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A metacultural approach to predicting self-employment across the globe

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ABSTRACT

Drawing from neo-institutional theory, we examine the relationship between preference for entrepreneurship and actual entrepreneurship behavior across multiple countries and cultures. We elucidate how multiple societal-level cultural models, namely Hofstede, Global Leadership and Organizational Behavior Effectiveness (GLOBE), and Schwartz affect the individual-level process connecting expressed preference for self-employment and actual behavior. Our hypotheses were tested using a multilevel technique on a sample of 20,755 individuals across 24 countries. The findings indicate that the moderating effect of predominant cultural cognition is partially supported. Contributions and implications for theory and practice are also discussed.

1. Introduction

Individual's entrepreneurship intention is one of the main predictors for actual entrepreneurship. Although previous research has investigated the relationship between expressed preference for entrepreneurship and actual entrepreneurship (e.g., Blanchflower, Oswald, & Stutzer, 2001; Grilo & Irigoyen, 2006), we still need to understand how national culture influences the relationship between cognition about entrepreneurship and actual behavior.

Scholars have devoted a considerable amount of attention to the antecedents of entrepreneurship at the individual level (e.g., Shane, Locke, & Collins, 2003) as well as at the organizational and national level (Liñán & Fernández-Serrano, 2014; Stephan & Uhlaner, 2010). Recent studies (see Table 1) provide insights into the effect of institutional environments supportive of entrepreneurship (i.e., national context in which rules, regulation, and non-monetary payoffs are conducive to entrepreneurship) on the rate of entrepreneurship recorded across countries (e.g., Autio, Pathak, & Wennberg, 2013; Stephan, Uhlaner, & Stride, 2014). However, comparatively few studies (e.g., Walter & Block, 2016) used a multi-level technique to shed light on the moderating effects of the national context on entrepreneurial decision-making.

To bridge this gap in knowledge, we investigate the moderating effects of the predominant cultural cognition of various societies (i.e., shared conceptions about the nature of social reality and the cognitive frames that shape decisions in a society) on the degree to which preference for entrepreneurship (i.e., an individual's drive and wish for entrepreneurial behavior measured as the expressed preference for self-employment) (Grilo & Irigoyen, 2006; Verheul, Thurik, Grilo, & van der Zwan, 2012) is associated with actual entrepreneurship (i.e., an actual entrepreneurial behavior in the form of being self-employed) (Blanchflower et al., 2001). In other words, our study observes two stages of entrepreneurship[1] (i.e., the cognitive stage of 'wanting to be' an entrepreneur, and the behavioral stage) across countries and cultures. Preference for self-employment represents a cognitive antecedent for behavior intention and is the cognitive stage of wanting to be an entrepreneur (Blanchflower et al., 2001). We argue that preference for self-employment will relate differently to the behavioral stage of entrepreneurship (i.e., being self-employed) depending upon the dominant cultural cognition in a society.

We draw from neo-institutional theory to build a contingency model using a cultural cognition framework (Scott, 2000). From this perspective, the cultural cognitions of different countries are defined as shared conceptions about the nature of social reality and the cognitive frames that shape decisions. Country-level cultural cognition systems consist of the common frameworks of meaning and the shared values that shape perceptions of what is a legitimate behavior within a given society (Scott, 2000; Valdez & Richardson, 2013). Thus, perceptions that a certain behavior (e.g., wanting to be an entrepreneur) is desirable within the framework of societal meanings, values, and beliefs is likely to affect the likelihood of actually enacting such behavior (Hauff, Richter, & Tressin, 2015; Liñán & Chen 2009; Wennberg, Pathak, & Autio, 2013). As Liñán and Chen argue, "the 'lenses' through which each of us 'see' reality will vary depending on the cultural context"

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[1] The present study conceptualizes entrepreneurs as persons who are ingenious and creative in finding ways to add to their own wealth, power, and prestige (Baumol, 1996). Therefore, we concur with previous studies (e.g., Douglas & Shepherd, 2002) in claiming that self-employment is more than a mere career choice but rather a basic form of entrepreneurship.

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Liñán and Chen (2009, p. 610). Therefore, we argue that since social norms function like cultural cognitions and differ across countries and cultures, it should be expected that cultural cognitions will influence the relationship between preference for self-employment and actual entrepreneurial behaviors. In doing so, we extend the literature in multiple ways.

First, we theorize and then empirically test the extent to which preference for and actual entrepreneurship relates differently across countries and cultures using individuals who are either entrepreneurs (i.e., self-employed) or employees of organizations in many different countries using a multi-level technique. Our multi-level analysis of individuals across several countries is based on diverse cultural clusters (Hauff et al., 2015; Liñán & Fernández-Serrano, 2014). This enables a more broadly generalizable analysis that is not limited by the choice of a limited number of countries or cultures. Second, we focus on self-employment status in order to conceptualize entrepreneurship (as opposed to entrepreneurship intention), a choice that lends itself particularly well to cross-cultural studies (Blanchflower et al., 2001). Self-employment is a basic form of entrepreneurship that has been widely examined by many studies (e.g., Blanchflower et al., 2001; Grilo & Irigoyen, 2006). Additionally, data on self-employment are available for a large number of countries, and the construct is uniformly understood across cultures and countries. Thus, we can study how societal-level cultural cognitions alter the relationship between preference and actual self-employment across cultural clusters. The invariance in the measurement for self-employment across cultures reduces a recurrent concern in cross-cultural studies, namely the possibility that results may be driven by measurement issues. Thus, our findings are not constrained by the analysis of intention only. Rather, they extend the results to the relationship between cognition (i.e., express preference for entrepreneurship) and actual behavior across countries and cultures.

Third, we adapt a meta-cultural approach to develop a theoretical rationale explaining why the link between preference for entrepreneurship and actual behavior is expected to vary across countries around the globe. In our approach, we triangulate the theoretical justifications for the expected relationships across cultural models. Using data from the Hofstede, Global Leadership and Organizational Behavior Effectiveness (GLOBE), and Schwartz cultural models (see Section 3.1 for details), we were able to develop theory-based multicultural expectations (Posthuma et al., 2014). This meta-cultural approach helps resolve several methodological issues connected with cross-cultural research. On the one hand, researchers have been encouraged to collect original data from individuals in order to study the effects of country culture on various business concepts (Posthuma et al., 2014). However, collecting data using lengthy surveys measuring entrepreneurship-related variables while also asking many questions about national culture will likely result in low response rates or response bias. On the other hand, it is still uncertain which among the available cultural frameworks better serve the international entrepreneurship (IE) research domain (Javidan, House, Dorfman, Hanges, & Sully de Luque, 2006). Since our hypotheses are based on more than one cultural framework, we increase the likelihood that overlapping cultural cognitions are the cause of the tested relationships (Hofstede, 2006). Where multiple cultural frameworks are the foundation for similar hypotheses, it is far less likely that methodological artifacts will be a viable alternative explanation for observed relationships. Therefore, we lower the possibility that methodological factors such as the wording of survey instruments, question scaling, or data collection methods may be the source of data variance that might lower the internal validity of the study.

Our investigation of differences in cultures across countries is not limited to a particular cultural framework. Using a meta-cultural approach thus also mitigates concerns about whether within-country cultural differences, differences in a culture across time, or differences across organizational cultures may confound the results. We were able to achieve such objective for two reasons. First, different cultural models (e.g., Hofstede, GLOBE, and Schwartz) are based on different scholars' construction of measures, with data collected at different times from different samples and using different methods. As a result, constructs from different cultural models may be similar but not identical. Second, despite these differences, there are significant conceptual similarities between constructs from different cultural models (Posthuma et al., 2014; Smith, Peterson, & Schwartz, 2002). Thus, our meta-cultural approach allows us to overcome the limitations inherent in the use of a single cultural framework. In so doing, we heed recent calls in the literature (e.g., Hauff et al., 2015; Tsui, 2007) by investigating entrepreneurial behaviors while relying on a conceptualization of national culture beyond Hofstede's (1980) cultural model and simultaneously employing measures for different cultural values.

2. Entrepreneurial behavior and culture

Entrepreneurial behavior is illustrated by an individual's decision to exploit an opportunity to be self-employed. The decision to become an entrepreneur is a complex process (McGrath, MacMillan, Yang, & Tsai, 1992; Shane et al., 2003). We focus on the relationship between two different stages of entrepreneurship: the stage of "wanting" to be an entrepreneur (i.e., preference for self-employment), and the stage of "being an entrepreneur" (i.e., self-employment status). The construct preference for self-employment represents a cognitive precursor to a specific behavioral intention and is distinguishable from actual behavior (Grilo & Irigoyen 2006). This helps explain the cognitive processes behind self-employment decisions (Table 1, Row 2). While it would not be surprising to find that a specific behavioral intention to engage in entrepreneurial behavior will be positively associated with actual entrepreneurial behavior, that relationship does comparatively little to explain why some individuals engage in actual entrepreneurial behavior and others do not.

We propose that a preference for self-employment that is a mere wish or an opinion not meant to be pursued may not in fact result in actual self-employment (Blanchflower et al., 2001; Verheul et al., 2012). That is, a preference for self-employment is a necessary but not sufficient condition for engaging in an actual self-employment behavior (Grilo & Irigoyen, 2006). We further argue that the relationship between preference for self-employment and actual self-employment will vary across countries due to differences in dominant cultural cognitions within each country.

As shown in Table 1, the extant literature on international entrepreneurship can be categorized (see Table 1, Column 1) into two streams (i.e., culture and institution). Scholars who called upon an institutional argument (Table 1, Rows 1–4) have argued that institutions, or the set of humanly-created constraints that influence individuals' behavior (Scott, 2000), can explain cross-country variance in entrepreneurship. The main focus of these studies (see Table 1, Rows 1–4) has been on a particular element of institutions, namely their regulatory element (or pillar). That is, these scholars have emphasized the notion that institutions establish rules and regulations that can significantly impact (positively or negatively) transaction costs, created risk as well as the uncertainty connected with the pursuit of entrepreneurial opportunities (Mueller & Thomas, 2001). Thus, different institutional dimensions within a country (see Table 1, Row 1), including the

Table 1
Main antecedents and moderators of entrepreneurship adopted in previous cross-cultural studies.

Argument	Antecedents and moderators of entrepreneurship	Outcome(s)	Level of analysis	Reference
Institutional	Associational activity; Entrepreneurship education	New business activity	Multi-level, no mixed model	De Clercq et al. (2010); De Clercq et al. (2013); Walter and Block (2016)
	Moderators – Institution; Entrepreneurial friendly environment	New Business entry	Multi-level, Mixed model	
	Associational activity; Regulatory burden; Cognitive burden; Normative burden; Formal/informal institution;	Entrepreneurial activity (self-employment)		
	Preference for self-employment	Actual self-employment	Individual level	Grilo and Irigoyen (2006)
	Country	Entrepreneurial cognition Entrepreneurial intentions	Individual level	Mitchell et al. (2002); Moriano et al. (2011)
	Cultural cognitive, normative, and regulative institutional support	Macro-Level entrepreneurship	Country level	Valdez and Richardson (2013)
Culture				
Schwartz (1994b)	Conservatism	Early-stage entrepreneurial activity	Country level	De Clercq et al. (2014); Liñán and Fernández-Serrano (2014)
	Hierarchy – Egalitarianism; Embeddedness – Autonomy; Mastery – Harmony	Economic development		
Hofstede (1980)	Individualism – Collectivism	Entrepreneurial activity	Country Level	Pinillos and Reyes (2011)
	Cultural distance based on Hofstede's power distance; Uncertainty avoidance; Individualism; Masculinity	Entrepreneurial motivation	Individual level	Thomas and Mueller (2000)
	Power distance; Individualism; Uncertainty avoidance; Materialism	Attitudes toward work.	Individual level	McGrath et al. (1992); Kreiser et al. (2010); Shinnar et al. (2012); Wennekers et al. (2007)
		Entrepreneurial orientation Self-employment	Country level	
Inglehart (1977)	Inglehart's Post-materialism index	Entrepreneurship activity	Country level	Uhlaner and Thurik (2007)
GLOBE (House et al., 1999)	*Performance-based culture:* Gender equality; Group collectivism; Performance orientation; Power distance; Future orientation; Uncertainty avoidance	Formal and informal entrepreneurship	Multi-level, partial least square	Thai and Turkina (2014); Autio et al. (2013); Cullen et al. (2014)
	Socially-supportive culture: Institutional collectivism; Assertiveness; Humane orientation	Entrepreneurial behaviors	Multi-level, Mixed model	
		Rates of positive and creative deviance via entrepreneurship	Individual	
	Performance orientation; Uncertainty avoidance; Institutional collectivism; Institutional collectivism *Moderators*: Self-efficacy; Fear of failure	Individual-level entrepreneurial entry	Multi-level, Mixed model	Wennberg et al. (2013)
	Socially supportive culture; Performance-based culture; Post-materialist cultural values; Socially supportive cultural norms.	National entrepreneurship rates	Country level	Stephan and Uhlaner (2010); Stephan et al. (2014)
		Social entrepreneurship	Multi-level, Mixed model	
	Institutional and In-group collectivism	Business Ownership	Country level	Bullough et al. (2014)

regulatory burden (De Clercq, Danis, & Dakhli, 2010), the normative burden, the education system (De Clercq et al., 2013; Walter & Block, 2016), and levels of institutional support (Meek, Pacheco, & York, 2010; Valdez & Richardson, 2013) (see Table 1, Row 4) can encourage or hinder entrepreneurship (Walter & Block, 2016). However, as shown in Table 1 (Column 1) others (e.g., Scott, 2000; Stephan & Uhlaner, 2010; Stephan et al., 2014) have embraced a culture argument and have acknowledged (Table 1, Rows 9 and 12) that institutions comprise elements beyond rules and regulations.

Consistent with the above-mentioned studies, neo-institutional theory posits that institutions comprise rules and regulation, social and moral obligations, as well as cultural cognitions. Together with resources and activities, these elements have the ability to shape individuals' behavior (Scott, 2000). In our study, we focus on the cultural-cognitive pillar of institutions. Cultural cognitions, which are elements of institutions, are commonly defined as the set of "shared conceptions that constitute the nature of social reality and create the frames through which meaning is made" (Scott, 2000, p. 67). In other words, cultural cognitions are common beliefs and shared logics of action that influence what in a given society is considered a legitimate behavior (Scott, 2000; Stephan et al., 2014). Legitimacy is achieved by pursuing behaviors that are comprehensible, recognizable, and culturally supported in a particular cultural-cognition context.

Cultural cognitions are likely to be a crucial factor that influences the degree of entrepreneurial behavior in different countries (see Table 1, Rows 5–14) because entrepreneurship is based on the actions of individual entrepreneurs in different contexts. Extant literature makes the case for the existence of a significant impact of culture and values on entrepreneurial perceptions and intentions (Chand & Ghorbani, 2011; Liñán & Chen, 2009). Culture is widely defined as the "collective programming of the mind that distinguishes the members of one group or category of people from another" (Hofstede, 2001, p. 9). Hence, different cultural cognitions (Table 1, Row 7 and 10) lead to differences in the environment in which potential entrepreneurs think about entrepreneurial possibilities (De Clercq et al., 2014; Hofstede, 1980; Thomas & Mueller, 2000; Wennberg et al., 2013) (see Table 1, Row 5, 7, and 9). However, there is relatively little research explaining how culture impacts entrepreneurial behavior (Kreiser, Marino, Dickson, & Weaver, 2010).

The study of the culture-entrepreneurship nexus creates methodological challenges due to the multi-level nature of the relationship. That is, entrepreneurship is an individual level phenomenon, while culture-cognition systems are country-level constructs (e.g., Autio et al., 2013; Thomas & Mueller, 2000). Yet to date, scholars have partially overlooked this factor and followed mainly two approaches (see level of analysis in Table 1, Column 4). On the one hand, some scholars (e.g., Bullough, Renko, & Abdelzaher, 2014; Pinillos & Reyes, 2011; Uhlaner & Thurik, 2007) compared the level of entrepreneurship across countries conducting country-level studies (Table 1, Rows 5, 6, 8, and 11). On the other hand, others (e.g., McGrath et al., 1992; Thomas & Muller, 2000) engaged in individual-level studies observing the link between individuals' perceptions and behaviors (Table 1, Rows 7–8). Only a handful of studies accounted for the multi-level nature of the culture-entrepreneurship relationship (see Table 1, Rows 10, 11, and 12) employing appropriate statistical techniques (e.g., Cullen, Johnson, & Parboteeah, 2014; Stephan et al., 2014; Thai & Turkina, 2013). We follow the lead of these scholars as we strive to bridge this gap.

In summary, a review of the extant IE literature suggests the following. First (as we show in Table 1, columns 2 and 3), no study has observed the impact of the cultural cognition dimension (one of the pillars of institutions) on the relationship between the two stages of entrepreneurship (i.e., wanting to be an entrepreneur, and actual behavior as such). Second, more multi-level studies that rely on proper statistical techniques (Table 1, Column 4) are needed if we are to understand how the entrepreneurial process unfolds across cultures. Our study strives to bridge this gap using a multi-level technique that addresses some of the methodological concerns connected with the study of the link between entrepreneurship and culture.

3. Theory and hypotheses

The relationships between entrepreneurial intention and behavior (Liñán & Chen, 2009) as well as the link between attitude toward entrepreneurship and actual behavior have been empirically supported in previous research (Kolvereid, 1996; Kreiser et al., 2010; Shinnar, Giacomin, & Janssen, 2012; Verheul et al., 2012). Thus, in our study we go beyond that research. To do so, we call upon neo-institutional theory. Specifically, we propose the study of cultural cognitions as a way to explain the differential relationship between expression of preference for entrepreneurship and actual entrepreneurial behavior across countries and cultures. Preference for self-employment represents a cognitive precursor of the attitude toward entrepreneurial intention and behavior (Moriano, Gorgievski, Laguna, Stephan, & Zarafshani, 2011), and it is an antecedent of entrepreneurial behavior (Table 1, Row 3). In the case of self-employment, preference for self-employment represents the extent to which an individual evaluates self-employment favorably or unfavorably (Kolvereid, 1996; Liñán & Chen, 2009). We posit that since cultural cognitions function like interpersonal social norms and differ across countries and cultures, they should be expected to influence the relationship between preference for entrepreneurship and actual entrepreneurial behaviors. In short, culture will influence cognitions about the intention to become an entrepreneur (self-employed) and consequently the likelihood of pursuing entrepreneurial behavior (self-employment status).

We use a contingency model to delve into the effect of a cultural cognition on the entrepreneurial processes while controlling for the influence of the regulatory pillar of institutions. We do so by relying on a sample of individuals that gives representation to all ten cultural clusters described in the GLOBE study (House, 2004; Ronen & Shenkar, 1985). Lastly, our study is one of the few (e.g., Liñán & Fernández-Serrano, 2014) that use multiple cultural frameworks in order to elucidate the effect of cultural practices (drawn from GLOBE) on entrepreneurial behavior while controlling for potential alternative explanations at both the individual and the national level of analysis.

As part of our cultural-cognition framework, the "pull" rationale is used to predict entrepreneurship. To explain entrepreneurship across the globe, we rely on the degree to which cultural cognitions provide a type of approval and moral support for entrepreneurial activities in a given society (Etzioni, 1987; Fischer et al., 2009). In other words, in a "pull" perspective, values and beliefs (or social norms) generally shared within a specific group of individuals generate a cultural environment that is either fostering (with entrepreneurial activities encouraged and morally approved) or hindering of entrepreneurial behavior (Autio et al., 2013; Freytag & Thurik, 2007; Stephan & Uhlaner, 2010). A national culture favorable to entrepreneurial behavior triggers cognitions that relate to enhanced attention given to entrepreneurial education, the tendency to ascribe higher status to entrepreneurs, and a sense of legitimation for those who create new ventures (Meek et al., 2010; Scott, 2000). Such cultural cognitions in a society constitute one of the pillars of the social structure that creates a shared way of conceiving a social realty that is highly resilient over time (Scott, 2000, 2003). As a result, individuals experience a shared logic of action within a specific cultural-cognitive environment (Mitchell et al., 2002; Stephan & Uhlaner, 2010; Stephan et al., 2014). They strive to achieve

legitimacy and act in a mimetic manner by repeating behaviors deemed acceptable as part of a shared understanding (Meek et al., 2010; Scott, 2003) or repeat (more or less consciously) behavioral patterns acquired through socialization (Fischer, 2006). Essentially, as Mitchell et al. (2002) suggest, entrepreneurial behavior depends upon cognitive structures and processes that are affected by the cultural context.

3.1. Meta-cultural approach

Multiple frameworks have been employed to understand differences in cognitions across cultures. Hofstede shed light on the implication of cultural differences on individual behaviors (e.g., Hofstede, 1980, 2006). The cultural framework proposed by Schwartz (1994a) has also proved useful in predicting individual behaviors (Drogendijk and Slangen, 2006; Schwartz, 1994a,b). The GLOBE studies provide a more recent alternative approach to cross-cultural studies (House et al., 1999; House, 2004; House, Javidan, Hanges, & Dorfman, 2002; Stephan & Uhlaner, 2010; Thai & Turkina,2014). Although each of these cultural models is somewhat unique, they also share significant similarities because of overlapping cultural constructs.

The availability of multiple cultural frameworks has created both challenges and opportunities for international business researchers. Each of the frameworks has strengths and weaknesses, and scholars have debated which framework is most appropriate (Drogendijk & Slangen, 2006; Javidan et al., 2006). However, the availability of multiple cultural frameworks offers the opportunity to focus on the areas in which they overlap (Tsui, 2007). Therefore, we adopt a meta-cultural approach (Posthuma et al., 2014) in order to develop a theoretical rationale for why predictions of entrepreneurial behavior are expected to change across countries around the globe.

To overcome the drawbacks typical of cross-cultural studies relying on a single cultural framework, we adopt a multicultural framework as part of an integrative approach. As suggested in previous studies (e.g., Tsui, 2007), our approach uses similar and overlapping constructs from several cultural models to test how culture influences entrepreneurship. The constructs we use are derived from several cultural frameworks, including Hofstede (2001), House et al. (2004) (GLOBE), and Schwartz (1994a). Because constructs from different cultural models have significant conceptual similarities, it is not surprising that measures of overlapping constructs are often highly correlated (see Table A3, Appendix A, for a summary table of cultural constructs found to have significant overlap). For example, GLOBE's measure of in-group collectivism has been reported to have a 0.66 bivariate correlation with Schwartz's embeddedness scale (House, 2004), and Hofstede's measure of power distance is negatively correlated ($r = -0.52$) with Schwartz's hierarchy scale (Smith et al., 2002). This is remarkable given that this research was based on different scholars' construction of measures, with data collected at different times from different samples and using different methods. However, these differences in time, sampling, and methods present an opportunity for researchers to overcome challenges inherent to cross-cultural research.

The approach employed here uses published country-level cultural scores drawn from multiple cultural frameworks in order to test for the impact of culture on entrepreneurship. As Tsui (2007, p. 462) suggest, "research […] has shown that a configuration of cultural values differently predicts outcomes from a set of independent culture dimensions." That is, acknowledging that overlaps exist between cultural values proposed in different dominant frameworks (e.g., Hofstede, 2006; Tsui, 2007) enables researchers to develop sets (or configurations) of cultural dimensions that can describe the culture-cognition system of a nation. Therefore, we reviewed the extant cross-cultural literature and identified cultural dimensions (from different cultural models) found to have significant conceptual and empirical overlaps (see Appendix A). Our work shows that certain cultural values drawn from different cultural models can be expected to have similar effects on the link between preference for self-employment and actual self-employment.

Specifically, to the extent that measures of similar cultural dimensions from different cultural models are correlated, there is a kind of reliability and validity across the measures. This is particularly true when we use national cultural scores such as Hofstede, GLOBE, and Schwartz, which use data collected at different points in time (Hofstede, 2006). When we observe similar findings across these data, we can have greater confidence that the results are both reliable and valid. Moreover, when similar but not strictly identical measures of the cultural concepts all predict the same outcomes, we can say with greater confidence that the conceptual overlap between these alternative measures of the cultural constructs is closely linked to the outcomes on entrepreneurship (Tsui, 2007). This similarity in results across different cultural models makes it much less likely that methodological artifacts are a viable alternative explanation for the observed relationships. Factors such as how the survey instruments were worded, the scaling of the questions, and the sampling method used are much less likely to threaten the validity of the relationship between cultural constructs and entrepreneurship. In addition, the generalizability of the findings is also enhanced. Given similar results on entrepreneurship from different cultural models, it is much more likely that the findings will generalize across countries and cultures.

In the section that follows, we explain how sets of overlapping dimensions from multiple cultural models can be used to explain the effect of elements of culture cognition of institutions have on the link between preference for entrepreneurship and actual entrepreneurship. In other words, we explain how various cultural dimensions have similar influence on the entrepreneurship process. Although the development of higher order dimensions (or meta-dimensions) of culture was beyond the scope of our study, the way in which we grouped cultural dimensions based on their influence on the entrepreneurship process may provide useful insights for future scholars. In practice, researchers should first identify how cultural dimensions can be grouped in order to consolidate them and achieve a more parsimonious categorization of culture (Tsui, 2007) that may benefit the conceptual clarity of future cross-cultural studies.

3.2. Hypotheses development

In employing this meta-cultural approach in tandem with the cultural cognition framework, we posit that in societies that are characterized by egalitarianism, masculinity, and low gender egalitarianism, a preference for entrepreneurship will have a stronger association with actual entrepreneurial behavior. Consistently with neo-institutional theory (Scott, 2000), these cultural values influence cognitions about entrepreneurial behavior intention (i.e., preference for self-employment). Consequently, tendencies to see favorably and to ascribe legitimacy to those who create new ventures (i.e., the self-employed) affect the likelihood that individuals who expressed preference for self-employment will be self-employed. In other words, the culture-cognitive elements of institution create either entrepreneurship-friendly or entrepreneurship-hostile environments.[2] Specifically, entrepreneurship-friendly environments are those where individuals who express the desire to be entrepreneurs find a form of moral support; conversely, in entrepreneurship-hostile environments, the desire to create a new venture is discouraged as it does not lead to legitimacy or recognition.

Following the above logic, we argue that societies high in egalitarianism conceive individuals as autonomous decision makers who are able to undertake in a voluntary fashion socially responsible behavior (House et al., 1999; Schwartz, 1994a). In such societies, individuals

[2] For the purpose of this study we focus on the culture-cognitive elements of institutions. However, the dominant culture cognitions in a society may also shape social and economic institutions so as to be more or less supportive of entrepreneurial activities. As a result, individuals may be facilitated (or hampered) in their pursuit of entrepreneurial ventures (Autio et al., 2013; De Clercq et al., 2010).

cooperate to pursue social values such as freedom, responsibility and justice (Liñán & Fernández-Serrano, 2014). These societies are therefore expected to refrain from discriminating against or imposing prejudices on individuals intending to undertake entrepreneurial activities. Additionally, entrepreneurs tend to exhibit high levels of masculinity (Hauff et al., 2015; McGrath et al., 1992), as masculine societies are those societies that value the "acquisition of money and things" (Hofstede, 1980, p. 46) In more egalitarian societies, we expect to find that individuals with a preference for self-employment are more likely to undertake self-employment than in less egalitarian societies. Therefore, we hypothesize that:

Hypothesis 1. The positive relationship between preference for self-employment and actual self-employment is stronger in societies that are lower in gender egalitarianism and higher in egalitarianism and masculinity.

Overwhelming evidence in the literature suggests a conceptual and empirical overlap between collectivism, in-group collectivism, and embeddedness. Hofstede's collectivism dimension was found to be highly correlated with embeddedness (Smith et al., 2002). The two cultural dimensions are also deemed to tap into similar underlying concepts (Oyserman, Coon, & Kemmelmeier, 2002), to the point where scholars have used the two terms interchangeably (e.g., House, 2004). In a similar vein, in-group collectivism and collectivism were found to be similar in many respects (e.g., Saeed, Yousafzai, & Engelen, 2014). Furthermore, the definitions of the two cultural dimensions present meaningful similarities (Hofstede, 2006; Knafo, Schwartz, & Levine, 2009; Schwartz, 2003). Therefore, these cultural dimensions can be used jointly to identify those societies where the culture-cognitive elements of institution create an entrepreneurship-friendly environment.

Specifically, within the context of cultural cognitions, individuals with a higher degree of social embeddedness are more prone to identify with a group and to comply with the group's objectives. They are likely to obey the social order, which deters them from undertaking actions that could potentially disrupt the status quo through, for example, self-employment (Autio et al., 2013; Hofstede, 2001; House et al., 2002). In embeddedness cultures, individuals value the in-group and the achievement of the group's goals (Knafo et al., 2009), and social order, security, obedience, and respect for traditions are critical values (Schwartz, 2003). In contrast, self-employed entrepreneurial behaviors tend to disrupt the status quo because they create a change in existing business activities and organizations. Thus, from a neo-institutional theory perspective, entrepreneurship is not legitimized and entrepreneurial behavior should not be mimicked. Similarly, individuals in cultures with high in-group collectivism will take pride in belonging to a specific group, and their obligations toward specific social groups will tend to outweigh personal needs (House, 2004; Oyserman et al., 2002; Pinillos & Reyes, 2011). High in-group collectivism is also associated with a slower pace of life and the enhanced importance of being linked to a specific group (House, 2004). Recent empirical evidence suggests that collectivism positively affects the rate of entrepreneurship (Bullough et al., 2014; Pinillos & Reyes, 2011). However, this only occurs under specific circumstances, namely under conditions of poor institutional environment, as in low-income countries (Pinillos & Reyes, 2011) or when the support from the in-group is coupled with the freedom to pursue individualistic objectives (Bullough et al., 2014). Thus, we argue that societal in-group collectivism acts as a deterrent for new venture creation as it would be a clear signal that an individual ascribes higher value to independence than to interdependence (Oyserman et al., 2002). In other words, based on neo-institutional theory, we argue that the cost of embarking on an entrepreneurial endeavor resulting in potential disruption to in-group harmony and sense of belonging would be exacerbated by the fact that such action does not lend to higher legitimacy or social recognition.

On the other hand, collectivistic societies value the achievement of collective pursuits, interdependence among members, a collective identity, and the preservation of harmony within the group (Oyserman et al., 2002). Individuals are thus perceived as being part of a larger entity (the collective) as opposed to being individual players in society. Alternatively, we could say that societies characterized by high embeddedness and collectivistic cultures may be an entrepreneurship-unfriendly environment. Indeed, the culture-cognitive elements of institutions in these societies delegitimize the pursuit of entrepreneurship. Therefore, we hypothesize that:

Hypothesis 2. The positive relationship between preference for self-employment and actual self-employment is weaker in societies that are higher in collectivism, in-group collectivism, and embeddedness.

Societies that exhibit cultural cognitions that have lower tolerance for hierarchies often have a burgeoning middle class. Individuals in such societies can experience upward social mobility thanks to an availability of resources that is not conditional upon their hierarchical position in the society (De Clercq et al., 2014; Schwartz, 1994a). In low power-distance societies, individuals are not ascribed to specific social positions. Rather, power distance and uncertainty avoidance are found to be negatively associated with low business risk-taking and proactive behavior, both of which are used to predict entrepreneurial orientation (Kreiser et al., 2010). Conversely, in high power-distance societies, individuals rely on superiors and formal rules in order to take action, hence independent work (such as self-employment) is not highly valued (Hauff et al., 2015).

The culture-cognitive elements of institution in hierarchical societies may create environments that hamper the pursuit of entrepreneurship (i.e., unfriendly environments). Hierarchical societies can be defined as those characterized by high hierarchy and high power distance, two cultural dimensions scholars have found to display conceptual overlaps. In these societies, individuals aim to preserve the existing power structure (De Clercq et al., 2013; Schwartz, 1994a), and unequal distribution of power and roles in the society is considered legitimate (Liñán & Fernández-Serrano, 2014). Hence, from a neo-institutional perspective, individuals with a preference for self-employment are more likely to undertake a career as self-employed. Therefore, we hypothesize that:

Hypothesis 3. The positive relationship between preference for self-employment and actual self-employment is stronger in societies that are lower in power distance and hierarchy.

A conceptual similarity is found among the cultural dimensions of humane orientation, performance orientation, and assertiveness. For instance, in an attempt to develop meta-factors to describe national culture using GLOBE dimensions, Hofstede (2006) showed that performance orientation and assertiveness belong to the same factor, while others found that humane orientation and assertiveness are typical of socially supportive societies (Stephan & Uhlaner, 2010). However, comparing multiple country-level culture scores, Posthuma et al. (2014) highlighted an overlap between these culture constructs. Therefore, these cultural dimensions can be used to describe societies where the culture-cognitive elements of institutions are entrepreneurship-friendly.

Specifically, in countries with cultural cognitions that hold assertiveness in high regard, individuals are more likely to be competitive and confrontational (Hauff et al., 2015; House, 2004). Furthermore, assertive individuals value competition, achievement, and improvement (Cullen et al., 2014). Highly assertive individuals are also more prone to strive to shape and control their environment (Cullen et al., 2014; House et al., 1999). Similarly, highly performance-orientated societies generally value competition (Autio et al., 2013). In other words, an individual's achievements and what he or she does outweighs who he or she is. In high performance-orientated societies, feedback with direct and explicit comments is seen as a tool for personal improvement in the quest for material achievement (Cullen et al., 2014; House et al., 2002; House, 2004). In such societies, entrepreneurs enjoy

social recognition and legitimacy for their ability to take on challenging tasks and improve their professional performance (Autio et al., 2013). As a result, consistent with our cultural-cognition framework drawn from neo-institutional theory, a career as self-employed is likely to be preferred over a life as an organization's employee.

Conversely, societies high in humane orientation are driven by the conviction that the members of the society are responsible for the well-being of others, and affiliation and belonging to a specific group are therefore priorities (House et al., 2002; House, 2004). In highly humane oriented societies, resources and support (including material, human, and financial resources) are provided to individuals within a close circle (Zhao, Li, & Rauch, 2012). Therefore, we hypothesize that:

Hypothesis 4. The positive relationship between preference for self-employment and actual self-employment is stronger in societies that are lower in humane orientation and higher in performance orientation and assertiveness.

The pursuit of entrepreneurial activities entails a degree of uncertainty and risk as such activity requires the entrepreneur to bear the consequences of decisions that may lead to uncertain results (Freytag & Thurik, 2007; McGrath et al., 1992) and to seek the exploitation of entrepreneurial opportunities despite the uncertainty embedded in such activities. Individuals with higher tolerance for ambiguity are more likely to display a willingness to take risks and are less prone to display resistance to change (Hofstede, 2001; House, 2004). This is particularly true in the entrepreneurial economy that emerged in relatively recent years, as Wennekers, Thurik, Stel, and Noorderhaven (2007, p. 14) note when they argue that "In recent years, a pull toward entrepreneurship in a climate of low uncertainty avoidance has gained dominance vis-à-vis a longstanding historical push effect of high uncertainty avoidance." Thus, societies low in uncertainty avoidance should enhance the culture cognitions associated with risk taking for entrepreneurial activities. In addition, high tolerance for ambiguity encourages individuals to operate in situations that are unstructured and informal. Finally, Kreiser et al. (2010) provide empirical support for a negative association between uncertainty avoidance and entrepreneurial orientation when the latter is measured in terms of propensity to take risks and engage in proactive behaviors. Therefore, we hypothesize that:

Hypothesis 5. The positive relationship between preference for self-employment and actual self-employment is stronger in societies that are lower in uncertainty avoidance.

4. Materials and methods

Our analysis was performed on data drawn from the International Social Survey Program (ISSP) work orientation module collected in 2005 by the ISSP research group. This is a cross-national collaboration between 47 member-countries (see Appendix A for details of the contact organization in each country) that develops annual programs geared at collecting cross-national data concerning topics relevant to social science (Haller, Jowell, & Smith, 2009). The 2005 work orientation module consists of a general survey of the adult population (>18 years) that relies on a multi-stage stratified sampling procedure that collected data in 31 countries and regions across the globe (Scholz, Harkness, & Faaß, 2008). The data collection was completed by administering questionnaires either in face-to-face interviews or for self-completion, with eight countries completing the data collection by mail (Scholz et al., 2008). The purpose of the 2005 module was to gather cross-national data on individuals' orientation toward work; however, the data also contain work-related variables such as employment arrangements, employment status, job characteristics, work-life balance, conflict in the work place, and attitude toward one's job as well as toward self-employment (GESIS, 2013). To ensure the validity of the survey instruments across countries and cultures, the ISSP research group (through a methodology committee) implemented several procedures (Scholz et al., 2008). The standardized questionnaire in English was integrated with explanations of the concepts referred to by some expressions (Hult, 2005). Additionally, the use of independent translations was integrated with in-depth discussions of the questionnaires and, in most cases the translated instrument was pre-tested (Hauff et al., 2015). Response rates varied from 49% in Australia and 50% in Germany and the UK to over 85% in South Africa. The ISSP 2005 data gathering adhered to country-specific best practices in academic research (e.g., incentives to respondents and interviewer).[3]

ISSP 2005 lends itself particularly well to the purpose of our study. First, the procedure adopted to ensure the validity of standardized questionnaires and measurements for constructs across countries make the ISSP data appropriate for cross-country research (Haller et al., 2009; Scholz et al., 2008). Second, the ISSP 2005 work orientation module asks respondents questions concerning preference for self-employment and self-employment status, a simplified concept of entrepreneurship that (unlike entrepreneurship) is consistently understood across culture and languages (Grilo & Irigoyen, 2006). Thus, variance in the level of preference and actual self-employment across country is less likely to result from measurement issue. Third, ISSP 2005 covers a set of countries representing several cultural clusters (Hauff et al., 2015; Ronen & Shenkar, 2013) that are not represented in other available datasets concerning entrepreneurial behavior (e.g., General Entrepreneurship Monitor). Therefore, it enables a more comprehensive cross-national analysis. Last, it provides individual-level variables, which we used in our robustness-check to rule out possible endogeneity.

We acknowledge that the ISSP 2005 has limitations. First, incentives to participants and interviewers were provided only in some countries (Hauff et al., 2015), an inconsistency that may have caused participant self-selection. Second, modes of data collection varied across countries; thus, we may suspect the possible presence of a country effect independent from respondents' perception of cultural values. To address these concerns, we used hierarchical linear modeling to account for the non-independence of observations (i.e., respondents are nested into countries). Last, some of the respondents to the ISSP 2005 survey may be non-native citizens. This might bias our results in that immigrants and native citizens may be differently influenced by the dominant cultural cognition of the society in which they live (Silver & McCurdy 2008). However, our robustness tests suggest that this limitation did not significantly contaminate our results (see Appendix A). All in all, ISSP 2005 offers a good basis for cross-cultural studies. However, future research should be aware of these limitations and adopt appropriate statistical techniques to rule out the possibility of significant bias contaminating the results.

Our final sample of 20,755 observations (see Table 2) was obtained by filtering the original 45,000 responses in order to remove all those respondents who were not working as well as those with incomplete or non-usable responses on the variables of interest in this study. To do so, we relied on the survey question: "*What is your current employment status?*" and retained all respondents who were in the labor force at the time the survey was conducted (i.e., those individuals working for pay or self-employed). The sample was subsequently matched with the national culture score provided by the GLOBE study (House, 2004), the updated Hofstede study (Hofstede, 2001), and Schwartz's cultural dimensions (Schwartz, 1994b). In addition, the dataset was integrated with country-level variables from the World Economic Outlook database, the World Bank's Doing Business in 2005 survey,[4] the Worldwide Governance Indicators dataset,[5] and the Organization for Economic Cooperation and Development (OECD). We retained those observations concerning countries with culture scores available for all three cultural

[3] See GESIS (2013) for further details of the data collection procedure.

[4] World Bank's Doing Business in 2005 survey, Retrieved from: www.data.worldbank.org/indicator/IC.BUS.EASE.

[5] Worldwide Governance Indicators Retrieved from: www.govindicators.org.

Table 2
Self-employment preference and self-employment status, by country.

Country	Preference for self-employment		Self-employment status		
	N	Percentage	N	Percentage	Total
Australia	699	52.20%	188	14.04%	1339
Canada	330	53.23%	67	10.81%	620
Denmark	327	29.02%	119	10.56%	1127
Finland	225	25.63%	105	11.96%	878
France	363	38.78%	70	7.48%	936
Germany	168	43.98%	47	12.30%	382
Hungary	226	31.74%	47	6.60%	712
Ireland	337	49.27%	104	15.20%	684
Israel	279	48.44%	75	13.02%	576
Japan	152	35.43%	74	17.25%	429
Mexico	545	80.86%	226	33.53%	674
New Zealand	474	54.86%	162	18.75%	864
Philippines	533	82.89%	371	57.70%	643
Portugal	677	50.71%	230	17.23%	1335
Russia	501	44.81%	39	3.49%	1118
Slovenia	306	47.96%	38	5.96%	638
South Africa	620	56.31%	121	10.99%	1101
South Korea	668	66.73%	370	36.96%	1001
Spain	232	32.18%	113	15.67%	721
Sweden	289	30.01%	106	11.01%	963
Switzerland	399	47.33%	107	12.69%	843
Taiwan	688	50.44%	309	22.65%	1364
United Kingdom	282	44.27%	87	13.66%	637
United States	724	61.88%	155	13.25%	1170
Total					20,755

frameworks.

Our final sample totaled n = 20,755 observations belonging to 24 countries (see Table 2). Among the respondents, 20.1% (n = 4172) worked for government agencies, 9.7% (n = 2020) worked for publicly-owned firms, 53.7% (n = 11,138) were employees of private firms, 16% (n = 3330) were self-employed, and 0.5% (95) worked for non-for-profit organizations. Married respondents represented 62.70% (n = 13,013) of the sample, and the gender distribution was fairly balanced (47.9% were female and the rest male). The average respondent was 46 years old (s.d. = 16.12) and had completed at least 12 years of formal education (s.d. = 4.2). All in all, the ISSP 2005 responses were considered representative of the populations of the various countries by previous studies (e.g., Hult, 2005).

4.1. Measures

4.1.1. Self-employment

Following previous studies (Grilo & Irigoyen, 2006; Verheul et al., 2012), we operationalized entrepreneurial behavior by relying on the "work-type variable" (i.e., self-employed vs. organizational employee) included in the ISSP work orientation survey. Specifically, we used the following question: "*Who do you work for in your current job?*" to create a dummy variable that discriminates between organization-employed and self-employed. The variable was coded as follows: Individuals who selected "*working for a publicly-owned firm*," "*working for a privately-owned firm*," or "*working for the government*" were coded 0 (i.e., organizational employees). Individuals who identified themselves as "*self-employed*" were given the value 1.

Our decision to use self-employment as an operationalization of entrepreneurial behavior was driven by several factors. First, self-employment is a basic form of entrepreneurship as the self-employed are individuals who are ingenious and creative in finding ways to add to their own wealth, power, and prestige (Baumol, 1996). Furthermore, medium-size firms tend to be an offshoot of small businesses created by self-employed individuals (e.g., Blanchflower et al., 2001). Second, previous studies (e.g., Grilo & Irigoyen, 2006) demonstrated how the meaning of self-employment is defined consistently across countries and cultures. Thus, the use of self-employment for the operationalization of entrepreneurial behavior lends itself particularly well to comparison across countries (Grilo & Irigoyen, 2006). Last, it may be argued that preference for self-employment merely represents the extent of a respondent's satisfaction (or dissatisfaction) with the status quo. However, as Table 2 shows, many individuals wish to be entrepreneurs without actually becoming one (Grilo & Irigoyen, 2006). All in all, our formative measure of self-employment status reflects a deliberate choice made at some point in the past.

4.1.2. Preference for self-employment

The variable was operationalized through a dummy variable. Following previous operationalizations of the concept of wishing to pursue an entrepreneurial activity (e.g., Grilo & Irigoyen, 2006; Grilo & Thurik, 2005; Verheul et al., 2012), we relied on the following question: "*Suppose you were working and could choose between different kinds of jobs. Which of the following would you personally choose?* The variable was coded 0 if the respondents expressed a preference for '*Being an organization's employee*' and 1 if an individual expressed a preference for *"Being self-employed."* As suggested by previous studies (Grilo & Irigoyen, 2006; Verheul et al., 2012), our variable captures a cognitive antecedent of entrepreneurial intention. That is, our measure only captures the desire to be an entrepreneur, not the ability or intention to be one. In fact, self-employment may be deemed appealing based upon certain attributes of working for oneself without the potential entrepreneur necessarily having the intention to pursue such an activity.[6]

4.1.3. Country-level predictors

National cultural scores were obtained from the GLOBE study (House, 2004), the updated Hofstede study (Hofstede, 2001), and Schwartz's cultural dimensions (Schwartz, 1994b). Given our meta-cultural approach, we used overlapping cultural measures. More specifically, we used as moderators the following measures from the GLOBE World Values Survey: gender egalitarianism, humane orientation, performance orientation, in-group collectivism, power distance, and assertiveness. In addition, we decided to use GLOBE societal practices (Autio et al., 2013; Stephan & Uhlaner, 2010; Thai & Turkina, 2014). The above-mentioned cultural variables were used in tandem with the societal values of masculinity, power distance, individualism, and uncertainty avoidance, all of which are drawn from Hofstede's culture framework. Last, egalitarianism, embeddedness, and hierarchy were retrieved from Schwartz's cultural dimensions. Due to the different scaling technique used in each of the culture frameworks employed in our study, we Z-standardized all cultural variables.

4.1.4. Control variables

To rule out potential alternative explanations for the observed relationships, we accounted for alternative antecedents of self-employment (De Clercq et al., 2010; Kolvereid, 1996; Thomas & Mueller, 2000), both at the individual and the country level of analysis. Thus, we controlled for sex, age, age squared, and marital status as studies have found that these demographic characteristics are important in understanding entrepreneurship (Kolvereid, 1996). Sex was coded 1 for male and 0 for female. Age was measured in years (Autio et al., 2013), and marital status was coded 1 for married and 0 for otherwise (e.g., Grilo & Irigoyen, 2006). Our study also controlled for education level as previous studies made the case for its significant effect on self-employment status and entrepreneurship (Grilo & Irigoyen, 2006; Verheul et al., 2012). Furthermore, Kniffin (2007) suggests that formal-education patterns are an important predictor of individual's career choices

[6] As we explain in our data analysis section, we adopted statistical techniques to prevent biases resulting from this particular issue.

Table 3
Correlation table.

	Variables	1	2	3	4	5	6	7	8	9	10	11
1	Self-employed											
2	Preference	0.30										
3	Masculinity	0.05	0.11									
4	Gender Egalitarianism[a]	−0.12	−0.08	−0.27								
5	Egalitarianism	−0.06	−0.09	−0.24	0.09							
6	Individualism	−0.14	−0.08	0.26	0.17	0.38						
7	In-group Collectivism[a]	0.14	0.13	0.11	−0.03	−0.43	−0.80					
8	Embeddedness	0.11	0.16	0.24	−0.05	−0.75	−0.54	0.68				
9	Power Distance	0.10	0.11	0.01	0.20	−0.39	−0.65	0.80	0.59			
10	Power Distance[a] (GLOBE)	0.08	0.09	0.23	−0.15	−0.31	−0.54	0.76	0.46	0.73		
11	Hierarchy	0.12	0.13	0.29	−0.41	−0.69	−0.39	0.38	0.66	0.36	0.34	
12	Assertiveness[a]	0.02	0.09	0.58	−0.33	−0.16	0.20	0.10	0.27	0.01	0.18	0.14
13	Humane Orientation[a]	0.12	0.08	−0.04	0.10	−0.07	0.04	0.01	0.03	−0.13	−0.41	0.04
14	Performance Orientation[a]	0.12	0.12	0.37	−0.68	−0.06	0.16	−0.25	−0.04	−0.34	−0.31	0.34
15	Uncertainty Avoidance (Hofstede)	0.01	0.02	0.03	−0.05	−0.17	−0.63	0.65	0.28	0.64	0.71	0.18
16	Age	0.09	−0.07	0.01	0.03	0.06	0.10	−0.08	−0.10	−0.09	−0.03	−0.09
17	Age (squared)	0.09	−0.06	0.02	0.03	0.06	0.09	−0.07	−0.09	−0.09	−0.02	−0.09
18	Education	−0.11	−0.02	0.01	−0.01	−0.01	0.23	−0.22	−0.18	−0.19	−0.21	−0.03
19	Married	0.08	0.01	−0.06	0.02	0.01	−0.01	−0.02	−0.01	−0.02	−0.03	−0.04
20	Male	0.11	0.16	0.02	−0.06	−0.04	−0.05	0.05	0.05	0.03	0.02	0.04
21	Self-employed-friendly regulation	−0.12	−0.09	0.10	0.21	0.25	0.53	−0.81	−0.60	−0.72	−0.55	−0.28
22	Per Capita GDP[b] (PPP)	−0.10	−0.12	−0.09	−0.12	0.41	0.52	−0.63	−0.74	−0.70	−0.64	−0.41
23	Control of Corruption	−0.11	−0.15	−0.18	−0.09	0.62	0.63	−0.83	−0.81	−0.83	−0.65	−0.59
24	Developed Country	−0.03	−0.07	0.07	−0.16	0.67	0.49	−0.50	−0.72	−0.06	−0.31	−0.47
25	Population (millions)	0.01	0.10	0.27	0.02	−0.29	0.14	0.10	0.35	0.30	0.13	0.35

	Variables	12	13	14	15	16	17	18	19	20	21	22	23	24
12	Assertiveness[a]													
13	Humane Orientation[a]	−0.45												
14	Performance Orientation[a]	0.24	0.31											
15	Uncertainty Avoidance (Hofstede)	0.06	−0.48	−0.41										
16	Age	0.00	−0.01	−0.03	−0.06									
17	Age (squared)	0.01	−0.01	−0.03	−0.05	0.98								
18	Education	−0.01	0.08	0.14	−0.13	−0.27	−0.28							
19	Married	−0.09	0.06	−0.01	−0.03	0.15	0.09	−0.01						
20	Male	0.02	0.03	0.05	−0.00	0.01	−0.01	−0.02	0.12					
21	Self-employed-friendly regulations	−0.19	0.12	0.33	−0.44	0.07	0.06	0.25	0.03	−0.04				
22	Per Capita GDP[b] (PPP)	−0.09	0.17	0.36	−0.54	0.09	0.08	0.54	0.22	−0.01	0.58			
23	Control of Corruption	−0.18	0.04	0.28	−0.44	0.08	0.08	0.24	−0.00	−0.03	0.47	0.85		
24	Developed Country	0.05	−0.03	0.13	−0.15	0.07	0.07	0.15	0.02	−0.03	0.52	0.66	0.63	
25	Population (millions)	0.28	0.03	0.06	0.05	−0.03	−0.02	0.04	−0.06	0.01	−0.07	−0.02	−0.27	−0.07

N = 20,755. Age and education were measured in years; a: GLOBE cultural dimensions society practices; b: GDP per capita expressed in US dollars at purchasing parity. All correlations above .02 are significant at 0.05 or better for a two-tailed test.

Table 4
[a] Multi-level model with Bernoulli outcome[b]: Unconditional model.[c]

Fixed effect	Odds ratio (OR)	S.E.	Z ratio
For Intercept, β_0			
INTRCPT2, γ_{00}	0.16***	0.025	−12.00
Random effects	Variance components (VC)		
u_0	0.524	0.155	
Model fit statistics			
AIC	16910		
BIC	16926		
% of Variance, ρ[d]	13.76		
LR test ρ = 0[e]	1374.14***		

*** $p < 0.01$, ** $p < 0.01$, *$p < 0.05$, †$p < 0.1$. Two-tailed tests. VC denotes Variance Components. AIC denotes Akaike's information criterion. BIC denotes Bayesian information criterion. LR denotes likelihood-ratio test.

[a] The table shows the estimates for the level-2 unconditional model, where γ00 is the mean of self-employment for an average respondent. Our analysis (see Table 4) shows an estimated γ00 = 0.16 (SE = 0.025). That is, for a country with a typical rate of self-employment (and with random effect u0j = 0.524), the expected odds ratio of self-employment is 0.16. This corresponds to odds of about 1 to 6, or a probability of 0.137. This typical probability, which is associated with a country-level random effect equal to 0, is higher than the population-wide self-employment rate, which is 0.160 (see Table 4, Row 1). The difference can be ascribed to the nonlinear relationship between the log-odds of self-employment (nij) and the probability of self-employment (φij). Additionally, we calculated the intra-class correlation coefficient (ICC, denoted as ρ in Table 4), or the percentage of the total variance to be ascribed to the country-level variance. As shown, the ICC indicates that 13.76% of the total variance is generated by a country effect. It is therefore appropriate to employ a conditional multi-level model.

[b] For individual "i" in group "j," the probability of Yij = 1 (the individual is self-employed) is φij ij. The odds of Yij = 1 is defined instead as log [φij ij/(1 − φij ij)].

[c] The form of the unconditional model is the following: ηij = β0 j.

[d] ρ denotes the intra-class correlation coefficient (ICC), that is, the percentage of the total variance that occurs between countries (i.e., that can be ascribed to country-level variance).

[e] A significant likelihood ratio (LR) test for ρ = 0 suggests the presence of a country-level variance component whereby the use of multi-level methodology is appropriate.

(Walter & Block, 2016) as first-generation students are more likely to face a "class-ceiling," leading them to divert their energy on activities outside college (Kniffin, 2007). Education was measured in years of formal education received.

We included several country-level controls in our analyses. First, we controlled for level of economic development across countries using per capita gross domestic product (GDP) for each country for 2004, expressed in US dollars at purchasing power parity (PPP) (De Clercq et al., 2010; 2014). We also controlled for population size expressed in millions as a proxy for the size of a country's domestic market (Autio et al., 2013). In addition, a country's rate of growth may drive the number of new businesses observed in that country (Stephan & Uhlaner, 2010). Thus, we controlled for GDP growth rate from 2004 to 2005 for each country. Data were retrieved from the World Economic Outlook database[7] (available from the International Monetary Fund). We were also sensitive to studies making the case for different motivations driving entrepreneurship in developed economies compared to emerging economies (Bruton et al., 2008). Thus, we controlled for emerging versus developed economies using a dummy variable, coded 1 if the country was an OECD member as of 2005, and 0 otherwise (e.g., De Clercq et al., 2013). Last, the objective of our research was to capture the influence of the culture-cognitive elements of institutions on entrepreneurial behavior. Thus, it was important to control for normative and regulative elements of institutions. To do so, we included the variable control of corruption and self-employment-friendly environment (Stephan et al., 2014; Walter & Block, 2016) in our analyses. Consistent with previous studies (e.g., Walter & Block, 2016; Kaufmann, Kraay, & Mastruzzi, 2010), we measured control of corruption using the Worldwide Governance Indicators, a source widely used because it is the indicator with the widest coverage among the available corruption indexes (Walter & Block, 2016). The indicators span from 2.5 (strong governance) to −2.5 (weak governance) and reflects the "perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the State by elites and private interests" (Kaufmann et al., 2010, p. 5). Self-employment-friendly environment was instead operationalized though a composite measure that encompasses three aspects. The first regards the regulatory burden connected with opening a new business. This was captured by three standardized items retrieved from the Doing Business Database[8]: (1) number of days needed to obtain legal status; (2) number of procedures needed (i.e., interaction with the public administration); and (3) cost of obtaining legal status as a percentage of per capita income in the country. To make our index more intuitive, we reversed all three items so that higher values represented a more self-employment-friendly environment. The second aspect consists of intellectual property rights protection. We measured this using the following item from the Executive Opinion Survey: "*In your country, how strong is the protection of intellectual property, including anti-counterfeiting measures?*" This item was rated on a scale from 1 (extremely weak) to 7 (extremely strong) and was retrieved from the Global Competitiveness Index historical data (World Economic Forum). The final aspect was bankruptcy regulation, or the presence of legal provision that may delay the process or increase the cost of filing for bankruptcy. Similar to previous studies (e.g., Walter & Block, 2016), we operationalized this aspect by using three standardized items from the Doing Business Database (World Bank, 2005): (1) recovery rate (in percentage terms) available to creditors through debt enforcement or liquidation; (2) number of years needed to recover a debt; and (3) costs of recovering a debt (measured as a percentage of the debtor's estate). Items 2 and 3 were reversed so that higher values represented a more entrepreneur-friendly environment. To create our final measure of self-employment-friendly environment, we first standardized the items used to capture each aspect and then summed them.

4.2. Data analysis and results

Our hypotheses were tested through a multilevel technique with binary outcomes in order to account for both the non-independence of the respondents (individuals nested into countries) and the multilevel nature of the moderating effect (individual-level respondents and national-level moderator) (Raudenbush & Bryk, 2002). Following recommendations found in the literature (Autio et al., 2013; Raudenbush & Bryk, 2002), we specified a cross-level moderation model that predicts the likelihood of an individual being self-employed. We first entered the control variables in our model followed by the independent variables and finally the variable preference for self-employment. To test for the moderating effect of culture on the focal relationship, we relied on a series of cross-level interaction terms (i.e., preference for self-employment X cultural variables). Additionally, the moderating effects of the cultural variables considered convergent across cultural frameworks were compared. To simplify the presentation and interpretation of our analysis, the results presented in our tables (Tables 4–8) report the odds ratios, or the exponential function of the estimated beta coefficients. Hence, a higher odds ratio (>1) associated with a predictor indicates that the variable increases the likelihood of an individual being self-employed. The model was specified so as to predict the likelihood for an individual being self-employed over organization-employed. The log-odds of success were obtained by running the level-1 model. The random portion of our model creates a multi-level

[7] World Economic Outlook database Retrieved from: http://www.imf.org/en/data.

[8] *World Databank: Doing Business*. Retrieved from: http://databank.worldbank.org/data/reports.aspx?source=doing-business.

Table 5
Multi-level model with Bernoulli outcome: Fully conditional model (level-1 and level-2 conditional).

	Controls	Main effect	Hypothesis 1					
Fixed effect	Null model OR	Model 0 OR	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR	Model 5 OR	Model 6 OR
Intercept	0.07***	0.04***	0.04***	0.04***	0.05***	0.05***	0.03***	0.03***
Age	1.08***	1.09***	1.09***	1.09***	1.09***	1.09***	1.09***	1.09***
Age (squared)	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***
Education	0.96***	0.96***	0.96***	0.96***	0.96***	0.96***	0.96***	0.96***
Married	1.17***	1.15**	1.15**	1.15**	1.15**	1.15**	1.15**	1.15**
Male	1.64***	1.21	1.21	1.21	1.16	1.15	1.22	1.23
Country-level controls								
Self-employed-friendly regulation	0.96	0.95	0.95	0.95	0.94*	0.94*	0.93	0.93
Per capita GDP (PPP)	0.97	1.02	1.02	1.02	1.01	1.01	1.03	1.03
Developed country	1.75	1.74	1.66	1.66	1.46	1.47	2.02†	2.01
Control of corruption	0.85	0.97	0.99	0.99	1.07	1.07	1.10	1.10
Population (millions)	0.99	0.96	0.947	0.94	0.97	0.97	0.94	0.95
Cross-level main effect								
Preference		5.91***	5.90***	5.90***	5.09***	6.55***	5.91***	6.02***
Masculinity			1.05	1.08				
Gender egalitarianism[a]					0.71**	0.53***		
Egalitarianism							0.85	0.66*
Cross-level interactions								
Pref. *Masculinity				0.96				
Pref. *Gender egalitarianism						1.46***		
Pref. *Egalitarianism								1.43***
λ (Inverse Mills' ratio)		0.63	0.64	0.64	0.52	0.51	0.65	0.68
Random Effects	VC	VC	VC	VC	VC	VC	VC	VC
u_0	0.43	0.33	0.32	0.33	0.23	0.23	0.32	0.33
Model Fit Statistics								
AIC	16245	14785	14787	14788	14778	14722	14786	14730
BIC	16340	14896	14906	14915	14898	14849	14906	14857

*** $p < 0.001$, ** $p < 0.01$, *$p < 0.05$, †$p < 0.1$ Two-tailed tests. Pref. denotes Preference for Self-employment. VC denotes Variance Components. AIC denotes Akaike's information criterion. BIC denotes Bayesian information criterion; a: GLOBE Society Practices.

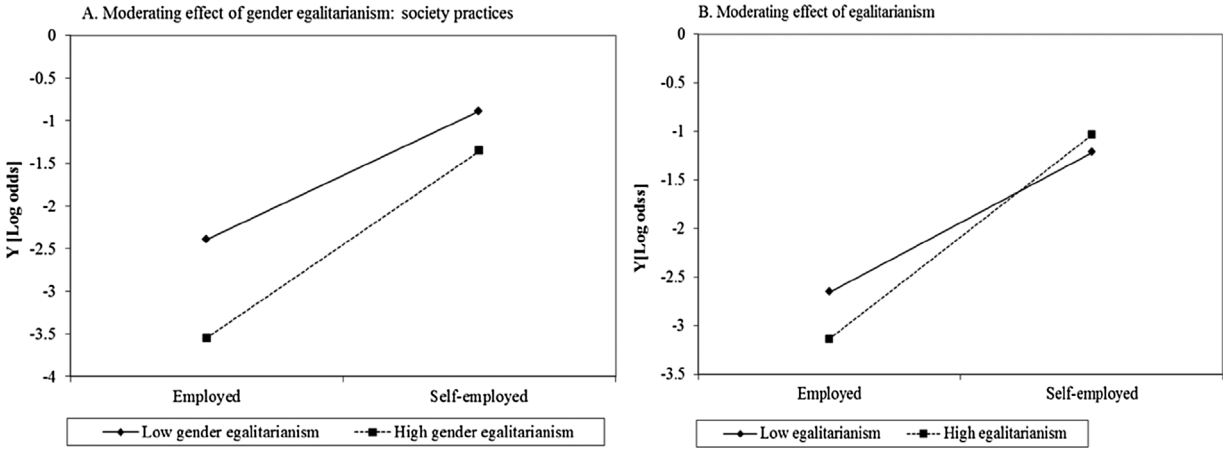

Fig. 1. Moderating effect of gender egalitarianism and egalitarianism (Hypothesis 1).

interaction between the level 1 predictor (preference for self-employment) and the country-level cultural variables. The other level 1 coefficients were viewed as fixed.

Correlations are shown in Table 3. The first step in the analysis was to understand the magnitude of the variation across countries with regard to self-employment by estimating an unconditional model, that is, a model containing no Level 1 or Level 2 predictors (Autio et al., 2013; Raudenbush & Bryk, 2002). The results of the unconditional model (Table 4) as well as the percentage of the total variance in the dependent variable to be ascribed to the country-level variance (ICC = 13.76%) suggest that it is appropriate to employ a conditional multi-level model (see note to Table 4 for further explanations).

As expected, individuals who expressed a preference for self-employment (Level 1 variable) are more likely to be self-employed. As shown in Table 5 (Model 0), the odds ratio for the preference for self-employment was higher than 1 (OR = 5.91) and significant ($p < 0.001$), corresponding to a probability ($\varphi ij = 1/(1 + \exp\{-nij\})$) of 0.86. Thus, individuals who expressed a preference for self-employment were 5.91 times more likely to be self-employed.

An analysis of our control variables provides interesting insights. More specifically, as shown in Table 5 (Model 0), consistent with Autio et al. (2013), we observed that respondents' age and the probability of being self-employed have a curvilinear (inverted U-shape) relationship. This addresses the inconsistency found in the extant literature as some studies make the case for a negative relationship between age and probability of being self-employed (e.g., Lin et al., 2000), while others

Table 6
Multi-level model with Bernoulli outcome: Fully conditional model (level-1 and level-2 conditional).

	Hypothesis 2					
Fixed Effect	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR	Model 5 OR	Model 6 OR
Intercept	0.03***	0.02***	0.04***	0.03***	0.03***	0.02***
Age	1.09***	1.09***	1.09***	1.09***	1.09***	1.09***
Age (squared)	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***
Education	0.96***	0.96***	0.97***	0.96***	0.96***	0.96***
Married	1.15***	1.14**	1.15**	1.15**	1.15**	1.16**
Male	1.22	1.23	1.21	1.20	1.20	1.21
Country-level controls						
Self-employed-friendly regulation	0.95	0.94†	0.96	0.96	0.94†	0.94†
Per capita GDP (PPP)	1.03	1.04	1.01	1.03	1.11	1.12
Developed country	1.91*	2.02*	1.96	1.70	2.34*	2.47*
Control of corruption	1.23	1.21	1.28	1.22	1.22	1.24
Population (millions)	1.05	1.03	1.06	0.99	0.90	0.91
Cross-level Main Effect						
Preference	5.91***	7.16***	5.91***	6.71***	5.91***	6.19***
Individualism	0.69*	0.42***				
In-group collectivism[a]			1.41	2.26***		
Embeddedness					0.67†	0.42**
Cross-level interactions						
Pref.*Individualism		1.89***				
Pref. *In-group collectivism				0.52***		
Pref. *Embeddedness						1.77***
λ (Inverse Mills' ratio)	0.66	0.72	0.63	0.67	0.62	0.66
Random Effects	VC	VC	VC	VC	VC	VC
u_0	0.29	0.26	0.30	0.33	0.29	0.30
Model Fit Statistics						
AIC	14782	14621	14785	14620	14785	14663
BIC	14901	14748	14904	14747	14904	14790

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, †$p < 0.1$ Two-tailed tests. Pref. denotes Preference for Self-employment. VC denotes Variance Components; AIC denotes Akaike's information criterion. BIC denotes Bayesian information criterion; a: GLOBE Society Practices.

made the case for a positive relationship (e.g., Blanchflower et al., 2001; Grilo & Irigoyen, 2006). Consistent with previous studies (e.g., Kniffin, 2007; Walter & Block, 2010), we found that the likelihood of being self-employed is lower among individuals with a higher level of education. We can therefore speculate that individuals who received higher levels of education may have a better understanding of the challenges and difficulties entailed by being an entrepreneur (Walter & Block, 2010). Furthermore, previous studies suggest that first-generation college students tend to pursue more conservative career choices (e.g., Kniffin & Hanks, 2013). Although first-generation students are less likely to attain higher levels of education, when they do so, they are likely to experience a "class-ceiling" that prompt them to direct their energies off-campus (Kniffin, 2007), for instance toward the pursuit of entrepreneurship.[9] Therefore, a preference for self-employment is less likely to be acted upon. As shown in Table 5, consistent with previous studies (e.g., Kolvereid, 1996), married individuals appear to be more likely to be self-employed. Last, our analyses suggest that the gender effect is significant in the control model only (Table 5, null model). It also appears that male respondents are more likely to be self-employed. As previous studies suggest, men and women perceive barriers to entrepreneurship differently (Bullough et al., 2014; Shinnar et al., 2012).

Although our analyses controlled for alternative explanations for self-employment, we were constrained by data availability. Specifically, we were unable to directly control whether the respondents were native citizens or immigrants. This is clearly an important variable as immigrant entrepreneurs may undergo a different entrepreneurial process when compared to their non-immigrant counterparts (Dheer, 2016). Furthermore, immigrant or ethnic entrepreneurs may have different perceptions concerning the host country' institutions (Bates, 1997). For example, previous studies suggest that immigrants are more likely to pursue riskier entrepreneurial goals than non-immigrants (e.g., Kniffin & Hanks, 2013). Therefore, in an attempt to partially address this particular limitation, we conducted additional robustness checks (see Appendix A). In our discussion section, we also use the opportunity to suggest possible avenues for future research on this topic.

Hypotheses 1 to 5 anticipated contextual effects whereby the positive relationship between preference for self-employment and actual self-employment is moderated by the dominant culture cognitions of a specific country. To test Hypothesis 1, we examined the odds ratios for the interactions of preference for self-employment with the focal cultural variables. As Model 2 in Table 5 shows, the odds ratio for the interaction terms between masculinity and preference for self-employment was not significant (p = 0.45). Model 4 in Table 5 indicates that the odds ratio for the interaction between gender egalitarianism and preference for self-employment was statistically significant ($p < 0.001$) and greater than 1 (OR = 1.46). In addition, the interaction term generated improvements in the relative quality of Model 4 (AIC = 14722 BIC = 14849) in respect to Model 3 (AIC = 14778 BIC = 14898). The values of both the Akaike information criterion (AIC) and the Bayesian information criterion (BIC) are lower for Model 4 than for Model 3, suggesting that Model 4 should be preferred (Wagenmakers & Farrell, 2004). Lastly, as Model 6 in Table 5 indicates,

[9] While our study controlled for individual's level of formal education, we acknowledge that parental education levels may have a significant impact on an individual's accessibility to career opportunities (e.g., Kniffin, 2007). We suggest that future studies may control for the effect an individual's socioeconomic background (e.g., education levels of one parent) may have on the link between preference for and actual entrepreneurship.

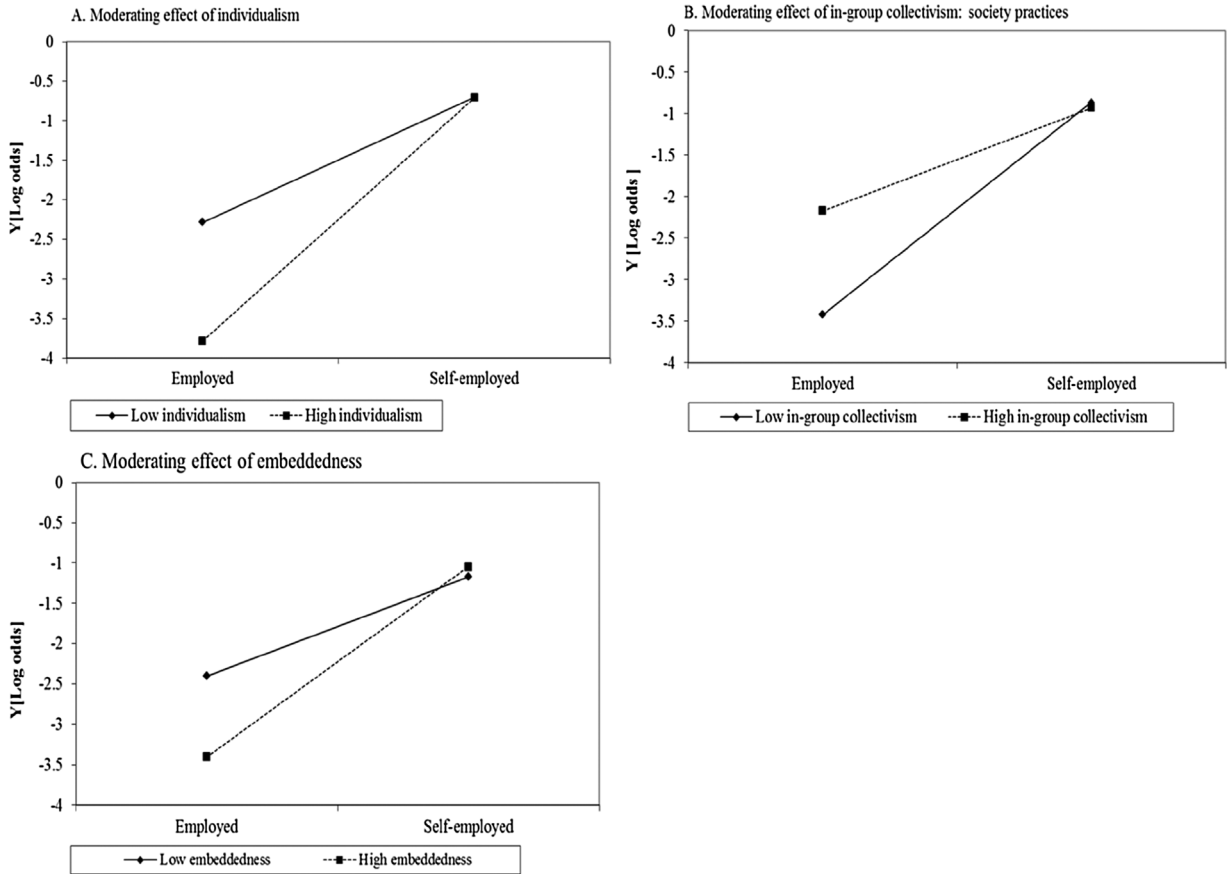

Fig. 2. Moderation effect of individualism, in-group collectivism, and embeddedness (Hypothesis 2).

the odds ratio for the interaction between egalitarianism and preference for self-employment was greater than 1 (OR = 1.43) and statistically significant ($p < 0.001$), the interaction thus providing significant improvement with respect to Model 5 in the same table (Table 5). Thus, Hypothesis 1 was supported overall. As displayed in Fig. 1A and B, the moderating effects of gender egalitarianism and egalitarianism were contrary to our prediction as the cultural value of masculinity appears not to have a significant moderating effect.

To test Hypothesis 2, we examined the odds ratio for the interaction between individualism and preference for self-employment, which is shown in Model 2, Table 6. The odds ratio was greater than 1 (OR = 1.89) and statistically significant ($p < 0.001$). The coefficient for the interaction between in-group collectivism and preference for self-employment, illustrated in Model 4, Table 6, was significant ($p < 0.001$) and smaller than 1 (OR = 0.52). Lastly, as shown in Model 6, Table 6, the interaction between embeddedness and preference for self-employment was significant ($p < 0.001$) and greater than 1 (OR = 1.77).

The results thus suggest that preference for self-employment is more positively associated with actual self-employment in individualistic societies, which are characterized by low in-group collectivism and low embeddedness (see Fig. 2A–C). Thus, Hypothesis 2 was supported.

The test for Hypothesis 3 was performed by using the odds associated with the interaction between power distance and preference for self-employment. As in Model 2, Table 7, the odds ratio associated with power distance (GLOBE society practices) was lower than 1 (OR = 0.56) and statistically significant ($p < 0.001$). Similarly, as Model 4, Table 7 shows, the odds ratio associated with the variable power distance (from Hofstede's cultural framework) was lower than 1 and significant (OR = 0.60; $p < 0.001$). Thereafter, we observed that the odds ratio for the interaction between hierarchy and preference for self-employment (Model 6, Table 7) was lower than 1 (OR = 0.63) and statistically significant ($p < 0.001$). Thus, as seen in Fig. 3A–C, Hypothesis 4 was supported.

Hypothesis 4 was tested by using the odds ratio for the interaction between preference for self-employment and assertiveness (Model 2, Table 8), where the value was lower than 1 (OR = 0.86) and significant ($p < 0.01$). Model 4, Table 8 shows that the interaction between preference for self-employment and humane orientation was lower than 1 (OR = 0.98) but non-significant ($p = 0.69$). Last, Model 6, Table 8 shows the odds ratio for the interaction between preference for self-employment and performance orientation to be lower than 1 (OR = 0.81) and significant ($p < 0.001$). All in all, Hypothesis 4 was supported, as displayed in Fig. 4A and B.

Lastly, Hypothesis 5 was tested using the odds ratio for the interaction between preference for self-employment and uncertainty avoidance, relying on Hofstede cultural framework.[10] The odds ratio for the interaction between uncertainty avoidance (Hofstede's cultural value) and preference for self-employment was lower than 1 (OR = 0.69) and significant ($p < 0.001$) (Model 8, Table 8). This provides support for Hypothesis 5 (see Fig. 4C).

4.2.1. Robustness checks

To rule out the potential presence of bias contaminating our results, we also conducted additional robustness checks. First, we recognized the possibility that preference for entrepreneurship might be endogenous in the model that explains actual entrepreneurship. Thus, consistent with previous studies (e.g., Autio et al., 2013), we adopted Heckman's (1979) procedure and estimated a two-step model. We first estimated a selection equation in

[10] We decided to do so because the uncertainty avoidance measurements in Hofstede and GLOBE capture very different components of the uncertainty avoidance construct, and Hofstede's measure of uncertainty avoidance may have a stronger impact on levels of entrepreneurial activities within a country culture (e.g., Venaik & Brewer, 2010).

Table 7
Multi-level model with Bernoulli outcome: Fully conditional model (level-1 and level-2 conditional).

	Hypothesis 3					
Fixed Effect	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR	Model 5 OR	Model 6 OR
Intercept	0.04***	0.04***	0.04***	0.04***	0.03***	0.03***
Age	1.09***	1.09***	1.09***	1.09***	1.09***	1.09***
Age (squared)	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***
Education	0.96***	0.96***	0.96***	0.96***	0.96***	0.96***
Married	1.15**	1.16**	1.15**	1.16**	1.15**	1.15**
Male	1.21	1.18	1.21	1.22	1.21	1.22
Country-level Controls						
Self-employed-friendly regulation	0.95	0.95	0.95	0.95	0.92*	0.92*
Per Capita GDP (PPP)	1.01	1.02	1.03	1.02	0.95	0.95
Developed country	1.77	1.71	1.74	1.78	2.02*	2.06*
Control of corruption	0.96	0.94	0.98	0.99	1.32	1.36
Population (millions)	0.96	0.95	0.96	0.95	0.91	0.91
Cross-level Main Effect						
Preference	5.90***	6.36***	5.90***	6.06***	5.90***	6.32***
Power distance[a]	0.95	1.45*				
Power distance[b]			1.01	1.52*		
Hierarchy					1.41*	2.01***
Cross-level interactions						
Pref. *Power distance		0.56***				
Pref. *Power distance				0.60***		
Pref. *Hierarchy						0.63***
λ (Inverse Mills' ratio)	0.64	0.60	0.63	0.68	0.63	0.67
Random Effects						
u_0	0.33	0.35	0.33	0.36	0.27	0.27
Model Fit Statistics						
AIC	14787	14676	14787	14692	14782	14694
BIC	14906	14803	14906	14819	14901	14821

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, †$p < 0.1$ Two-tailed tests. Pref. denotes Preference for Self-employment. VC denotes Variance Components; AIC denotes Akaike's information criterion; BIC denotes Bayesian information criterion; a: GLOBE Society Practices; b: Hofstede's cultural framework.

order to predict preference for self-employment. Several relevant variables were entered in the selection equation, including demographic variables such as, age, years of formal education, and marital status, which have been found to affect expressed preference for entrepreneurship (e.g., Grilo & Irigoyen, 2006; Liñán & Chen, 2009; Moriano et al., 2011). In addition, level of satisfaction with one's current job (i.e., job satisfaction) was included in the selection equation in order to account for the possibility that an individual's expressed-preference for self-employment may be a mere emotional reaction to the level of satisfaction (or dissatisfaction) with that individual's current occupation (Grilo & Irigoyen, 2006; Verheul et al., 2012). Last, we included lagged level of unemployment in each respondent's country (i.e., unemployment in 2004) and lagged per capita GDP expressed in US dollars at purchasing power parity (PPP) (i.e., GDP in 2004). We then derived from our selection equation the inverse Mill's ratio (λ), which was used as a control variable in our focal analysis (Heckman, 1979). All in all, the results suggest that our analyses are not significantly threatened by an endogeneity bias. However, to rule out the potential presence of additional biases contaminating our results, we conducted an additional robustness checks (see Appendix A for more details). The results of our robustness checks were consistent overall with the results of our main analysis.[11]

5. Discussion and conclusion

The results of our study show that expressed preference for entrepreneurship is positively associated with actual behavior. In fact, actual entrepreneurship is even more likely to occur in societies where cultural cognitions provide a form of moral approval and support for entrepreneurial activities. Additionally, entrepreneurial activities are encouraged and morally approved of in societies where the shared values are high egalitarianism, high individualism, high embeddedness, high performance orientation, high tolerance for uncertainty, and low tolerance for unequal distribution of power. Hence, preference for self-employment is more likely to be acted upon in such societies.

However, contrary to our predictions, preference for self-employment in low assertive societies is less likely to result in actual self-employment, and high hierarchy weakens the relationship between preference for entrepreneurship and actual entrepreneurship. On the one hand, these unexpected results suggest further support for the view that culture does affect entrepreneurship (Cullen et al., 2014; Mitchell et al., 2002; Thomas & Mueller, 2000). On the other hand, we can infer from prior research that in what would be expected to be non-entrepreneurial cultures (e.g., high in hierarchy and low in assertiveness), entrepreneurial individuals may have a sense of dissatisfaction with the dominant culture cognition, which may drive them away from hierarchically determined collectivistic behaviors and toward more individualistic entrepreneurial ones (Bullough et al., 2014; Pinillos & Reyes, 2011). In addition, based upon recent empirical studies (Bullough et al., 2014; Cullen et al., 2014; Pinillos & Reyes, 2011), we can speculate that the dominant culture cognitive system in a society may shape individuals' behaviors concurrently with the normative and the regulatory systems (De Clercq et al., 2010; Scott, 2000; Valdez & Richardson, 2013). That is, the three pillar institutions may have a combined effect.

We acknowledge that the investigation of the extent to which the regulative and normative pillars provided by institutions interact with the dominant culture cognition in a country and creates environments that facilitate (or hinder) self-employment is a promising topic.[12] However, this is beyond the scope of this study. We recognize the critical influence institutional factors (beyond culture-cognitive elements) may have on the nexus between preference and actual self-employment. Therefore, in our multilevel analyses, we controlled for several country-level indicators (proxies for normative and regulative pillar institutions). Future research may use sets of institutional and cultural factors to develop a finer-grained categorization of entrepreneurship-friendly (or unfriendly) environments.

In our study, we accounted for the multilevel nature of our data by relying on multilevel logistic models, and we strove to overcome the weakness of competing cultural frameworks by relying on a meta-cultural approach. The statistical technique adopted in our study (i.e., HLM) partially addresses one of the limitations connected with our dataset, namely the non-independency of the observations (i.e., respondents are nested into countries), and this may be caused by the different data collection modes and incentives to participant adopted across countries. However, this research is not free from limitations.

First, the cross-sectional nature of our data drawn from ISSP 2005 limited our ability to infer causality in the relationship. Future research should examine the link between preference for entrepreneurship and actual behavior in an experimental study. Second, there is a possibility that preference for self-employment may be endogenous in a model that explains actual self-employment. To address this risk, we adopted

[11] We are grateful to an anonymous reviewer for suggesting the need to control for the possibility that the relationship between preference and actual self-employment may be different for immigrant entrepreneurs and native-born citizens. The iteration of our hypotheses testing on a sample of native-born citizens suggests the validity of our findings. Additional details concerning the robustness check are provided in the Appendix A.

[12] We are grateful to an anonymous reviewer for pointing out this fruitful avenue for future research.

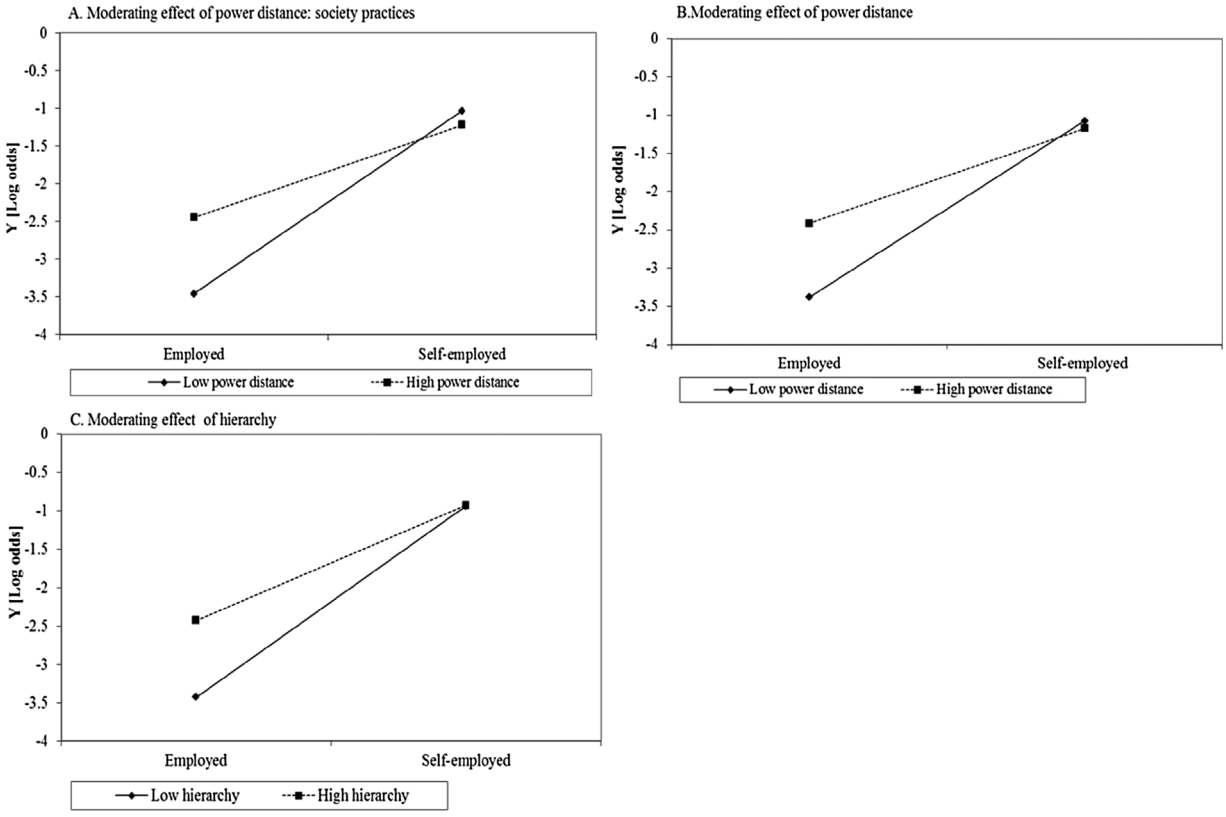

Fig. 3. Moderation effect of power distance and hierarchy (Hypothesis 3).

Table 8
Multi-level Model with Bernoulli outcome: Fully conditional model (level-1 and level-2 conditional).

	Hypothesis 4							
Fixed Effect	Model 1 OR	Model 2 OR	Model 3 OR	Model 4 OR	Model 5 OR	Model 6 OR	Model 7 OR	Model 8 OR
Intercept	0.03***	0.04***	0.03***	0.03***	0.04***	0.04***	0.03***	0.03***
Age	1.09***	1.09***	1.09***	1.09***	1.09***	1.09***	1.09***	1.09***
Age (squared)	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***	0.99***
Education	0.96***	0.96***	0.96***	0.96***	0.96***	0.96***	0.96***	0.96***
Married	1.15**	1.15**	1.15**	1.15**	1.15**	1.15**	1.15**	1.14**
Male	1.23	1.22	1.24	1.24	1.19	1.19	1.21	1.19
Country-level Controls								
Self-employed-friendly regulation	0.94	0.95	.95†	.95†	.95†	.95†	0.96	0.95
Per capita GDP (PPP)	1.01	1.02	0.81	0.81	0.84	0.84	0.89	0.89
Developed country	1.90†	1.89	2.13*	2.13*	1.96*	1.99*	2.25*	2.25*
Control of corruption	0.97	0.97	1.20	1.20	1.02	1.04	0.89	0.87
Population (millions)	0.98	0.99	1.01	1.00	0.93	0.93	0.96	0.94
Cross-level Main Effect								
Preference	5.91***	5.87***	5.90***	5.91***	5.88***	6.08***	5.90***	6.04***
Assertiveness	0.89	0.99						
Humane orientation			1.35**	1.37**				
Performance orientation					1.51***	1.77***		
Uncertainty avoidance[b]							0.76*	0.99
Cross-level interactions								
Pref.*Assertiveness		0.86**						
Pref. *Humane orientation				0.98				
Pref. *Performance orientation						0.81***		
Pref. *Uncertainty avoidance[b]								0.69***
λ (Inverse Mills' ratio)	0.67	0.66	0.69	0.70	0.59	0.59	0.63	0.59
Random Effects								
u_0	0.32	0.32	0.24	0.24	0.19	0.19	0.28	0.28
Model Fit Statistics								
AIC	14786	14780	14780	14782	14775	14762	14783	14732
BIC	14905	14907	14899	14909	14894	14889	14903	14859

*** $p < 0.001$, **$p < 0.01$, * $p < 0.05$, †$p < 0.1$ Two-tailed tests. Pref. denotes Preference for Self-employment; VC denotes Variance Components; AIC denotes Akaike's information criterion; BIC denotes Bayesian information criterion b: Hofstede's cultural framework.

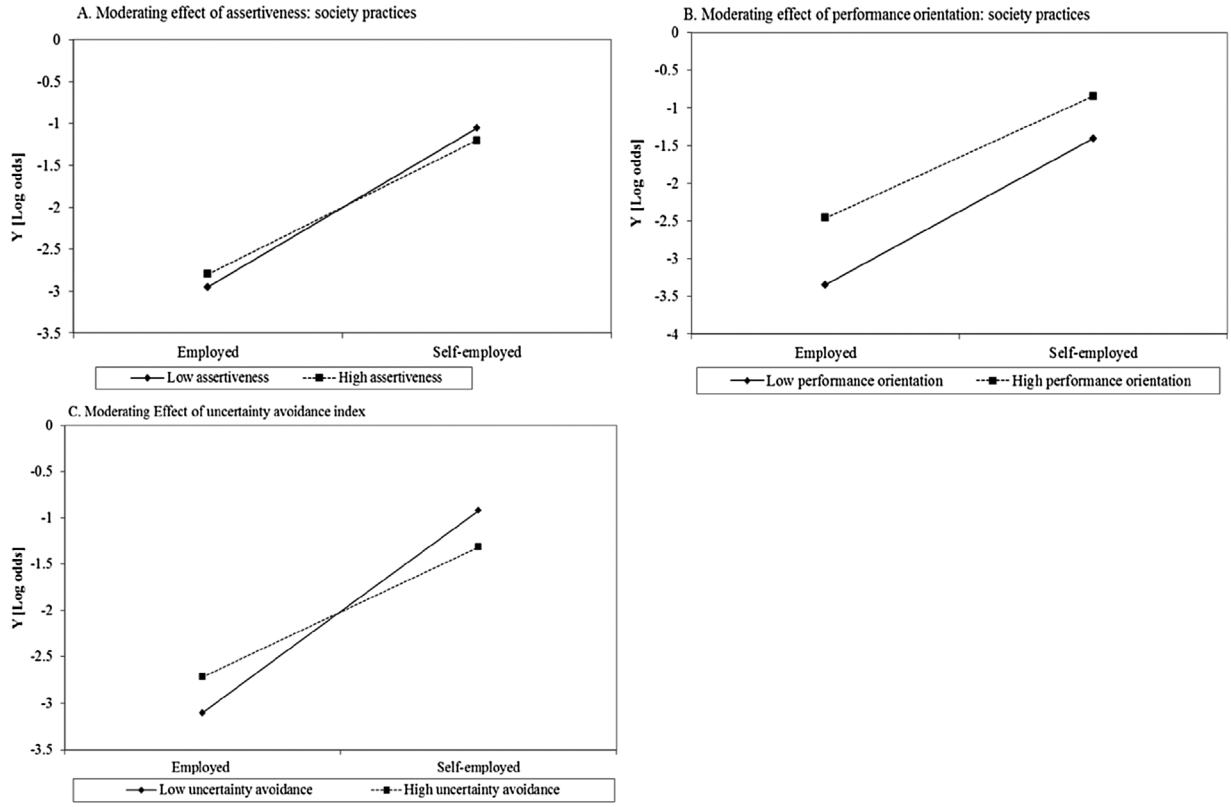

Fig. 4. Moderating effect of assertiveness, performance orientation, and uncertainty avoidance (Hypothesis 4 and Hypothesis 5).

Heckman's (1979) two stage-procedure, as described above. Third, our ability to control whether a respondent was a native citizen of a particular country or an immigrant was partially constrained by the availability of data in the ISSP 2005 dataset as we were able to detect only those respondents who were presumed to be immigrants (see Appendix A for further details). Studies have shown that immigrants are more likely to pursue entrepreneurial goals (e.g., Kniffin & Hanks, 2013). Furthermore, immigrants who may embrace two cultures (i.e., be bi-cultural) may also respond differently to the institutional elements in the host country when compared with their non-immigrant counterparts. Therefore, the investigation of the influence of the dominant culture within the host country on the entrepreneurial cognition of immigrant entrepreneurs represents a fruitful avenue for future studies. However, scholars should be aware that data concerning respondents' nationality, ethnic group membership, or identity are partially missing from the ISSP 2005.

This study contributes to the international entrepreneurship and more generally the international business literatures. First, we heeded the call made in previous studies (e.g., Hauff et al., 2015; Walter & Block, 2016). That is, we integrated individual-level cognitions and between-nation variation in cultural values to fully understand how the culture-cognitive elements of institutions affect the link between preference for entrepreneurship and actual behavior. Therefore, we offer a contextualization of the entrepreneurial process across several countries representing multiple cultural clusters.

Second, our meta-cultural approach extends previous studies (e.g., Hauff et al., 2015) which suggested that international business scholars should account for the effect of multiple cultural dimensions (beyond Hofstede's) and of different measurement concepts of culture on organizational phenomena. Unlike those of previous studies (Blanchflower et al., 2001; Grilo & Irigoyen, 2006), our findings suggest that the entrepreneurship preference-behavior relationship varies across cultures but not necessarily across countries. Furthermore, our sample includes respondents from both developing and developed economies, geographically dispersed across the globe, and representing an array of cultural clusters (House et al., 2002; Liñán & Fernández-Serrano, 2014Ronen & Shenkar, 1985). Thus, we achieved high external validity.

In studying the relationship between preference for and actual entrepreneurship, we partially built on Valdez and Richardson's (2013) findings, who found that "a society's normative, cultural-cognitive, and regulative institutions are related to entrepreneurial activity" (p. 1149). More specifically, we focus directly on one of the pillar institutions, namely the cultural cognition system. Our results suggest that national culture significantly shapes the relationship between entrepreneurship intention and actual entrepreneurship even when controlling for several indicators that capture the regulatory and normative environments. Thus, cross-cultural researchers would do well to adapt our multi-level approach if they wish to explain and predict the effect of culture on the link between expressed preference for and actual behavior as regards self-employment.

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Appendix A

Robustness check

First, we are sensitive to the fact that these studies making the case for the relevance of national contexts in predicting entrepreneurship (e.g., De Clercq et al., 2010; Stephan et al., 2014). Thus, in a first iteration of our analyses, we focused on testing for the moderating effects of the dominant cultural cognition on the relationship between latent and actual entrepreneurship. Subsequently, to address the potential presence of omitted variable bias, we included a series of country-level controls in the main data analyses. The tables reported in our Method section present the results of our multi-level analyses, including all such country-level controls. As our Results section shows, even after including a series of second-level controls, the moderating effect of the dominant cultural cognition remains significant.

Second, we acknowledge that it is possible that some of the respondents to the ISSP 2005 survey may be non-native citizens. This may bias our results because immigrant and native citizen may be differently influenced by the dominant cultural cognition of the society in which they live (Silver & McCurdy 2008) as immigrant respondents may have a cultural background that is inconsistent with the dominant culture of the host country (Hauff et al., 2015). Furthermore, immigrants may have undergone processes of acculturation both in their home country and in their host country. As a result, they may have more than one set of values and beliefs (e.g., a bicultural identity). Thus, they may have a positive attitude toward entrepreneurship intentions or behaviors despite having lived in a non-entrepreneurial society (Dheer, 2016).

To address this particular issue, we followed a procedure previously used by other researchers (e.g., Hauff et al., 2015). First, we strove to identify and then remove immigrant respondents from our sample. Second, we reiterated our analyses on a sub-sample of native citizens only. More specifically, following Hauff et al., we omitted from our robustness analyses any respondent with a nationality, ethnic group membership, or identity inconsistent with the intended cultural group. For example, respondents who claimed that their nationality was Indian and that their ethnicity was Hindi, Urdu, Gujarati, or Tamil were presumed to be immigrants and left out of the USA sample. We repeated the process country by country for all observations in our sample. We flagged as presumptive immigrants and then filtered out only those respondents that displayed the type of inconsistency described above. Among the respondents in our robustness check sample, 19,635 (94.6%) were flagged as non-immigrant and 1,120 (5.40%) were flagged as presumptive immigrants. Our focal analyses performed on the robustness check sample provide support for our main findings. The results of our robustness check are provided in Table A1. As shown in Table A1 the significance levels and directionality of our parameter estimates were consistent overall with the results obtained from our main analysis.

While helpful, our robustness check was partially constrained by the availability of data. Specifically, we were only able to detect respondents presumed to be immigrants. Furthermore, data concerning respondents' nationality, ethnic group membership, or identity were partially missing from the ISSP 2005. Nevertheless, we deemed the effort worthwhile as part of our attempt to strengthen the validly of our empirical evidence. All in all, the results of this robustness check are consistent with our main analyses, thus suggesting that our results are not substantially biased.

ISSP member countries and representative organization in each country

The ISSP is a cross-national collaboration among 47 member-countries that develops annual programs geared at collecting cross-national data concerning topics relevant to social science (Haller et al., 2009). Table A2 below shows those organizations acting as ISSP representative in each of the participating countries.

Table A1
Multi-level model with Bernoulli outcome: Fully conditional model (level-1 and level-2 conditional) sample of native citizens only.

	Model[a]	Preference	Culture main effect	Cross level interaction	Intercept	λ (Inverse Mills' ratio)
Hypothesis 1	Pref. *Masculinity	6.01***	1.03	0.98	0.04***	0.54
	Pref. *Gender egalitarianism	6.72***	0.52***	1.46***	0.05***	0.46
	Pref. *Egalitarianism	6.09***	0.65*	1.44***	0.04***	0.59
Hypothesis 2	Pref.*Individualism	7.48***	0.39***	1.99***	0.03***	0.62
	Pref. *In-group collectivism	6.92***	2.66***	0.51***	0.04***	0.54
	Pref. *Embeddedness	6.28***	0.42**	1.76***	0.03***	0.58
Hypothesis 3	Pref. *Power distance[b]	6.56***	1.51*	0.54***	0.04***	0.51
	Pref. *Power distance[c]	6.19***	1.61*	0.59***	0.04***	0.58
	Pref. *Hierarchy	6.42***	2.03***	0.63***	0.03***	0.61
Hypothesis 4	Pref. *Assertiveness	5.99***	0.91	0.87**	0.04***	0.57
	Pref. *Humane orientation	6.01***	1.40**	1.0	0.03***	0.56
	Pref. *Performance orientation	6.15***	1.73***	0.82**	0.04***	0.53
Hypothesis 5	Pref. *Uncertainty avoidance[c]	6.22***	1.03	0.67***	0.03***	0.52

Notes: a: Control variables in the outcome equation are as follows: age, age (squared), education, marital status, male, self-employed-friendly regulation, per capita GDP (PPP), developed country, control of corruption, and population (millions). Pref. denotes Preference for Self-employment; b: GLOBE Society practices; c: Hofstede's cultural framework. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.1$; Two-tailed tests.

Table A2
ISSP member-organizations for the countries represented in our sample.

Country	Organization	Country	Organization	Country	Organization
Australia	School of Demography, Australian National University	Israel	B. I. Cohen Institute for Public Opinion Research, Tel Aviv University	South Africa	Human Science Research Council (HSRC)
Canada	Carleton University, Ottawa.	Japan	NHK, Broadcasting Culture Research Institute, Public Opinion Research Division	South Korea	Survey Research Center, Sungkyunkwan University
Denmark	Department of political Science, Aalborg University	Mexico	Institute of Marketing and Opinion	Spain	ASEP and CIS (Center for Sociological Research)
Finland	Finnish Social Science Data Archive, University of Tampere	New Zealand	Centre of Methods and Policy Application in the Social Sciences (COMPASS), University of Auckland	Sweden	Department of Sociology, Umeå University
France	PACTE, Institut d'Études Politiques de Grenoble, Domaine Universitaire	Philippines	Social Weather Stations	Switzerland	FORS (Swiss Foundation for Research in the Social Sciences)
Germany	GESIS, Leibniz Institute for the Social Sciences	Portugal	TNS (Market Research Service)-Euroteste, Lisbon	Taiwan	Academia Sinica: Institute of Sociology, Center for Survey Research
Hungary	TÁRKI RT Social Research Institute	Russia	Levada Center	United Kingdom	NatCen Social Research
Ireland	Economic and Social Research Institute, Dublin	Slovenia	Public Opinion and Mass Communications Research Centre, University of Ljubljana	United States	NORC (National Opinion Research Center)

Table A3
Evidence supporting overlaps among country culture scores from competing cultural models.

Cultural dimensions	Evidences for the overlaps among cultural dimensions	References
Gender egalitarianism, egalitarianism, and masculinity	• In egalitarian societies, individuals cooperate to pursue common goods. Entrepreneurship is not discriminated against. • Masculinity is positively related to entrepreneurship. Masculine societies value the acquisition of money and goods.	Hauff et al. (2015); Hofstede, (1980); Liñán and Fernández-Serrano (2014); McGrath et al. (1992)
Collectivism, in-group collectivism, and embeddedness	• Collectivism is highly correlated with embeddedness • Collectivism and embeddedness tap into similar underlying constructs • The terms "collectivism" and "embeddedness" have been used interchangeably in the literature • In-group collectivism and collectivism are similar in many respects. Their definitions present significant similarities.	Hofstede (2006); Knafo et al. (2009); Oyserman et al. (2002); Saeed et al. (2014); Schwartz (2003); Smith et al. (2002).
Power distance and hierarchy	• Hierarchical societies are characterized by high power distance and high hierarchy scores • In societies with high-hierarchy culture scores, individuals aim to preserve the existing power structure. Unequal distribution of power and roles within the society is considered legitimate. • Power differences between individuals in societies with high-hierarchy culture scores govern economic actions.	De Clercq et al. (2013); Liñán & Fernández-Serrano (2014); Saeed et al. (2014); Schwartz (1994a).
Humane orientation, performance orientation, and assertiveness	• Performance orientation and assertiveness load on the same higher-order factor • Humane orientation and assertiveness are typical of socially supportive societies • Humane orientation, performance orientation, and assertiveness displayed overlap in a comparison among multiple country-level culture scores	Hofstede (2006); Posthuma et al. (2014); Stephan and Uhlaner (2010).

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