Cooper, 1993; Scherer et al., 1991), thus affecting attitude. Furthermore, education and experience provide greater awareness about the entrepreneurial process, thus positively affecting PBC (Pittaway and Cope, 2007; Scherer et al., 1991). In particular, Carrier (2005) and Engström and McKelvie (2017) point out the importance of role models, thus reinforcing the social aspect of entrepreneurship (Contín-Pilart and Larraza-Kintana, 2015).

The findings of this research may impact practitioners as well. First, our study helps policy makers better understand the phenomenon and design effective economic strategies (Ketchen et al., 2014). The positive effect of institutional asymmetry on informal entrepreneurial activity is in sharp contrast with the macro-economic point of view (Gallin, 2001) that informal entrepreneurship is parasitic and damaging to the whole economy because of tax and regulation avoidance, unfair competition, and low levels of market efficiency. As a result of this negative point of view, some scholars have called for policies driving a reduction in tax evasion and an increase in enforcement of laws and regulations (Baily et al., 2005). However, other scholars suggest more relaxed policies,

pointing out the positive social role of informal entrepreneurship in growing the economy (De Soto, 2000). Indeed, informal workers are more likely to have less education, to be women, and to earn smaller wages. An approach to informal economy informed by our findings suggests that tax simplification may have a positive impact on the informal economy because more entrepreneurs will perceive the tax system as fairer. This will put the formal institutions under a more positive light, which will decrease the institutional asymmetry, thus facilitating the shift from informal to formal economy. The shift toward formal economy could also help informal workers to earn higher wages and to eventually access all the services available to formal economy workers, such as healthcare and retirement plans. With our work, we improve knowledge associated with the social and behavioural aspects of this phenomenon, which is crucial to design effective policies and regulations and improve the overall economic health of a region or country through entrepreneurial channels.

5.1 Limitations

We fully accept that our university sample may suffer from typical problems of convenience samples (Landers and Behrend, 2015). However, to have an unbiased measure of EI, it is important to study the entrepreneurial activity before it occurs, which supports the use of students as a sample (MacMillan and Katz, 2002). The self-reporting nature of the survey is a limitation that can lead to social-desirability bias (Fisher, 1993). We attempted to address this issue by using an anonymous survey. Although we employed validated instruments from literature, we used only two measures of entrepreneurial intent, having dropped one measure as a result of the internal reliability test. While two variables can be used for an adequate measure (Eisinga et al., 2013), we were expecting a higher Cronbach's alpha. We do not believe this adversely impacts the quality of our results, given the multitude of other reliability measures we verified, and other research conducted using a single item measure of intention (Bergkvist, 2015). A partial explanation may be that intentions are temporally construed, as recently shown by Hallam et al. (2016).

5.2 Future research

Our research represents a starting point for investigating the role of informal institutions on entrepreneurial activity. The topic has to some degree been studied at the macro-economic and institutional level, and we have attempted to begin modelling its influence at the individual entrepreneur level. The findings thus far are promising, but much more can be done to further the generalisability of the results. We would anticipate that a multi-country sample would allow for confirming the structural validity of the model. Additionally, the positive influence of institutional asymmetry on formal entrepreneurship through attitudes needs to be explained by further research. Longitudinal studies on intention and behaviour could further confirm the predictive power of the model. Identifying and modelling reinforcing entrepreneurial feedback loops within the informal and formal economies has the potential to help design and test policies intended to improve macro-economic outcomes. Finally, the central role of social pressure in the model can be exploited through mentoring programmes to shift nascent entrepreneurs from the informal to the formal economy.

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Appendix

Instrument (English version)

	Question	*Scale*
Entrepreneurial intention (EI)		7 points Likert
EI1	After you graduate you intend to start your own company or business	
EI2	You intend to start a company in two years after graduation	
Intention to start an informal business		0%–100%
	If you decided to create a firm, how likely it is that the business would be informal (not registered)?	
Perceived pervasive informality (PIE)		7 points Likert
INF1	In my country companies move some aspects of the business 'off-the books' to minimise taxes	
INF2	In my city informal (off the books) businesses are commonplace	
Entrepreneurial attitudes (ATT) (Kolvereid and Isaksen, 2006)		7 points Likert
ATT1	I would want to work harder for myself than for a company	
ATT2	Being an entrepreneur would be more exciting than working for a company	
ATT3	I would rather own my own business than pursue another promising career	

Instrument (English version) (continued)

	Question	*Scale*
Entrepreneurial attitudes (ATT) (Kolvereid and Isaksen, 2006)		7 points Likert
ATT4	I am willing to make significant personal sacrifices in order to stay in business	
ATT5	I am willing to work more with the same salary in my own business, than as employed in an organisation	
Subjective norms (SN) (Kolvereid, 1996) – normative beliefs (A) and motivations to comply (B)		7 points Likert
SN1A	Your closest family think you should start your company or business	
SN2A	Your closest friends think you should start your company or business	
SN3A	People who are important to you think you should start your company or business	
SN1B	To which extent do you care about what your closest family think when you are to decide whether or not to pursue a career as self-employed	
SN2B	To which extent do you care about what your closest friends think when you are to decide whether or not to pursue a career as self-employed	
SN3B	To which extent do you care about what people who are important to you think when you are to decide whether or not to pursue a career as self-employed	
Entrepreneurial self-efficacy (ESE) (Hallam et al., 2016)		
Your education has prepared you to:		7 points Likert
ESE1	Practice your profession	
ESE2	Market a product	
ESE3	Be a business manager	
ESE4	Manage people	
ESE5	Handle finance and accounting problems	
ESE6	Start a company or business	
ESE7	Identify new business opportunities	
ESE8	Sell a product	
ESE9	Raise money for your business	