

Engagement in Entrepreneurship in Emerging Economies:

Interactive Effects of Individual-Level Factors and Institutional Conditions

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Abstract

This paper examines individuals' engagement in entrepreneurship in emerging economies.

We conceive of such engagement as encompassing opportunity discovery, evaluation, and exploitation. We investigate the influence of individuals' household income and level of education on their engagement in entrepreneurship, as well as the interaction effects between these individual-level factors and country-level regulatory, cognitive, and normative institutions. We test our hypotheses on a multi-source dataset from 22 emerging economies using a multilevel analysis technique. Our results indicate that the direct effect of individuals' household income on their engagement in entrepreneurship is persistent, regardless of institutional conditions; but the influence of education level varies contingent upon various institutional conditions.

Keywords: Comparative International Entrepreneurship; Institutions; Entrepreneurship in Emerging Economies; Multilevel Analysis; Entrepreneurial Process

1. Introduction

The emergence of new businesses involves the discovery, evaluation, and exploitation of opportunities by individuals (Sarason, Dean, & Dillard, 2006; Shane & Venkataraman, 2000). Opportunity recognition and evaluation are critical mechanisms that precede the emergence of new businesses (Eckhardt & Shane, 2003; Haynie, Shepherd, & McMullen, 2009). However, comparative entrepreneurship research tends to concentrate on explaining differences in actual new business creation (Bowen & De Clercq 2008; McMullen, Bagby, & Palich, 2008), without acknowledging cross-country variations in the complete set of activities that encompass new business creation. Moreover, prior research tends to use either a micro- or macro-oriented approach to studying these phenomena, rarely integrating the two, which may explain the inconsistent findings across some studies (Dimov, 2007; Shepherd, 2010). Individuals' engagement in opportunity recognition, evaluation, and exploitation is a joint function of both individual and environmental factors (Shane & Venkataraman, 2000), as well as cross-level interactions between the two (Autio & Acs, 2010). A multilevel approach is thus needed to understand how contextual factors may encourage or impede individual characteristics to be leveraged into entrepreneurship (Hitt, Beamish, Jackson, & Mathieu, 2007; Kiss, Danis, & Cavusgil, 2012; Shepherd, 2010).

To address these important gaps, we examine how various macro-level institutional conditions may help direct individual-level financial and human capital toward entrepreneurship. On one hand, one of the key research issues of development economics is how individual and institutional factors simultaneously explain entrepreneurship, specifically, how various institutions can encourage a country's resourceful and educated individuals toward entrepreneurial activities (e.g., Baumol, 1990; De Clercq, Meuleman, & Wright, 2012; Dias &

McDermott, 2006; King & Levine, 1993; Murphy, Shleifer, & Vishny, 1991). On the other hand, the social stratification perspective (De Clercq & Dakhli, 2009; Weber, 1978) views entrepreneurship as a tool for social mobility—that is, a social ladder that less financially endowed or less educated individuals can utilize to move up to the upper stratum. In this view, institutional arrangements that favor entrepreneurial activities of a country's elites can be problematic, as they may increase social inequality.

We believe that emerging economies provide a particularly meaningful setting for investigating such interplay. Emerging economies present a unique context for studying the interactions between micro- and macro-level factors, considering the resource constraints (Hoskisson, Eden, Lau, & Wright, 2000; Lau & Bruton, 2011) and institutional hurdles (Lau & Busenitz, 2001; Tan, 2002) that many individuals in these countries need to overcome, as well as the stark variation in their institutions (Ahlstrom & Bruton, 2006; Bruton, Ahlstrom, & Obloj, 2008; Kiss et al., 2012). Thus, it is of paramount importance to study the implications of these potential impediments, given that entrepreneurship is crucial for the economic development and growth of emerging economies (Beck, Demirguc-Kunt, & Levine, 2005; Bruton et al., 2008).

In all, we aim to make the following contributions. First, our study investigates the influence of the interplay between individual-level factors and institutional conditions on entrepreneurship in emerging economies, addressing recent calls for multilevel research in entrepreneurship (Shepherd, 2010), particularly in the emerging economies context (Kiss et al., 2012; Lau & Bruton, 2011). Our study also extends research on entrepreneurship in emerging economies by investigating a wider set of countries than is typically the case, which provides a basis for more generalizable cross-country analyses and comparisons (cf. Bruton et al., 2008; Kiss et al., 2012). In so doing, our study examines whether institutional theory-based arguments

also hold in the emerging economies context, thereby testing the boundary conditions of these arguments.

2. Theory and hypotheses

Actual new business creation encompasses individuals' engagement in opportunity discovery, evaluation, and exploitation (Haynie et al., 2009; Shane & Venkataraman, 2000). First, opportunity discovery refers to the phase when individuals perceive the existence of entrepreneurial opportunities. The primary activities at this stage are recognition and interpretation (Sarason et al., 2006). The second phase, opportunity evaluation, is a future-focused process through which entrepreneurs evaluate the attractiveness of an opportunity in terms of its potential benefits to them; at this stage, the specific opportunity tends to take a first-person perspective (i.e., an opportunity "for me") instead of a more general third-person view (Haynie et al., 2009). Extant research has tended to focus on what occurs *after* opportunities are discovered or evaluated (Shane 2000), even though such ex-post examinations may be prone to biases because they over-emphasize opportunities that have been successfully exploited (Davidsson & Honig, 2003). This study takes a more comprehensive view by acknowledging that entrepreneurship encompasses a combination of the activities of opportunity discovery, evaluation, and exploitation (Sarason et al., 2006; Shane & Venkataraman, 2000).

Any country's level of entrepreneurship is crucial for its economic development and growth (Baumol, 1990; Baumol & Strom, 2007; Schmitz, 1989), but this is particularly the case in less developed economies (Bruton et al., 2008). On the one hand, one of the key research questions in development economics is how to direct a country's resources into new or entrepreneurial activities that improve the current constellation of economic activities and

contribute to a country's prosperity (King & Levine, 1993; Murphy, Shleifer, & Vishny, 1991). The literature that relates entrepreneurship to economic development typically adopts a macro-level approach, highlighting the importance of macro-level institutions, such as government policy, in encouraging entrepreneurship (e.g., Baumol, 1990; Dias & McDermott, 2006; King & Levine 1993). However, many of the key resources needed for entrepreneurial activities, such as financial and human capital, reside with individuals (Arenius & De Clercq, 2005; Autio & Acs, 2010; Shane & Venkataraman, 2000); therefore, an important issue is the extent to which individuals' financial and human capital can be channeled toward entrepreneurship. This issue is particularly salient in emerging economies, where individual resource exploitation is often hampered by institutional constraints (Lau & Busenitz, 2001; Tan, 2002). In this study, we focus on financial capital (household income) and human capital (level of education) (cf. Autio & Acs, 2010) as two key individual resources. This focus aligns with a central concern of development economics in terms of how the financial and human resource bases of a country's constituents can be channeled into value-creating entrepreneurial activities (Dias & McDermott, 2006; Iyigun & Owen, 1998; King & Levine 1993; Murphy et al., 1991). In particular, understanding how the broader institutional context can steer individuals with high levels of financial or human capital toward entrepreneurial activities can be beneficial to a country's economic development, particularly in emerging economies.

On the other hand, income and education levels represent two key levers of social stratification, or the segmentation of society according to people's financial wealth and educational credentials (De Clercq & Dakhli, 2009; Weber, 1978). Entrepreneurial activities can help people move from low to high status positions in society (Alvord, Brown, & Letts, 2004), and thus be a tool for social mobility. However, people with low income or limited education

tend to encounter significant obstacles to identifying and seizing entrepreneurial opportunities (Shelton, 2010). The extent to which a country's institutions favor individuals with high levels of income or education in terms of their engagement in entrepreneurship, may present a significant hurdle for social mobility via entrepreneurship for people who have *lower* levels of such individual resources, resulting in greater levels of inequality. As such, our investigation of the influence of household income and education on entrepreneurship, and the cross-level moderating effects of the country's institutional context, can shed much-needed light on the tension between economic development and social mobility, in terms of the usefulness of individual resources for entrepreneurship in emerging countries. In particular, while the economic development approach suggests that favorable institutional conditions are beneficial for exploiting individuals' existing resource endowments, the social stratification approach is concerned with how such resource exploitation can widen the gap between 'successful' entrepreneurs and those who cannot benefit from favorable institutional conditions because of their initial resource deficiencies.

Finally, our consideration of the interplay between household income and education level on the one hand and institutional conditions on the other, acknowledges some inconsistencies of the findings in previous research. For example, with respect to the effect of household income, some studies have found no significant association between household income or wealth and the likelihood of becoming an entrepreneur (Hurst & Lusardi, 2004; Kim et al., 2006) whereas others suggest a strong positive effect of individual wealth on entrepreneurship (De Clercq, Lim, & Oh, 2013). Similarly, with respect to the effect of education, empirical work undertaken in transitional economies in Central and Eastern Europe has revealed that individuals' formal education may not necessarily predict success in entrepreneurial activities (Manev et al., 2005).

Thus, the relationships between individuals' household income and education levels and their engagement in entrepreneurship may depend on other variables, including characteristics of the broader institutional environment (Autio & Acs, 2010; Terjesen & Szerb, 2008). Our multilevel conceptual model is depicted in Figure 1.

Insert Figure 1 about here

2.1. Individual-level financial and human capital and engagement in entrepreneurship

Information pertaining to entrepreneurial opportunities is not uniformly available (Hayek, 1945), so individually idiosyncratic knowledge creates a knowledge corridor, which, in turn, facilitates the recognition, evaluation, and exploitation of opportunities (Shane, 2000; Venkataraman, 1997). As such, engagement in entrepreneurship depends significantly on the personal attributes of individual entrepreneurs (Ardichvili, Cardozo, & Ray, 2003; Shane & Venkataraman, 2000). Therefore, the underlying premise of our conceptual model is that individual-level factors influence individuals' engagement in entrepreneurship.

At the individual level, financial capital plays a direct and instrumental role in the entrepreneurial process (Arenius & De Clercq, 2005; Autio & Acs, 2010). First, excess financial capital may motivate individuals to engage in a systematic search for entrepreneurial opportunities (cf. Ardichvili et al., 2003), because its owners may not only be seeking rent-generating opportunities for their capital, but also have more resources to act on them. In particular, household income is one of the key levers for social stratification, such that social ties with high-income groups enhance access to high-quality information about entrepreneurial opportunities (Arenius & De Clercq, 2005; Spilerman, 2000). This type of social stratification effect can be particularly prevalent in emerging economies, given that they are often

characterized by significant gaps between high and low income groups (Adelman, 1975; Walder, 2002).

Another key driver of individuals' engagement in entrepreneurship is their knowledge and skills (Shane, 2000; Shane & Venkataraman, 2000). The entrepreneurship literature documents that general human capital, including education (Arenius & De Clercq, 2005), enhances an individual's ability to identify and enact opportunities (e.g., Davidsson & Honig, 2003; Ucbasaran, Westhead, & Wright, 2008). Education equips individuals with superior information processing abilities, search techniques, and scanning capabilities (Becker, 1975; Shaver & Scott, 1991). These skills, along with the access to the "knowledge corridor" that higher education provides, enable them to recognize a wider range of entrepreneurial opportunities (Dimov & Shepherd, 2005), and evaluate and exploit those opportunities more successfully (Cooper, Gimeno-Gascon, & Woo, 1994; Shane & Venkataraman, 2000). Further, previous research has indicated that individuals' level of education plays a particularly important role in stimulating entrepreneurship in emerging economies, because there are few alternative activities to which human capital can be allocated (Iyigun & Owen, 1998).

Hypotheses 1a & 1b. The level of individuals' (a) financial capital (household income) and (b) human capital (education) relates positively to their engagement in entrepreneurship in emerging economies.

2.2. Moderating effects of institutions

The recognition, evaluation, and exploitation of opportunities is shaped by person–environment interactions (Dimov, 2007; Sarason et al., 2006; Shane & Venkataraman, 2000), such that the broader institutional context affects individuals' leverage of personal resources toward entrepreneurial opportunities (Baker, Gedajlovic, & Lubatkin., 2005; McMullen et al., 2008).

Institutional theory provides an ideal foundation for investigating this person-in-situation argument (Bruton, Ahlstrom, & Li, 2010). Entrepreneurship research in emerging economies, in particular, must consider the role of the institutional context (Bruton et al., 2008). Individuals with high levels of income or education in these economies can choose between becoming rent-seekers or entrepreneurs (Dias & McDermott, 2006), and institutional conditions conducive to entrepreneurial activities may have a significant impact on this choice (Hirschman, 1958).

We adopt Scott's (1995) three-dimensional conceptualization of institutional context (cf. Busenitz, Gomez, & Spencer, 2000) to examine the link between individual-level financial and human capital and engagement in entrepreneurship. The regulatory dimension reflects entrepreneurship-related policies and regulations, including intellectual property protection (Bowen & De Clercq, 2008). The cognitive dimension reflects the degree to which entrepreneurship-related knowledge is dispersed within the country (Busenitz & Lau, 1996); for example, the level of attention paid to the development and growth of new businesses in the country's education system (Levie & Autio, 2008). The normative dimension captures the extent to which people in the country consider entrepreneurship to be a desirable career choice (De Clercq, Danis, & Dakhli, 2010).

2.2.1. Regulatory dimension

The regulatory dimension is closely related to North's (1990) notion of the "rule of the game," and reflects such factors as the legal system and the tax system (Reynolds et al., 2005). This dimension influences entrepreneurial processes through various policy measures (Bruton et al., 2010). Entrepreneurship-friendly regulations and incentives can effectively lower barriers to entrepreneurial activities (Baumol et al., 2009; Baumol & Strom, 2007). However, entrepreneurship in emerging countries is often hampered by excessive bureaucracy (Djankov &

Murrell, 2002), inefficient tax systems (Estrin, Meyer, & Bytchkova, 2006), and failure to deliver on existing legal commitments (DeSoto, 1989; Danis & Shipilov, 2002).

Favorable regulations can be instrumental in alleviating poverty in emerging economies (McMullen, 2011); but their malfunctions are massively problematic for entrepreneurs (DeSoto, 2000). These regulatory challenges include excessive bureaucracy (Djankov & Murrell, 2002), high tax burdens, an inefficient tax collection system (Estrin *et al.*, 2006), volatile legislation, and failure to deliver on existing legal commitments (DeSoto, 1989; Danis & Shipilov, 2002). Such regulatory obstacles likely make it more difficult for individuals to leverage their personal resources toward entrepreneurship, because they obscure the possible pathways by which such resources can generate positive outcomes from new business undertakings. Conversely, in countries with favorable regulatory environments, individual resources may be applied more effectively to recognizing, evaluating, and exploiting entrepreneurial opportunities.

Hypotheses 2a & 2b. The regulatory dimension of the institutional context moderates the relationships between individuals' (a) financial capital and (b) human capital and their engagement in entrepreneurship, such that these relationships are stronger in countries with policies, support programs, and regulations that favor the creation, growth, and management of new businesses.

2.2.2. Cognitive dimension

The cognitive dimension captures the knowledge and cognitive categories that are shared by individuals within the country (Kostova & Roth, 2002). In the context of new business creation, this dimension reflects the extent to which knowledge about entrepreneurship is widely distributed (Busenitz *et al.*, 2000). It is particularly informed by whether the country's education system addresses issues specially related to entrepreneurship, such as new business creation and growth (Bowen & De Clercq, 2008; Levie & Autio, 2008; Reynolds *et al.*, 2005). There are wide

cross-country variations in the availability of such knowledge in emerging economies (Bruton et al., 2008; Manolova, Eunni, & Gyoshev, 2008). For example, entrepreneurship-related knowledge may be sparse in countries that previously constrained private sector-driven entrepreneurship (Danis & Shipilov, 2002). This effect may persist over time, even if certain changes in how people perceive and become knowledgeable about such initiatives can be observed in many emerging economies (Bruton et al., 2008).

We expect that the incremental value of individual-level financial and human capital for individuals' engagement in entrepreneurship will be greater in countries in which the higher education system pays more attention to the creation, growth, and management of new businesses, and where knowledge about these issues is thus likely more developed and dispersed. Attention to entrepreneurship in higher education may not only prepare individuals for developing entrepreneurship-specific skills, but also promote a general awareness of entrepreneurship as a possible career choice (Peterman & Kennedy, 2003; Souitaris, Zerbinati, & Al-Laham, 2007). Significantly, such higher education systems also provide resourceful individuals with a pool of employees who know how to start and run a business, and thus they can stimulate aspiring entrepreneurs to leverage their financial and human capital into their own new business undertakings (Honig, 2004). Conversely, it is more difficult to leverage individuals' financial and human capital into entrepreneurship when the education system neglects entrepreneurship-related issues.

Hypotheses 3a & 3b. The cognitive dimension of the institutional context moderates the relationships between individuals' (a) financial capital and (b) human capital and their engagement in entrepreneurship, such that these relationships are stronger in countries where the higher education system pays greater attention to the creation, growth, and management of new businesses.

2.2.3. Normative dimension

In general terms, the normative dimension of a country's institutional context captures the models of behavior that are accepted through various social interactions (Busenitz et al., 2000; Bruton et al., 2010). For entrepreneurship, this dimension reflects the degree to which individuals believe that starting a new business constitutes a desirable career choice. This choice may depend on whether the country's culture emphasizes such values as personal initiative and self-fulfillment over collective responsibility (Baughn, Chua, & Neupert, 2006), and also how relevant stakeholders, such as the media, perceive these issues (Reynolds et al., 2005).

Individuals' attitudes toward entrepreneurship are often influenced by historical legacies and events (Ireland, Tihanyi, & Webb, 2008). For example, individuals in certain emerging economies, where entrepreneurship has historically been negatively perceived, may consider an entrepreneurial career less favorably (Bruton et al., 2008; Danis & Shipilov, 2002). In some cases, new businesses develop in extra-legal sectors in emerging economies, thus creating a negative perception about entrepreneurship (DeSoto, 1989). Individuals are likely to be discouraged from applying their financial and human capital to entrepreneurial activities in countries where prevailing norms associate entrepreneurial activities with parasitism or profiteering (Hisrich & Grachev, 1993; Manolova et al., 2008). In contrast, it should be more attractive for individuals to leverage their personal resources to discover, evaluate, and exploit entrepreneurial opportunities when society regards new businesses as valuable (Busenitz et al., 2000; Suchman, 1995).

Hypotheses 4a & 4b. The normative dimension of the institutional context moderates the relationships between individuals' (a) financial capital and (b) human capital and their engagement in entrepreneurship, such that these relationships are stronger in countries where entrepreneurial careers are considered desirable.

3. Methods

3.1. Data sources

We derive individual- and country-level data from multiple data sources. We use membership of the Organization for Economic Cooperation and Development (OECD) to select emerging economies from the Global Entrepreneurship Monitor (GEM) dataset, which has been recommended as the criterion for distinguishing between emerging economies and their more advanced counterparts, based on their economic and social status (cf., Buckley, Clegg, Cross, Liu, Voss, & Zheng, 2007; Gubbi, Aulakh, Ray, Sarka, & Chittor, 2010). Further, we reduce potential bias by excluding non-OECD countries classified as “advanced economies” by the International Monetary Fund (IMF); namely, Hong Kong, Israel, Singapore, and Slovenia. Our data include 22 emerging economies: Argentina, Bolivia, Brazil, China, Croatia, Colombia, Ecuador, Egypt, India, Indonesia, Jamaica, Kazakhstan, Macedonia, Malaysia, Philippines, Peru, Romania, Russia, South Africa, Thailand, United Arab Emirates, and Uruguay.

The individual-level variables are derived from the GEM *Adult Population Survey* (APS). The GEM project started in the late 1990s to create harmonized data on perceptions and prevalence of new business activity across countries. These data are rich, reliable, and valid, and the standardized collection procedures assure construct and measurement equivalence (Reynolds et al., 2005). Private market survey firms annually conduct the APS with a representative weighted sample of at least 2,000 adults (18–64 years old) via telephone (or occasionally face-to-face) interviews in each country studied. The number of countries studied has increased gradually, and now includes a significant number of emerging economies. Comparative international entrepreneurship research increasingly relies on these data (e.g., Baughn, Chua, & Neupert, 2006; Bowen & De Clercq, 2008).

Data about each country's institutional conditions come from the *GEM National Expert Survey* (NES), which polls country experts, who represent a broad range of backgrounds and knowledge, about the quality of their country's institutions with respect to entrepreneurship. The NES employs standardized questions and validated measurement scales to assess experts' views of their institutional environment (Reynolds et al., 2005).

In total, our panel data set consists of 36,687 observations from 22 countries over a four-year period (2005–2008). At the country level, our sample has 44 unique data points. The number of data points by country varies: two countries have information for all four years, while nine countries have information for only one year. To reduce potential bias due to an unbalanced panel dataset, we include year fixed effects. Furthermore, none of the countries accounts for more than 10% or less than 1% of the observations, thus ensuring a good balance across countries.

3.2. Measures

3.2.1. Engagement in entrepreneurship

Engagement in entrepreneurship is measured as a multidimensional composite variable, consisting of three formative indicators based on the criteria listed by Jarvis and colleagues (2003, p. 203).³ The three formative indicators, derived from the GEM APS, represent an individual's engagement in either one of three activities that encompass new business creation: discovering, evaluating, and exploiting entrepreneurial opportunities.

³ According to Jarvis et al. (2003: 203), "a construct should be modeled as having formative indicators if: (a) the indicators are viewed as defining characteristics of the construct, (b) changes in the indicators are expected to cause changes in the construct, (c) changes in the construct are not expected to cause changes in the indicators, (d) the indicators do not necessarily share a common theme, (e) eliminating an indicator may alter the conceptual domain of the construct, (f) a change in the value of one of the indicators is not necessarily expected to be associated with a change in all of the other indicators, and (g) the indicators are not expected to have the same antecedents and consequences." Our dependent variable meets these conditions.

First, engagement in discovering entrepreneurial opportunities is measured as a binary variable adopted from the GEM APS, which equals 1 if a person agrees with the following item: “In the next six months there will be good opportunities for starting a business in the area where you live” (Arenius & De Clercq, 2005; Reynolds et al., 2005). This variable indicates the respondent’s general perception of the existence of opportunities (both first-person and third-person, cf. Haynie et al., 2009) and it has been used in previous studies on opportunity recognition (e.g., Arenius & De Clercq, 2005; Kwon & Arenius, 2010). Previous research argues that it is appropriate to use a subjective measure of opportunity recognition, because such perceptions are fundamental features of the entrepreneurial process (Kirzner, 1973; cf. Arenius & Minniti, 2005).

Second, engagement in evaluating entrepreneurial opportunities uses a binary proxy measure which equals 1 when the respondent agrees with at least one of the two following items: “you are, alone, or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others,” or “you are, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years” (Reynolds et al., 2005). This variable indicates initial involvement with first-person opportunities (cf. Haynie et al., 2009).

Finally, engagement in exploiting entrepreneurial opportunities is a binary variable, which equals 1 if the respondent is actively involved in start-up efforts as owner, or if s/he manages and owns a business that is up to 42 months old, and does so to take advantage of a business opportunity, rather than because there are no better work choices. This variable indicates the respondent’s actual involvement in opportunity-driven, early-stage entrepreneurial activity (McMullen et al., 2008).

Given the multidimensionality of the entrepreneurial process, we derived a summative score based on these three variables (cf. MacKenzie, Podsakoff, & Podsakoff, 2011).⁴ The traditional notion of internal reliability does not apply for a composite variable with formative indicators, but Edwards' (2001) adequacy coefficient (R^2_a) can be used to determine construct validity. The adequacy coefficient (R^2_a) value of .50 indicated that half of the variance in the indicators is shared with the construct, which reflects acceptable construct validity (MacKenzie et al., 2011). In addition, all three indicators are significantly related to the composite variable, demonstrating acceptable indicator validity (Bollen & Lennox, 1991).

3.2.2. Financial and human capital

Household income (a facet of financial capital) is a binary variable that equals 1 if a respondent belongs to the upper one-third of his or her country's distribution of household income. This variable was derived from the GEM APS, in which respondents in each country are assigned to a "lower-third," "mid-third," and "high-third" household income category based on the total annual income of the entire household (Autio & Acs, 2010; Minniti & Nardone, 2007; Reynolds et al., 2005). To measure an individual's education level (a facet of human capital), we use a dummy variable derived from the GEM APS which equals 1 if a person has completed post-secondary or higher education.⁵ This approach is consistent with previous research (Aidis, Estrin, & McKiewicz, 2008; Cooper et al., 1994).

3.2.3. Institutional conditions

⁴ We used a least squares regression approach to derive a summative score (DiStefano *et al.*, 2009). Our examination of the validity, univocality, and correlational accuracy, as per Grice (2001), indicated that indeterminacy is not an issue. We also found that the results from a robustness check that used alternative summative scores were generally consistent.

⁵ Our approach using binary variables is consistent with our theoretical foundation (i.e., development economics and social stratification theory) that focuses on the contrast between higher versus lower categories in these variables. In addition, this approach facilitates interpretation of the interactions effects, which are at the center of our theoretical model.

To measure the three institutional conditions, we use validated scales from the GEM NES that have also been used in previous research. The individual items are listed in Table 1, and are assessed on a five-point Likert scale. First, we measure the regulatory dimension of a country's institutional condition as the averaged response to seven GEM NES questions that assess government policies, support programs, and regulations associated with entrepreneurship (De Clercq et al., 2010; Reynolds et al., 2005), as shown in Table 1. Second, entrepreneurship education is the average score of three questions that assess the quality of a country's higher education system with respect to entrepreneurship (Bowen & De Clercq, 2008). The Cronbach's alpha equals .89. Third, the presence of pro-entrepreneurship norms is measured as the average of five questions assessing the desirability of entrepreneurship and entrepreneurial careers within a country (De Clercq et al., 2010). The Cronbach's alpha equals .89.

Insert Table 1 about here

To test the validity of these three dimensions, we run a three-factor confirmatory factor analysis (Anderson & Gerbing, 1988), using AMOS 20. We find support for the convergent validity of the three institutional dimensions in the significance of each of the factor loadings ($t > 2.0$; Gerbing & Anderson, 1988) and in the magnitude of the Average Variance Extracted (AVE) estimates which exceed the critical value of .50 (Bagozzi & Yi, 1988). There is also evidence for the presence of discriminant validity among the three dimensions because (1) none of the confidence intervals for the correlations between three institutional variables includes 1.0 (Anderson & Gerbing, 1988), (2) the three AVE estimates are greater than the squared correlations between the corresponding pairs of institutional variables (Fornell & Larcker, 1981), and (3) we find that the unconstrained model provides a significantly better fit than the

constrained counterpart, for each of the three pairs of institutional variables (Anderson & Gerbing, 1988).

3.2.4. Control variables

We include both individual- and country-level control variables, consistent with prior research that uses multilevel analysis (Autio & Acs, 2010). At the individual-level, we control for *gender* (Aidis et al., 2008; Minniti & Nardone, 2007), measured as a dummy variable (0 = male; 1 = female), and for *age* and *squared age* (cf. Autio & Acs, 2010). We also control for *work status*, which captures whether the respondent is not working, is retired or a student, or is a full- or part-time worker (Arenius & Minniti, 2005; Minniti & Nardone, 2007).

At the country level, we control for five variables. First, we control for the country's level of economic development by including log transformed gross domestic product (GDP) in real (constant) terms (Baughn et al., 2006; Wennekers, van Stel, Thurik, & Reynolds, 2005). We also control for the pace of economic development, measured by GDP growth rate (Hessels, van Gelderen, & Thurik, 2008); information infrastructure, measured by internet users per 100 people; and population growth, measured by annual population growth rate. In addition, we control for the presence of foreign firms, as previous studies have argued that foreign firms may encourage entrepreneurial activity (De Clercq et al., 2010). These variables are adopted from the World Bank's World Development Indicators for each of the years represented in our sample. Including these two variables also helps to account for possible macro-level differences in opportunity structures across countries.

In addition, we also control for the country's overall entrepreneurial climate, measured by the *business ownership rate*, or the percentage of the country's adult population that owns a business that has persisted for at least 42 months (Wennekers et al., 2005). Finally, we control

for the effects of year and region through *year* (a dummy variable that captures year-fixed effects), and *region* (representing one of five region dummies: Africa, Asia, Eastern Europe, Middle East, and South America).

3.3. Data analysis

Our individual-level data are nested within country-level data, so we apply multilevel modeling to explain individual differences while also accounting for cross-level variations. Our multilevel modeling comprised a multilevel, mixed-effects linear regression with a random intercept modeling technique (hierarchical linear model). As noted above, we include time and region fixed effects to account for unobserved characteristics across years and regions that might arise from missing variables (Wooldridge, 2002). This approach is consistent with other multilevel studies (e.g., Autio & Acs, 2010; Martin, Cullen, Johnson, & Parboteeah, 2007).

A multilevel approach has at least two advantages over conventional panel data models. First, multilevel modeling can support a systematic analysis of the effects of variables across multiple levels, as well as of their cross-level interactions (Echambadi, Campbell, & Agarwal, 2006; Guo & Zhao, 2000). Second, ignoring the interdependency between individual- and country-level characteristics can produce biased empirical results because individual characteristics within countries are not independently distributed (Autio & Acs, 2010; Hofmann, 1997). A multilevel approach is not subject to such bias.

4. Results

Table 2 presents the descriptive statistics for the individual-level and country-level variables. In order to reduce possible collinearity problems, we use mean centered variables for the interaction terms. The highest individual inflation factor (3.03) and model variance

inflation factor (1.70) are less than the conservative cut-off value of 5.0 (Studenmund, 1992), so multicollinearity should not be a concern.

Insert Table 2 about here

In Table 3, Model 1 includes only the control variables and Model 2 adds the three institutional conditions. Model 3 adds the two individual-level variables to test Hypotheses 1a and 1b. Models 4, 5, and 6 add the interaction terms between the individual-level variables and the regulatory, cognitive, and normative dimensions of the country-level institutional conditions, respectively. The log-likelihood ratio tests show that including the two individual-level variables (Model 3) and interaction terms (Models 4, 5, and 6) significantly improves model fit. Our auxiliary test results also show that multilevel models are significantly better than non-multilevel models. Thus, our empirical models are statistically sound.

Insert Table 3 about here

The results with only the control variables in Model 1 indicate that an individual's work status (full- or part-time), social ties to entrepreneurs, and a country's business ownership rate (entrepreneurial climate) positively affect an individual's engagement in entrepreneurship. On the other hand, a country's information infrastructure, population growth, and foreign firm presence is negatively associated with individuals' engagement in entrepreneurship. The results also indicate that men are more likely to be engaged in entrepreneurship than women, and show an inverted U-shape relationship between age and such engagement. Interestingly, the level and pace of economic development were not found to be significant indicators of entrepreneurial

engagement. These results are generally consistent across models.⁶ In addition, Model 2 indicates that the country's cognitive institutional condition has a positive direct influence on an individual's engagement in entrepreneurship. Interestingly, the normative condition has a negative direct effect, possibly because very successful entrepreneurial role models could undermine the confidence of potential entrepreneurs who doubt they will be similarly successful in their own business endeavors, and thus be discouraged from launching entrepreneurial ventures. The negative effect of the normative condition in the context of emerging economies may be attributed to the stigma associated with entrepreneurship in some emerging economies such as post-socialist economies (e.g., Kshetri, 2009). The regulatory dimension of countries' institutional condition did not have a significant direct effect on entrepreneurial engagement, over and above all the other factors that were included in the model.

Our hypotheses are tested in Models 3–6. Model 3 indicates positive effects of both individual-level financial capital ($\beta = .063, p < .001$) and human capital ($\beta = .086, p < .001$), supporting Hypothesis 1a and 1b. The results for the moderating role of the institutional conditions in Models 4-6 indicate positive interaction effects between individual-level human capital and the regulatory ($\beta = .069, p < .05$), cognitive ($\beta = .108, p < .05$), and normative ($\beta = .118, p < .01$) conditions, respectively. However, the interaction effects between individual-level financial capital and institutional conditions were generally non-significant, even though the interaction between the regulatory condition and financial capital was marginally significant and positive ($\beta = .056, p < .10$). Thus, we find support for Hypotheses 2b, 3b, and 4b, but not for

⁶ Taken together, these results reveal something about the nature of entrepreneurial engagement in emerging economies. Information infrastructure and foreign firm presence are typically associated with innovation-oriented new business activities, due the facilitation of information exchange and positive knowledge spillover effects, respectively. The negative association between these factors and engagement in entrepreneurship might indicate that the new business activities in our sample were mostly not innovation-driven.

Hypotheses 2a, 3a, and 4a. In all models (Models 1–6), the random intercept parameters are statistically significant, which implies significant variation in the intercept across countries.

5. Discussion

This study contributes to the comparative international entrepreneurship literature by investigating the interplay between individual-level factors and institutional conditions in entrepreneurial opportunity recognition, evaluation, and exploitation. In so doing, it advances understanding of critical, macro-level boundary conditions for successfully applying individual financial capital (household income) and human capital (educational level) to individuals' engagement in the entire entrepreneurial process. Further, we add to entrepreneurship research in emerging economies, by applying a rarely used but potent multilevel modeling technique that explains cross-country differences for a diverse set of such economies (Bruton et al., 2008, Kiss et al., 2012). Overall, our results, based on a multi-source panel data set, provide a more complete understanding of how the financial and human capital held by individuals in emerging economies influences their engagement in entrepreneurship, particularly in terms of how this influence depends on the broader institutional context in which they operate. As expected, we find direct positive effects of individual financial capital (household income) and human capital (education level) on engagement in entrepreneurship. However, the results indicate that the interaction effects between the institutional conditions and individual financial and human capital are more complex than our *a priori* theoretical arguments suggested.

Specifically, we find that *regulatory* condition (i.e., government policy, support programs, and regulations pertaining to the creation, growth, and management of new businesses) has positive moderation effects on the relationship between individuals' human capital and their engagement in entrepreneurship. The interaction plots shown in Figure 2a

indicate that regulatory conditions that favor entrepreneurial activities encourage individuals with higher levels of education to engage in entrepreneurship. This channeling effect is less pronounced when regulatory conditions are less favorable to the creation, growth, and management of new business activities.⁷

Insert Figures 2a–c about here

Figure 2b also supports our institutional theory-based arguments that a country's *cognitive* institution that pays greater attention to entrepreneurship can effectively channel better educated individuals toward entrepreneurship. We expected this channeling effect, given that better educated individuals are more likely to have been exposed to entrepreneurship-friendly education that pays attention to the creation, growth, and management of new businesses. Overall, our results imply that emerging economies should complement a general higher education with entrepreneurship-focused curricula.

We also find that the normative condition of a country's institutional environment (i.e., the perceived desirability of an entrepreneurial career) positively moderates the relationship between individuals' level of education and engagement in entrepreneurship (Figure 2c). In other words, an individual's education level becomes more instrumental for his or her engagement in the entrepreneurial process in emerging economies where the prevailing norms support a career as entrepreneur. In contrast, the incremental effect of educational credentials is subdued in the presence of less favorable normative conditions.

⁷ Individuals' engagement in entrepreneurship is generally higher under the condition of less favorable regulatory condition; however, the direct effect of regulatory condition on individuals' engagement in entrepreneurship is not statistically significant.

The results also reveal that the relationship between individual household income and people's engagement in entrepreneurship does not vary significantly across different regulatory, cognitive, and normative environments. A possible explanation is that the perceived feasibility of, and hence likely engagement in, entrepreneurship requires substantial personal financial capital in the form of household income (Reynolds, 2012; Winborg & Landstrom, 2000), *irrespective of* the presence of a supportive government, availability of relevant knowledge, or favorable norms in the broader institutional environment. This issue may reflect the emerging country context in that the institutions that finance entrepreneurs in these countries tend to be relatively underdeveloped (Ahlstrom and Bruton, 2006, Bruton et al., 2008), which means that individuals have to rely on their household income to fund entrepreneurial undertakings. Overall, these non-significant results indicate that emerging economies may constitute a boundary condition for the institutional theory-based proposition that the conversion of individuals' resources into the discovery, evaluation, and exploitation of entrepreneurial opportunities is influenced by the country's institutional conditions. A country's regulatory, cognitive, and normative conditions positively moderate the relationship between individuals' level of education and engagement in entrepreneurship, but they do *not* affect the instrumentality of individuals' household income in entrepreneurial engagement. We discuss the policy implications of these findings in Section 5.2.

5.1. Limitations and future research

This study is not without limitations. First, our study uses relatively crude proxy measures to operationalize the focal independent variables (household income and education level). However, we believe that there is value in using these variables, in that they are theoretically anchored in development economics as well as social stratification literature. Further, they assess relatively objective phenomena, and were measured with scale anchors that

reflect different item characteristics (i.e., there is no item characteristic effects issue) and different item contexts (i.e., there is no item context effects issue), compared to the assessment of the dependent variable. These characteristics mean that we need be less concerned about common method bias when using a dependent variable that is derived from the same data source (Podsakoff *et al.*, 2003).

Second, our multilevel investigation reveals useful insights regarding the presence of cross-country variations in individuals' participation in entrepreneurship. Nevertheless, future research could adopt alternative approaches that assess individuals' perceptions about specific facets of the institutional conditions studied herein, as well as characteristics of the opportunities themselves. Other useful avenues of future research would be to investigate *why* institutional conditions vary in these emerging economies, and to undertake a cross-sectional comparison of 'high' and 'low' entrepreneurial engagement individuals across different levels of individual resources and institutional conditions (Van der Zwan *et al.*, 2010, 2011). Investigation of the differing roles of institutions and individual-level factors in different stages of the entrepreneurial process of discovery, evaluation, and exploitation of opportunities also warrants future research.⁸

Third, the institutional context shapes the extent to which entrepreneurs recognize opportunities for new businesses (Baker *et al.*, 2005), but entrepreneurs also might influence their institutional environments, particularly in emerging economies that tend to be in flux (Bruton *et al.*, 2008). A longitudinal investigation of the dynamics among individual resources, institutional development, and entrepreneurship is thus warranted. Such longitudinal studies would allow researchers to directly examine how patterns of social mobility influence engagement in entrepreneurship. In a similar vein, the interplay between individuals'

⁸ We acknowledge the reviewers' input on these three future research directions.

engagement in entrepreneurship and their country's pattern of economic development also requires further longitudinal investigation.

5.2. Managerial relevance

These limitations notwithstanding, we believe that this study offers important practical implications. For policy-makers in emerging economies, our findings shed light on the different levers they can use to encourage entrepreneurship. Specifically, several measures are likely to encourage highly educated individuals to engage in entrepreneurship. These are: developing government policy, support programs, and regulations that favor the creation, growth, and management of new businesses; stimulating the higher education system to address entrepreneurship-related topics; and enhancing the perceived desirability of entrepreneurial careers. Incorporating entrepreneurship-related curricula into the higher education system can work particularly well in emerging economies, considering that such a cognitive institution can not only channel well-educated individuals toward entrepreneurial activities, but also be positively associated with entrepreneurial engagement in general (Figure 2b).

While favorable institutional conditions can help leverage individuals' educational credentials into entrepreneurship, the influence of household income is immune to these institutional conditions. In other words, financially affluent individuals are more likely to become entrepreneurs, irrespective of the nature of the cognitive and normative context that surrounds them. In this regard, financial capital may work as a mechanism through which individuals in high-income strata lock-in additional wealth created by new business activities, thereby widening the gap with their less affluent counterparts and perhaps hampering economic mobility between strata. The potency of household income to enhance entrepreneurship, irrespective of the nature of these institutional conditions, suggests that social stratification based

on income might be quite strong and rigid in emerging economies. This scenario may undermine the fair distribution of wealth, an issue that is receiving increasing attention in these economies (Heyns, 2005; Walder, 2002). Policy-makers could use a targeted approach to stimulate the recognition, exploitation, and exploitation of entrepreneurial opportunities, with particular attention to how finance-related policies can help low-income households overcome the hurdles that prevent them from becoming engaged in the entrepreneurial process—if their objective is to increase social mobility.⁹

5.3. Conclusion

This study investigated individuals' engagement in entrepreneurship in emerging economies, as an outcome of the interplay between micro- and macro-level factors. Such attention is warranted, because the interplay between individual-level financial and human capital on one hand, and institutional conditions on the other, may influence individuals' engagement in entrepreneurship in these economies. Our findings indicate that the direct effect of individuals' household income on their engagement in entrepreneurship is persistent, regardless of the institutional context, whereas the instrumentality of higher education for entrepreneurial engagement varies contingent upon the country's regulatory, cognitive, and normative institutional conditions. Accordingly, we hope that this study can be used as a platform for further research into how prospective entrepreneurs in emerging economies can more effectively leverage their individual resources to fulfill their entrepreneurial aspirations.

⁹ Our findings indicate that higher education might be a possible vehicle to overcome the income-based barrier to social mobility. While individuals' level of education and household income are positively correlated (Table 2), these two variables display distinctive patterns when it comes to their instrumentality in entrepreneurial engagement. For example, an effective way to increase social mobility via entrepreneurship could be to develop more entrepreneurship-friendly regulatory, cognitive, and normative institutional environments, and to encourage individuals from low-income households to continue their higher education.

6. References

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Table 1 Measurement items for the three institutional dimensions

	Factor Loading	t-Value
Regulatory condition ($\alpha = 0.92$; CR = 0.93; AVE = 0.64)		
In my country, government policies (e.g., public procurement) consistently favor new firms.	0.769	5.480
In my country, the support for new and growing firms is a high priority for policy at the national government level.	0.878	6.472
In my country, the support for new and growing firms is a high priority for policy at the local government level.	0.896	6.644
In my country, new firms can get most of the required permits and licenses in about a week.	0.728	5.132
In my country, the amount of taxes is <i>not</i> a burden for new and growing firms.	0.776 ^a	--
In my country, taxes and other government regulations are applied to new and growing firms in a predictable and consistent way.	0.786	5.636
In my country, coping with government bureaucracy, regulations, and licensing requirements it is not unduly difficult for new and growing firms.	0.749	5.311
Cognitive condition ($\alpha = 0.89$; CR = 0.90; AVE = 0.74)		
In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms.	0.781	6.288
In my country, the level of business and management education provide good and adequate preparation for starting up and growing new firms.	0.918	7.451
In my country, the vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms.	0.877 ^a	--
Normative condition ($\alpha = 0.89$; CR = 0.90; AVE = 0.66)		
In my country, the creation of new ventures is considered an appropriate way to become rich.	0.786 ^a	--
In my country, most people consider becoming an entrepreneur as a desirable career choice.	0.387	2.567
In my country, successful entrepreneurs have a high level of status and respect.	0.882	6.719
In my country, you will often see stories in the public media about successful entrepreneurs.	0.932	7.218
In my country, most people think of entrepreneurs as competent, resourceful individuals.	0.900	6.903

Notes: ^a Initial loading was fixed to 1 to set the scale of the construct. CR = construct reliability; AVE = average variance extracted.

Table 2 Correlations and summary statistics

Individual-level variables	1	2	3	4	5	6	7	8	9
1. Engagement in entrepreneurship									
2. Financial capital	0.021								
3. Human capital	0.052	0.172							
4. Age	-0.150	-0.032	-0.029						
5. Gender	-0.095	-0.058	-0.020	0.031					
6. Work status: not working	-0.070	-0.090	-0.125	-0.014	0.263				
7. Work status: retired or student	-0.122	-0.014	-0.003	0.049	-0.021	-0.279			
8. Work status: full- or part-time	0.153	0.092	0.116	-0.023	-0.224	-0.707	-0.483		
9. Social ties	0.289	0.070	0.090	-0.122	-0.096	-0.119	-0.062	0.154	
Mean	0.411	0.262	0.291	3.592	1.504	0.290	0.160	0.550	0.435
Standard deviation	1.285	0.440	0.454	0.381	0.500	0.454	0.367	0.497	0.496

Note: Correlations above |0.010| are significant at $p < .05$. Correlations above |0.013| are significant at $p < .01$.

Country-level variables	1	2	3	4	5	6	7	8	9
1. Regulatory condition									
2. Cognitive condition	0.206								
3. Normative condition	0.539	0.174							
4. Level of economic development	0.194	0.072	0.388						
5. Pace of economic development	0.376	0.226	0.162	0.535					
6. Business ownership rate	-0.089	0.043	0.199	0.086	0.006				
7. Information infrastructure	-0.081	-0.048	-0.160	-0.469	-0.442	-0.348			
8. Population growth	-0.387	0.144	-0.392	-0.156	-0.179	-0.235	0.122		
9. Foreign firm presence	0.035	0.068	-0.168	-0.608	-0.262	-0.289	0.594	0.262	
Mean	2.248	2.810	3.471	25.511	1.063	20.229	16.870	0.991	4.484
Standard deviation	0.420	0.303	0.371	1.581	0.030	10.347	11.239	0.008	2.363

Note: Correlations above |0.300| are significant at $p < .05$. Correlations above |0.390| are significant at $p < .01$.

Table 3 Multilevel regression results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Control variables: Individual-level</i>						
Age	2.3330*** (0.3520)	2.3279*** (0.3519)	2.1048*** (0.3529)	2.1183*** (0.3529)	2.0907*** (0.3529)	2.1176*** (0.3529)
Age squared	-0.3718*** (0.0494)	-0.3712*** (0.0494)	-0.3390*** (0.0495)	-0.3409*** (0.0495)	-0.3368*** (0.0495)	-0.3407*** (0.0496)
Gender (female = 1)	-0.1360*** (0.0128)	-0.1363*** (0.0127)	-0.1370*** (0.0128)	-0.1361*** (0.0128)	-0.1366*** (0.0128)	-0.1370*** (0.0128)
Work status: Retired or student	-0.0459* (0.0225)	-0.0492* (0.0225)	-0.0665** (0.0226)	-0.0634** (0.0227)	-0.0663** (0.0226)	-0.0653** (0.0226)
Work status: Full- or part-time	0.1763*** (0.0157)	0.1743*** (0.0158)	0.1549*** (0.0159)	0.1560*** (0.0160)	0.1556*** (0.0160)	0.1553*** (0.0160)
Social ties	0.5759***	0.5751***	0.5643***	0.5653***	0.5639***	0.5644***
<i>Control variables: Country-level</i>						
Level of economic development	-0.0446 (0.0387)	-0.0713 (0.0455)	-0.0711 (0.0454)	-0.0717 (0.0453)	-0.0736 (0.0454)	-0.0714 (0.0448)
Pace of economic development	0.3441 (0.7903)	-0.4978 (0.9888)	-0.5146 (0.9880)	-0.5659 (0.9891)	-0.4934 (0.9879)	-0.4232 (0.9868)
Business ownership rate	0.0254*** (0.0030)	0.0186*** (0.0035)	0.0195*** (0.0035)	0.0195*** (0.0035)	0.0199*** (0.0035)	0.0200*** (0.0035)
Information infrastructure	-0.0055* (0.0027)	-0.0143*** (0.0033)	-0.0137*** (0.0033)	-0.0137*** (0.0033)	-0.0135*** (0.0033)	-0.0135*** (0.0033)
Population growth	-23.6523*** (5.6882)	-18.5494** (6.0914)	-18.5699** (6.1052)	-18.6911** (6.1037)	-17.6475** (6.1207)	-17.5450** (6.0957)
Foreign firm presence	-0.0268** (0.0092)	-0.0304** (0.0100)	-0.0315** (0.0100)	-0.0319** (0.0100)	-0.0322** (0.0100)	-0.0310** (0.0100)
<i>Explanatory variables: Country-level</i>						
Regulatory condition		-0.2048 (0.1272)	-0.1837 (0.1271)	-0.2135+ (0.1276)	-0.1729 (0.1280)	-0.1720 (0.1268)
Cognitive condition		0.3456*** (0.0702)	0.3253*** (0.0702)	0.3279*** (0.0701)	0.2840*** (0.0718)	0.3190*** (0.0701)

Normative condition	-0.2083*	-0.2028*	-0.1966*	-0.1929*	-0.2222*	
	(0.0875)	(0.0874)	(0.0874)	(0.0875)	(0.0879)	
<i>Explanatory variables: Individual-level</i>						
Financial capital (FC)		0.0633***	0.0637***	0.0636***	0.0668***	
		(0.0146)	(0.0147)	(0.0146)	(0.0146)	
Human capital (HC)		0.0858***	0.0842***	0.0817***	0.0853***	
		(0.0150)	(0.0151)	(0.0151)	(0.0150)	
<i>Cross-level interactions</i>						
FC × Regulatory condition			0.0562+			
			(0.0338)			
HC × Regulatory condition			0.0688*			
			(0.0326)			
FC × Cognitive condition				0.0561		
				(0.0524)		
HC × Cognitive condition				0.1078*		
				(0.0501)		
FC × Normative condition					-0.0269	
					(0.0403)	
HC × Normative condition					0.1177**	
					(0.0405)	
<hr/>						
Log of random-effects parameter						
Country (Level 1)	-1.5207***	-1.3623***	-1.3639***	-1.3676***	-1.3659***	-1.3788***
	(0.1599)	(0.1794)	(0.1791)	(0.1785)	(0.1784)	(0.1795)
Individual (Level 2)	0.1253***	0.1248***	0.1239***	0.1238***	0.1238***	0.1238***
	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)
<hr/>						
Log-likelihood	-54,246	-54,232	-54,200	-54,196	-54,196	-54,197
Likelihood ratio (LR) test (χ^2)		Against (1)	Against (2)	Against (3)	Against (3)	Against (3)
		28.14**	63.09***	7.78*	7.28*	8.43*
LR test vs. non-multilevel (χ^2)	886.47****	603.24***	616.50***	621.49***	623.6***	606.42***

† $p < .10$, * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed). Year and region fixed effects were included.

Figure 1 Conceptual framework

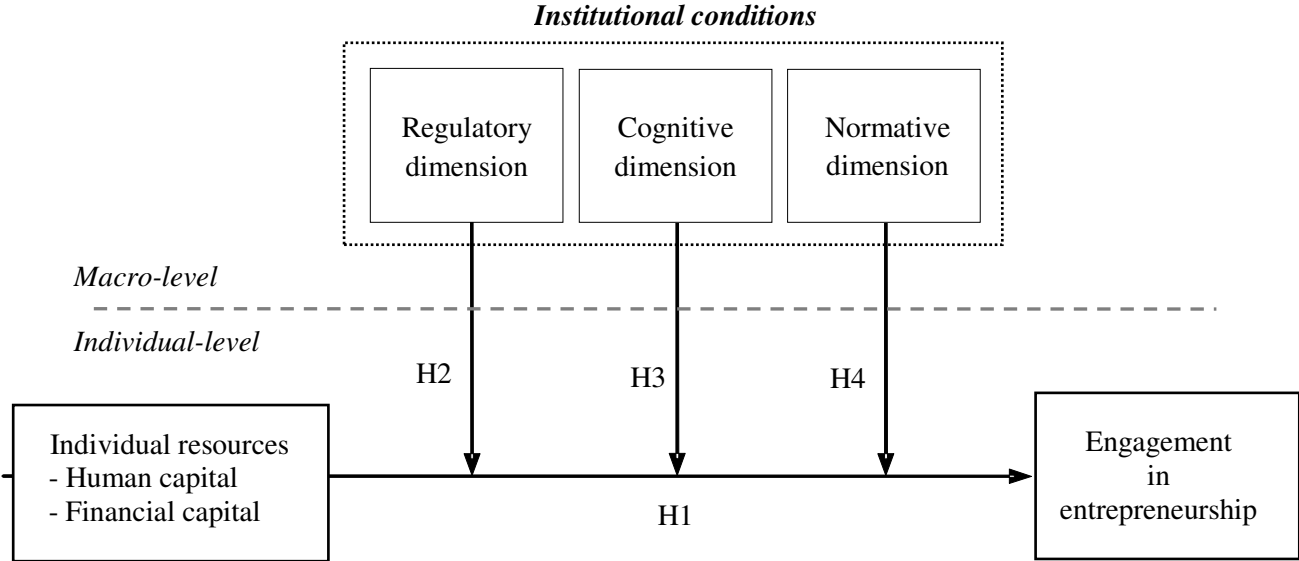
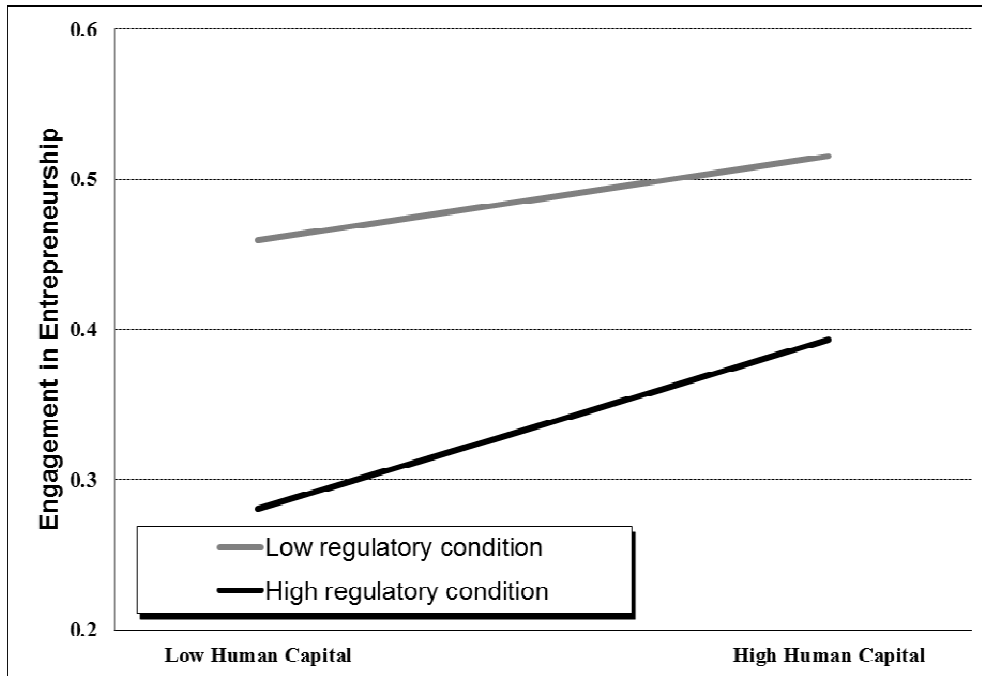
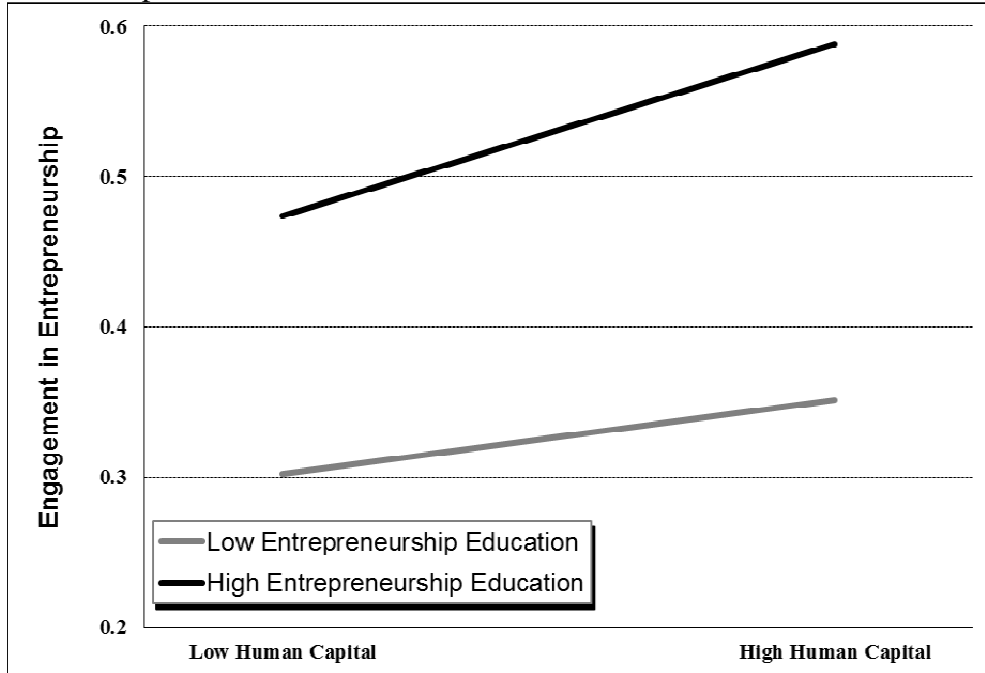


Figure 2 Interaction plots

(a) Moderating effect of regulatory condition on human capital–engagement in entrepreneurship relationship



(b) Moderating effect of cognitive condition on human capital– engagement in entrepreneurship relationship



(c) Moderating effect of normative condition on human capital–engagement in entrepreneurship relationship

