

**Xiangyang Zhao, Hai Li and Andreas Rauch**

## **Cross-country Differences in Entrepreneurial Activity: The Role of Cultural Practice and National Wealth**

**Abstract** In this paper, we argue that national culture is important for interpreting for the differences of entrepreneurial activities across countries, furthermore, national wealth play a moderating role between national culture and entrepreneurial activities. Datasets from Global Leadership and Organizational Behavior Effectiveness (GLOBE) project and Global Entrepreneurship Monitor (GEM) study were analyzed. We find that there are interaction effects between GDP, a proxy of national wealth, and several cultural dimensions on entrepreneurial activities. More traditional cultural variables (in-group collectivism, humane orientation and power distance) enhance early-stage entrepreneurship and established entrepreneurship in low-and-medium GDP countries, but hinder early-stage entrepreneurship and established entrepreneurship in high GDP countries. More modernistic cultural variables (performance orientation, future orientation and uncertainty avoidance) promote high-growth entrepreneurship and high-innovation entrepreneurship in some situations, especially in high GDP countries. Implications and limitations are discussed.

**Keywords** national culture, cultural practice, entrepreneurial activities, GEM, GLOBE

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## **1 Introduction**

The theoretical discussion on whether and how national culture relates to entrepreneurship has persisted for decades (McClelland, 1961; Schumpeter, 1934; Weber, 1930). A number of studies have also started to investigate the relationship empirically (Davidsson, 1995; Davidsson & Wiklund, 1997; Morris, Davis, & Allen, 1993; Shane, 1992, 1993). However, the hypothesized link between culture and entrepreneurship activity is still not sufficiently well-established (see Hayton, George and Zahra (2002) for a comprehensive review).

Most previous studies assumed a direct relationship between culture and entrepreneurship (Hayton et al., 2002; Stephan & Uhlaner, 2010). However, there has been a call to study the match between culture and other variables in predicting for entrepreneurship (Shane, Venkataraman, & MacMillan, 1995; Tung, Walls, & Frese, 2007). In this paper we try to examine how national wealth moderates the relationship between national culture and entrepreneurial activities in societies. More specially, our model suggests that depending on the economic development national culture may affect different types of entrepreneurial activities in different ways. We argue that those more traditionalistic cultural variables (for example, collectivism, power distance and humane orientation) account for the differences in the quantity of entrepreneurial activities across societies whereas those more modernistic cultural variables (for example, performance orientation, future orientation and uncertainty avoidance) explain for the differences in the quality of entrepreneurial activities. In the end, traditionalistic cultures have a different influence upon entrepreneurial activities in low-and-medium GDP countries and high GDP countries.

In addition to the theoretical reasons, a certain lack of clarity in the relationship between culture and entrepreneurship can be accounted for by the methodological limitations of previous studies. Some cross-cultural studies were based on only a few countries and in some cases the unit of the level of analysis was the firm instead of the national (or subnational) culture. The majority of studies have used Hofstede's (1991) model, or part of the model (Davidsson, 1995; Morris, Avila, & Alien, 1993; Shane, 1995) as an assessment of culture. In the meantime, there have been newer data and advanced methodological development (Hanges & Dickson, 2006). The Global Leadership and Organizational Effectiveness (GLOBE) project (House, Hanges, Javidan, Dorfman, & Gupta, 2004) and the Global Entrepreneurship Monitor (GEM) Project (Minniti, Bygrave, & Autio, 2005) provide two conceptualizations of culture (comprising both cultural value and cultural practice) and entrepreneurial activity that have a sound methodological and theoretical basis. Using the data from the above two projects allows us to base our analysis on a relatively large sample size.

## **2 National Cultures and Entrepreneurial Activity**

Countries differ considerably in the level of entrepreneurial activity (Freytag & Thurik, 2007; Minniti et al., 2005; Reynolds, Bygrave, & Autio, 2003). Previous studies have consistently shown that low-and-medium GDP countries usually are stronger in early-stage entrepreneurship (nascent entrepreneurship and new businesses which are younger than 42 months) and established entrepreneurship (those business operation history are longer than 42 months) than high GDP countries, while high GDP countries are stronger in high-growth entrepreneurship (those established entrepreneurship which employed more than 20 employees in the past five years) and high-innovation entrepreneurship (those which produce new products and new services relative to their local marketplace and have a high impact) than low-and-medium GDP countries (for the detailed definition, please refer to our Method section). Knowing the causes for such cross-country differences is important for practice as

well as theory. Scholars have explained the variations of entrepreneurial activity across nations by economic development (Acs, Arenius, Hay, & Minniti, 2004; Bosma & Harding, 2006; Bosma, Jones, Autio, & Levie, 2007; Minniti et al., 2005; Reynolds, Bygrave, Autio, & Hay, 2002; Reynolds et al., 2003; Reynolds, Camp, Bygrave, Autio, & Hay, 2001), the institutional environment (Lee, Peng, & Barney, 2007), and cultural values (Freytag & Thurik, 2007; Morris et al., 1993). In this study we explore how the national wealth moderates the relationship between national culture and the multifaceted entrepreneurial activities.

National culture can be defined as a country's shared practices and values (House et al., 2004). In this study we focus on cultural practice instead of cultural values, because cultural values tell us how members of a culture think their culture should be whereas cultural practices are related to how people go about doing things. Since entrepreneurship is a set of activities initiated by an entrepreneur (Gartner, 1989), the cultural practices as a set of how things are done may be more important for entrepreneurship than cultural values.

Furthermore, national culture is a multi-dimensional phenomenon (Hofstede, 2001; House et al., 2004). The GLOBE study identified nine cultural dimensions across 62 societies. Drawing on the distinction between traditionalism and modernity (Gusfield, 1967; Hill, 2000; Inglehart & Baker, 2000), we argue that some specific cultural dimensions in the GLOBE study, which are relevant for entrepreneurship in theory, can be classified into the categories of traditionalistic culture and modernistic culture, respectively. Traditionalistic cultures emphasize the value of traditional family and the parent-child ties; moreover, economic behavior tends to emphasize cooperation and team work (in-group collectivism). People in traditionalistic culture can obtain plenty of social and emotional support from their extended family and in-group social circle, and interpersonal relationship are built on trust (humane orientation). Additionally, traditionalistic cultures emphasize the value of deference to authority as well as to a centralized economic system (power distance). On the other hand, modernistic cultures emphasize individual freedom, personal achievement, self-expression, subjective well-being and quality of life. The economic behavior associated with modernistic culture often entails large scale operation and profit maximization (performance orientation). People in modernistic cultures are not only conscientiously managing their time in order to utilize it efficiently, but they also emphasize the present and the future (Hill, 2000) (future orientation). Finally, the uncertainties associated with a decentralized economic system combined with a differentiated division of labor and complex industrial environment entail measures to make the environment more predictable in modernistic cultures (Triandis, 1994) (uncertainty avoidance). In conclusion, we postulate that traditionalistic culture is conceptually related to in-group collectivism, humane orientation and power distance while modernistic culture is conceptually related to future orientation, performance orientation and uncertainty avoidance.

Consistent with Gusfield (1967), we argue that the relationship between traditionalistic culture and modernistic culture is not in a bi-polar, but in two poles. They are not mutually exclusive systems. In other words, there exists high traditionalistic culture vs. low traditionalistic culture, high modernistic culture vs. low modernistic culture. In every society there are these two kinds of forces and factors. Thus, the modernizing process (for example, industrialization) does not necessarily weaken traditionalistic culture. For example, Singapore, Japan and Hong Kong are high traditionalistic cultures, but all of them are highly industrialized, and also high on modernistic cultures.

Similarly, entrepreneurial activities are multifaceted phenomena as well. One way to study this is to distinguish the quantity of entrepreneurship from the quality of entrepreneurship (for example, innovativeness and growth orientation and so on) (Minniti et al., 2005; Reynolds et al., 2003). Basically, in the GEM project the prevalence rate of early-stage entrepreneurship

and established entrepreneurship measure the quantity of entrepreneurship whereas high-growth entrepreneurship and high-innovation entrepreneurship measure the quality of entrepreneurship. We would argue that national culture and national wealth might affect different type of entrepreneurial activities through different mechanisms.

### **3 Literature Review and Hypotheses Development**

#### **3.1 A general theoretical model on how cultures affect entrepreneurial activities**

In general, there are two lines of theoretical interpretation about how cultures affect entrepreneurial activities. The first one, which is largely rooted in Psychological literature, assumes that culture has a direct manifestation in the behavior of people belonging to a specific culture (Hofstede, 1980). It influences the personal values of individuals, and furthermore, influences their behaviors. Thus, national culture can support or impede entrepreneurial behavior at the individual level (Hayton et al., 2002). In other words, culture indicates the degree to which a society considers entrepreneurial behaviors such as risk-taking, growth-orientation, innovativeness, opportunity recognition and exploitation to be desirable. We call this view as “national culture - personal values- entrepreneurial behavior” model. In this view, a culture that supports entrepreneurship produces more people with entrepreneurial potential and, as a consequence, more entrepreneurial activities. The second one, which is largely based on institutional theory, assumes that culture, as informal institution, is the basis of formal institution (North, 2005). It shapes formal institutions to some degree in a long run. Therefore, in some countries there are more adaptive institutional conditions for supporting entrepreneurial activities, for example, free and competitive market, clear private property protection, open and innovative education system and so on, which, in turn, produce more entrepreneurial activities in these countries. We call this view as “culture-institution-entrepreneurship” model.

In spite of the views of psychology or institution, the majority of studies in the domain of entrepreneurship have adhere to the tradition by assuming a direct effect of specific cultural dimensions on entrepreneurial activity, as in start-up rates (Davidsson & Wiklund, 1997; Levie & Hunt, 2004; Morris et al., 1993), and innovation (Shane, 1993). Cultural factors frequently related to entrepreneurship activities include individualism, power distance, and uncertainty avoidance (Hayton et al., 2002). However, the empirical evidence for such relationships is weak and often contradictory (Hayton et al., 2002). For example, power distance was positively related to innovation in one study (Shane, 1992), but this relationship was negative in another (Shane, 1993). This suggests that there are moderators affecting the relationship between culture and entrepreneurship.

A more plausible assumption, however, is to conceptualize culture within a contingency framework. Here the issue is often how certain behaviors by entrepreneurs match certain cultural factors or how well a cultural factor matches other variables (Tung et al., 2007). The matching of behavior to a cultural situation is based on the work by Shane (1995) , who showed that the innovation strategy has to be culturally appropriate. This implies that it is possible to develop innovation in any culture, but the hurdles that have to be addressed depend on the culture. Van der Vegt, Van de Vilert and Huang (2005) investigated the relationship between demographic diversity and innovation and showed that the link between demographic diversity and innovative climate is dependent on national power distance. The issue of a match also refers to the match between culture and national wealth. We argue in this paper that national wealth (measured as GDP per capita) is a moderator variable, and may affect the effects of culture on entrepreneurship. Thus, depending on the wealth of a country, culture may have a positive or negative effect on entrepreneurial activities.

The general form of our argument states that the interaction between traditionalistic culture and national wealth affects the prevalence of early-stage entrepreneurship and established entrepreneurship whereas the interaction between modernistic culture and national wealth affects high-growth entrepreneurship and high-innovation entrepreneurship. First, in terms of the prevalence of entrepreneurship (early-stage entrepreneurship and established entrepreneurship) in low-and-medium GDP countries entrepreneurship benefits from traditional culture. In high GDP societies it is more useful for the number of entrepreneurship if the society holds less traditional culture. Second, both of low-and-medium GDP countries and high GDP countries benefit from modernistic cultures for promoting high quality entrepreneurship (high-growth entrepreneurship and high-innovation entrepreneurship), but in high GDP countries the positive relationship between modernistic culture and high quality entrepreneurship is higher than the one in low-and-medium GDP countries. This is the case in Japan, Singapore, Hong Kong and Germany and so on, for instance, all of the above economies have very low rate of entrepreneurial activities, but also have considerable high innovation activities among their businesses.

Our line of reasoning behind the general statement on traditionalistic culture and entrepreneurship is based on two arguments: First, traditionalism of the society may be helpful in dealing with the insecurities and uncertainties of entrepreneurship by providing social supports. Due to the scarcity of alternatives and undeveloped institutional supports, entrepreneurs in low-and-medium GDP countries have to rely much more on their cultural support systems than entrepreneurs in high GDP countries. Thus, traditionalism of a society helps entrepreneurship because traditional societies provide more social help and supports, in the form of family or friends (which is congruent with high in-group collectivism and high humane orientation). Given the availability of alternative avenues to survive and formal institutional support, the above argument does not hold for high GDP countries. The second line of reasoning is that in traditional societies the most promising avenue of actually escaping traditional paths of careers may be entrepreneurship. This line of reasoning can be most clearly developed for power distance. In societies with high power distance, a low status person will always continue to be a low status person: The only way out may be to become an entrepreneur. Not only does this allow a person to escape a dominant boss, entrepreneurship may also enable the person to escape the route that was preordained by the status of one's birth. In China, the harsh system of *HuJi* (Household registration) produces a great deal of necessity-driven entrepreneurs during the early age of Reform and Opening Up. In India, it is full of examples in which an "untouchable" escaping their humble status by becoming rich entrepreneurs as well. This approach is more likely to be successful in low-and-medium GDP countries, because there are other avenues and resources to achieve a certain kind of independence in rich countries (for example, by individually striving for further education, by moving away from a certain environment to another one, etc.).

Similar to the logic of Herzberg's Motivation – Hygiene theory in organizational behavior (Herzberg, 1968), we argue that to interpret the different kinds of entrepreneurial activities, we need different types of culture. By using Motivation-Hygiene theory as a metaphor, we argue that traditionalistic cultures function as 'hygiene' factors for the prevalence of entrepreneurship, but modernistic cultures play a 'motivating' role in achieving for high quality entrepreneurship. Therefore, we assume that to produce more high-growth entrepreneurship and high-innovation entrepreneurship, modernistic cultures are more useful than traditionalistic cultures. Modernistic cultures encourage people to achieve high performance and to be unique (innovation), to invest for the future, to be confident and aggressive (high growth orientation), having more plans and rules (it is good for continuous improvement of products, services and management systems); therefore, modernistic cultures

are more consistent with the two essences of entrepreneurship: innovation and growth-orientation. Thus, characteristics of a modernistic culture are helpful for innovation and high-growth entrepreneurship. Meanwhile, high-growth and high-innovation entrepreneurship is more likely to appear in contexts where the environment provides opportunities and resources. Since high GDP countries provide a richer environment for such venturing activities, a modernistic culture should foster more growth-oriented entrepreneurship and innovation-oriented entrepreneurship in high GDP countries than in low-and-medium GDP.

Since most of cross-cultural studies on entrepreneurship are based on individual cultural dimensions, we will test whether our basic hypothesis works well on them one by one. In the following section we will first describe those cultural dimensions in the GLOBE study which bear on the traditionalism of society: in-group collectivism, humane orientation, and power distance, and then discuss the other dimensions related to modernism: performance orientation, future orientation and uncertainty avoidance. In the end, we will simply discuss the cultural dimensions that may be closely related to entrepreneurship in theory, but excluding from this study three other GLOBE cultural dimensions: institutional collectivism, gender egalitarian and assertiveness.

### 3.2 In-Group Collectivism

In-group collectivism measures the degree to which individuals express pride, loyalty and cohesiveness in their groups and families (House, Javidan, Hanges, & Dorfman, 2002). Societies with a high level of in-group collectivism make greater distinctions between in-group and out-group (Gelfand, Bhawuk, Hishi, & Bechtold, 2004). In high in-group collectivistic societies, people depend heavily on their special personal relationships, like *Guanxi* in the context of China, *Inhwa* in Korea and *Blat* in Russia instead of institutional supports (Michailova & Worm, 2003; Zhao, Frese, & Giardini, 2010). Moreover, in-group collectivism emphasizes group goals (Hofstede, 1980).

In-group collectivism has been related to entrepreneurial activities for a number of reasons. In most situations, in-group collectivism is assumed to be negatively related to entrepreneurship. First, entrepreneurship is an activity of enterprising individuals who are individually rewarded (see review by Hayton et al., 2002). Second, entrepreneurship includes taking personal risks associated with market entry and innovation (Shane et al., 1995). Third, successful entrepreneurs must have characteristics such as creativity and the ability to develop new and unique ideas, characteristics which are typically associated with individualistic orientations (Bhawuk & Udas, 1996). These arguments favor the position that collectivism is negatively related to entrepreneurial activities (for example, review by Hayton et al., 2002).

However, the position that individualism is related directly to innovation and entrepreneurship is not uncontested. Shane et al. (1995) showed that individualism should influence the type, rather than the absolute levels, of innovation strategy. Moreover, Morris, Avila and Allen (1993) argued that high individualism can be dysfunctional for innovation, and reported a curvilinear relationship between individualism and entrepreneurship. These arguments illustrate that there are no simple relationships between entrepreneurship, individualism and collectivism.

It has been argued that collectivism helps entrepreneurship because collectivistic societies provide more social support and resources. For example, families in collectivistic societies tend to be more helpful in providing the needed resources for one's entrepreneurial endeavors and the needed social security in the event that things do not work out. Moreover, collectivistic orientation fosters commitment and sacrifice amongst employees (Gelfand et al.,

2004) and provides a protective environment that minimizes the uncertainty associated with business creation and innovation implementation (Stewart, 1989). However, all of these aspects are important only in low-and-medium GDP countries and not in high GDP countries because of the availability of alternative resources in the latter. It is only in low-and-medium GDP countries that starting entrepreneurs need to be able to fall back on these traditional resources of in-group collectivism. Thus, we hypothesize that:

H1: The relationship between in-group collectivism and the quantity of entrepreneurial activities (early-stage entrepreneurship and established entrepreneurship) is positive in low-and-medium GDP countries, while there would be no such relationship in high GDP countries.

### 3.3 Humane Orientation

Humane orientation is the degree to which societies encourage and reward individuals for being fair, altruistic, friendly, generous, caring, and being kind to others (House et al., 2002). In high humane oriented societies, people within a close circle receive material, financial, and social support (Kabasakal & Bodur, 2004). In addition, it means that there is a high degree of compassion and help for people in the immediate neighborhood, and also a certain conservative attitude and pressure for conformism towards people (Schloesser, Frese, & Al, 2010). We would argue similarly that, as with in-group collectivism, that humane orientation helps the development of entrepreneurship because it provides resources and support in the event that things go wrong within the immediate environment of the entrepreneur. Thus, entrepreneurs will feel supported and sufficiently secure to start and develop a business. In addition, humane orientation allows for errors and failures. This means that the social environment will still be supportive and people will not be ostracized when they fail. Moreover, people who had failed may actually be encouraged to try again. Given that the fear of failure is one of the reasons why people do not start a business even though they might want to (Sternberg, 2000), there may be a direct effect between humane orientation and entrepreneurial activity. We hypothesize that the effect of humane orientation is likely to be stronger in low-and-medium GDP countries because the consequences of failure in low-and-medium GDP countries without welfare systems is worse than those in high GDP countries.

Thus, it follows:

H2: The positive relationship between humane orientation and the quantity of entrepreneurial activities (early-stage entrepreneurship and established entrepreneurship) is stronger in low-and-medium GDP countries than in high GDP countries.

### 3.4 Power Distance

Power distance measures the degree to which members of a society expect and agree that power should be unequally distributed (House et al., 2002). Societies with higher power distance tend to be restricted to limited upward social mobility, localized information, and social status which is linked to established power relationships, as opposed to merit. Researchers have argued that entrepreneurial activity should be higher in low power distance countries (Hayton et al., 2002). High power distance is associated with maintaining the status quo (Gelekanycz, 1997). Accordingly, there is little acceptance for the initiatives and innovations created by new business ventures. Moreover, high power distance countries distribute resources unequally. This makes it difficult for potential entrepreneurs of low power groups to take advantage of profitable opportunities and, as a result, reduces access to

resources, skills, and information for potential entrepreneurs who are in a lower position. Unfortunately, reduced resources and information reduces both the existence and the discovery of valuable business opportunities (Kirzner, 1997). However, power distance can have a positive impact on entrepreneurial behavior as well. Power distance can affect entrepreneurial activity positively because the only way to be independent is to be an entrepreneur. Entrepreneurship can be used as one of the tools to struggle for independence and to increase one's power position.

Empirically, the relationship between power distance and entrepreneurial activity is inconsistent. For example, while Shane (1992) and Dwyer, Mesak and Hsu (2005) reported positive relationships between power distance and innovation, Shane (1993) reported negative relationships.

Thus, there may be positive or negative effects of power distance on entrepreneurship. For all of these reasons, we do not think that there will be a direct effect of power distance on entrepreneurship. However, we do think that there may be an interaction effect with GDP. In low-and-medium GDP countries, the traditional hierarchy may actually work in favor of entrepreneurship. First, the insecurities and uncertainties of entrepreneurship may be overcome by the support of traditional hierarchies. Second, entrepreneurship may be the only way to avoid having to work under an all-powerful boss. All of these factors should be stronger in low-and-medium GDP countries, because there is no alternative, i.e., no other way of obtaining resources or mobility outside traditional boundaries.

H3: The relationship between power distance and the quantity of entrepreneurship (early-stage entrepreneurship and established entrepreneurship) is positive in low-and-medium GDP countries, while there is no such relationship in high GDP countries.

### 3.5 Performance Orientation

Performance orientation refers to the extent to which a society encourages and rewards its members for performance improvement and excellence (Hayton et al., 2002). This dimension is clearly based on the achievement motive idea by McClelland (1961). Entrepreneurs often strive to achieve challenging tasks. They believe that they can succeed and they want to harvest the benefits for doing so. Thus, performance orientation should be associated with a society's entrepreneurial activity in general. Moreover, since performance orientation focuses on demanding targets and financial rewards, we expect that countries with high performance orientation have a higher prevalence of entrepreneurial activities with high-growth orientation (high-growth entrepreneurship) and more innovation on new products and new services (high-innovation entrepreneurship) than others. Furthermore, in high GDP countries there are plenty of resources (for example, venture capital, educated employees, law service, technical know-how, etc.), therefore, it is relatively easy for entrepreneurs to achieve their high-growth and high-innovation goal, but it is hard for those entrepreneurs in low-and-medium GDP countries make the same things happen. Therefore, we propose the following hypotheses:

H4: Performance orientation is positively related to high quality entrepreneurship (high-growth entrepreneurship and high-innovation entrepreneurship). Further, this kind of positive relationship is stronger in high GDP countries than in low-and-medium GDP countries.

### 3.6 Future Orientation

Future orientation addresses the degree to which individuals engage in future-oriented behaviors such as planning, investing in the future, and delaying gratification (House et al.,

2002). Countries with high future orientation have a strong capability and willingness to imagine future contingencies, formulate future goal states, seek to achieve higher goals, and to develop strategies for meeting their future aspirations (Shane & Venkataraman, 2000). Future orientation is related to two, and at times competing, orientations. First, countries high in future orientation should have more high quality entrepreneurial activity. Individuals anticipate potential future opportunities in a changing environment and will tend to think of investing now in order to reap future profits (Shane & Venkataraman, 2000). Second, future orientation also implies that one thinks about the future because one is worried about the future. Future orientation is highly related to uncertainty avoidance (Ashkanasy, Gupta, Mayfield, & Trevor-Roberts, 2004). Thus, one anticipates not opportunities, but failures. Thus, this part of future orientation should be negatively related to the emergence of entrepreneurship because people might be too worried about future problems to get them involved in uncertain endeavors.

Furthermore, to produce high-growth entrepreneurship and high-innovation entrepreneurship in one society, only future orientation is not enough, it also needs a stable and expectable environment in support of them. In high GDP countries there are strong institutional environment and clear policy, it makes future orientation work well possible, but in low-and-medium GDP countries the institutional environment is full of chaos, government change their policy frequently, therefore, in low-and-medium GDP countries it is difficult for entrepreneurs to develop high-growth and high-innovative businesses through some future-oriented behaviors, for example, continuous and heavy investment, comprehensive and long-term planning and so on. Therefore, we propose the following hypothesis:

H5: Future orientation is positively related to high quality entrepreneurship (high growth and high innovation). Further, this kind of positive relationship is stronger in high GDP countries than in low-and-medium GDP countries.

### 3.7 Uncertainty Avoidance

Uncertainty is a conceptual cornerstone in the theory of entrepreneurship (Knight, 1921; McMullen & Shepherd, 2006). Entrepreneurs have to recognize opportunities in the face of uncertainty (Knight, 1921) and are willing to bear uncertainty when exploiting opportunities (Schumpeter, 1934). People in high uncertainty avoidant countries are threatened by new and unpredictable future situations (Hofstede, 1980). They show a stronger desire to establish rules, allowing for predictability of behavior (Sully De Luque & Javidan, 2004). Members of such cultures tend to avoid uncertainty by reliance on social norms, rituals, and bureaucratic practices to alleviate the unpredictability of future events (House et al., 2002). Such practices include formalized interaction, documentation and planning, as well as resistance to risk, change and new product development. Such practices may suggest that high uncertainty avoidant countries have little support for entrepreneurship (Hayton et al., 2002). Two studies found indirect support for a negative relationship between uncertainty avoidance and entrepreneurial activities (Mueller & Thomas, 2000; Shane, 1995). In contrast to this, one study indicated that uncertainty avoidance is positively related to the prevalence of business ownership across countries (Wennekers, Thurik, Van Stel, & Noorderhaven, 2007), possibly because entrepreneurial employees are discriminated by the formal structure of organizations, and are therefore pushed into entrepreneurship.

While we assume that uncertainty avoidance may be negatively related to the emergence of early-stage entrepreneurship, it can very well be functional with regards to some types of entrepreneurial activity. High uncertainty avoidance implies long-term planning, environment scanning and the prediction of future developments. Thus, uncertainty avoidance directly

addresses the uncertainties associated with business venturing, for example, by reducing the risk in business and creating a safe environment. In addition, high uncertainty avoidance is also helpful in increasing the quality of products and services, for continuous improvement and so on (this is exactly the cases of Japan and Germany). Thereby, uncertainty avoidance leads to new products development and business growth. Similar to future orientation, we argue that this kind of positive relationship between uncertainty avoidance and high quality entrepreneurship appears more frequently in high GDP countries than in low-and-medium GDP countries. Therefore, we propose the following hypothesis:

H6: Uncertainty avoidance is positively related to high quality entrepreneurship (high-growth and high-innovation entrepreneurship). Future, this kind of relationship is stronger in high GDP countries than in low-and-medium countries.

## 4 Method

### 4.1 Sample

We based our analyses on 42 countries data for both cultural practices (GLOBE) (taken from House et al. (2004) and entrepreneurship activity (taken from the series reports of GEM (Acs et al., 2004; Bosma & Harding, 2006; Bosma et al., 2007; Minniti et al., 2005; Reynolds et al., 2003; Reynolds et al., 2002; Reynolds et al., 2001), which are available for these countries: Argentina, Australia, Austria, Brazil, Canada, China, Colombia, Denmark, Ecuador, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Malaysia, Mexico, New Zealand, Netherlands, Philippines, Poland, Portugal, Russia, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, United Kingdom, United States, and Venezuela. Following with the classification of GEM, it includes 24 high GDP countries and 18 low-and-medium GDP countries (the cutting point of GDP per capita is around 20,000 US\$).

### 4.2 Measurement

*National Cultural Practice:* We simply used the data of national cultures from the GLOBE project to measure cultural practices ('As Is') (House et al., 2004).

*Entrepreneurial Activities:* Since the number of participating countries of the GEM project varied from year to year, and not all countries participated in it each year, we utilized GEM data from several years and computed the average score across these years. Since national cultures have been stable for centuries (Braudel, 1987), averaging the entrepreneurial activities takes out random fluctuations and makes it possible to measure national cultures and entrepreneurial activities on the same level of relative stability across time.

We used four indicators of entrepreneurial activities reported by the GEM Project (Acs et al., 2004; Bosma et al., 2007; Bosma & Harding, 2006; Minniti et al., 2005; Reynolds et al., 2001; Reynolds et al., 2002; Reynolds et al., 2003): early-stage entrepreneurship, established entrepreneurship, high-growth entrepreneurship and high-innovation entrepreneurship. Early-stage entrepreneurship refers to the percentage of 18-64 year old population who are trying to establish their own new business and whose business are younger than 42 months while established entrepreneurship refers to the percentage of an adult-age population who are currently an owner-managers of an established business more than 42 months. Further, high-growth entrepreneurship refers to the percentage of all adult-age individuals in a given country, who qualify as established entrepreneurs (i.e., for longer than 42 months) and employed at least 20 or more employees in the past five years. High-innovation entrepreneurship refers to the percentage of existing business owners who believe that they

provide new products and new services which have large impact on their marketplace.

To measure early-stage entrepreneurship activity, we used the data of the GEM studies for the years 2001 to 2007 (Acs et al., 2004; Bosma et al., 2007; Bosma & Harding, 2006; Minniti et al., 2005; Reynolds et al., 2001; Reynolds et al., 2002; Reynolds et al., 2003). To measure established entrepreneurship, we utilized the data of established entrepreneurship between years 2005 and 2007 (Bosma et al., 2007; Bosma & Harding, 2006; Minniti et al., 2005). To measure high-growth entrepreneurship, we utilized the data of GEM studies between 2000 and 2006 (Autio, 2007). In the end, we employed the data on firm entrepreneurship to measure high-innovation entrepreneurship (Reynolds, Bygrave, Autio, & Others, 2003).

*National wealth:* We employed the GDP per capita in 2005 in this study to measure national wealth. GDP per capita was corrected for purchasing power and we used the data from the International Monetary Foundation (IMF, 2007).

*Institutional variable:* To avoid some confounding bias, we controlled one institutional variable named Doing Business in this study. Doing business project, which is developed by The World Bank, measures the procedures, time and cost for a small to medium-size limited liability company to start up and operate formally. To make the data comparable across economies, Doing Business uses the number of days for completing legal registration to measure the institutional condition in one society. The data of Doing Business in 2007 was employed in this study ([www.doingbusiness.com](http://www.doingbusiness.com)).

### 4.3 Analysis Method

We performed hierarchical regression analysis to test the interaction effects by following the instruction of Aiken and West (1991). First, institutional variable Doing Business was entered in the first step. Second, GDP per capita and each cultural practice dimension were included in the second step. Third, the interaction item between GDP per capita and cultural practice dimension was entered in the last step. To avoid multicollinearity, we standardized all of the relevant variables. We also draw corresponding figures by following the instruction of Dawson and Richter (2006) and the assistance of the program produced by Dawson (<http://www.jeremydawson.co.uk/slopes.htm>).

### 4.4 Results

*Insert Table 1 and 2, and Figure 1 about here*

Table 1 displays the descriptive statistics and intercorrelations of the studied variables. Table 2 presents the results of hierarchical regression analyses investigating the interaction effects between the moderators GDP per capita and each cultural variable in predicting for four kinds of entrepreneurial activities. In the end, six significant moderating effects are also displayed in Figure 1.

In general the results show a relatively uniform picture: There were five cross-over effects between traditionalistic cultural variables and GDP on early-stage entrepreneurship and established entrepreneurship, meaning that a high degree of traditionalistic cultural variables (including high in-group collectivism, high humane orientation and high power distance) leads to high early-stage entrepreneurship and established entrepreneurship in the low-and-medium GDP societies, while there was a negative slope in high GDP societies (except humane orientation, it shows a relatively weaker positive relationship) – here higher values on the above cultural factors contribute to a decreasing degree of early-stage entrepreneurship and established entrepreneurship. In addition, largely in contrast to our

hypotheses, modernistic cultures variables (except performance orientation) were not significantly related to high-growth entrepreneurship and high-innovation entrepreneurship in most cases, especially, the significant interaction effect only appeared in one case (future orientation with high-growth entrepreneurship). In general we find that traditionalistic culture is a good predictor for the prevalence of entrepreneurship in one society, but modernistic culture is not. Since we are arguing for a contingency approach, we mainly discuss the specific interaction effects below.

For in-group collectivism, Table 2 shows that the interaction term between GDP and in-group collectivism was significant in predicting for early-stage entrepreneurship ( $\beta=-0.34$ ,  $p<0.05$ ;  $\Delta R^2=0.08$ ,  $p<0.05$ ) and established entrepreneurship ( $\beta=-0.41$ ,  $p<0.05$ ;  $\Delta R^2=0.12$ ,  $p<0.05$ ). Figure 1(1) and Figure 1(2) show that in low-and-medium GDP countries with increasing in-group collectivism there was an increase of early-stage entrepreneurship and established entrepreneurship. In contrast, in high GDP countries in-group collectivism was not related to early-stage entrepreneurship and established entrepreneurship. There was even a slightly decrease in early-stage entrepreneurship and established entrepreneurship in high GDP countries. This result supported our Hypothesis 1, which assumes that in low-and-medium GDP countries, there should be a positive relationship between in-group collectivism and entrepreneurship, but there should be no such relationship in high GDP countries.

For humane orientation, Table 2 shows the interaction term between GDP and humane orientation was marginally significant in predicting for established entrepreneurship ( $\beta=-0.28$ ,  $p<0.10$ ;  $\Delta R^2=0.07$ ,  $p<0.10$ ), but not for early-stage entrepreneurship ( $\beta=-0.19$ , *n.s.*). Figure 1(3) shows that in both low-and-medium GDP and high GDP countries, an increase of humane orientation was related to established entrepreneurship, but the add-on effect in low-and-medium GDP countries is more pronounced than the add-on effect in high GDP countries. This supports our Hypothesis 2 in established entrepreneurship situation, which assumes that the positive relationship between humane orientation and established entrepreneurship is stronger in low-and-medium GDP countries than in high GDP countries.

For power distance, Table 2 shows that the interaction term between GDP and power distance was significant in predicting for early-stage entrepreneurship ( $\beta=-0.39$ ,  $p<0.05$ ;  $\Delta R^2=0.10$ ,  $p<0.05$ ), but marginally significant for established entrepreneurship ( $\beta=-0.37$ ,  $p<0.10$ ;  $\Delta R^2=0.08$ ,  $p<0.10$ ). Figure 1(4) and 1(5) show that that in low-and-medium GDP countries, increasing power distance is related to early-stage entrepreneurship and established entrepreneurship, whereas in high GDP countries higher power distance was related to a slight decrease in both kinds of entrepreneurial activities. Thus, these results supported our Hypothesis 3, which assumes that there is a positive relationship between power distance on one hand and early-stage entrepreneurship and established entrepreneurship on another hand in low-and-medium GDP countries, while there is no such relationship in high GDP countries.

For performance orientation, Table 2 shows that it was positively related to high-growth entrepreneurship ( $\beta=0.39$ ,  $p<0.10$ ) and high-innovation entrepreneurship ( $\beta=0.40$ ,  $p<0.05$ ). But GDP did not significantly moderate the relationship between performance orientation and high-growth entrepreneurship ( $\beta=-0.01$ , *n.s.*), and the relationship between performance orientation and high-innovation entrepreneurship ( $\beta=0.15$ , *n.s.*). Therefore, our Hypothesis 4, which states that GDP moderates the positive relationship between performance orientation and high quality entrepreneurship, is only supported for the main effect, but not for the interaction effect.

For future orientation, Table 2 also shows future orientation is not related to high-growth entrepreneurship ( $\beta=-0.05$ , *n.s.*) and high-innovation entrepreneurship ( $\beta=0.22$ , *n.s.*). But interestingly, the interaction term between future orientation and GDP was significant in

predicting for high-growth entrepreneurship ( $\beta=0.47, p<0.10; \Delta R^2=0.12, p<0.10$ ), but not for high-innovation entrepreneurship ( $\beta=-0.08, n.s.$ ). Thus, our Hypothesis 5, which states GDP moderates the positive relationship between future orientation and high quality entrepreneurship, was only partially supported for the interaction effect.

In the end, for uncertainty avoidance, Table 2 shows that uncertainty avoidance is not related to high-growth entrepreneurship ( $\beta=0.15, n.s.$ ) and high-innovation entrepreneurship ( $\beta=0.08, n.s.$ ). Meanwhile, the interaction term of GDP and uncertainty avoidance is not significant in predicting for high-growth entrepreneurship ( $\beta=-0.20, n.s.$ ) and high-innovation entrepreneurship ( $\beta=-0.19, n.s.$ ), either. Therefore, our Hypothesis 6 is not supported.

## 5 Discussions

### 5.1 Findings

The prevalence of entrepreneurial activity differs strongly between countries (Freytag & Thurik, 2007). This study addressed the role of cultural practice to explain country level differences in entrepreneurial activity. We were motivated to conduct this study because the role of culture on entrepreneurial activity seems to be under researched (Hayton et al., 2002). Moreover, cross-cultural research indicated that the role of culture is much more complex than previous entrepreneurship research has suggested; for example both direct and moderating effects need to be considered at the same time. Finally, recent conceptualizations of culture allow a theoretically and empirically rigor test of the relationship between culture and entrepreneurial activity to be applied. In general, our study indicated that the quantity of entrepreneurial activity is considerably explained by the match between traditionalistic cultural variables and national wealth while the quality of entrepreneurship could be explained by modernistic culture or the match between modernistic culture and national wealth to some degree.

The most interesting findings are certainly the moderating effects reported in Table 2. In most of the cases there are strong positive slopes between these traditionalistic cultural dimensions (in-group collectivism, humane orientation and power distance) and early-stage entrepreneurial activity and established entrepreneurship in low-and-medium GDP countries and negative slopes in high GDP countries. This means that if there is great national wealth, traditional cultures pay with a lower degree of entrepreneurship (both in terms of early stage entrepreneurship and established entrepreneurship) while in those societies with little wealth, the traditionalism of the culture actually helps in the development of entrepreneurship.

Meanwhile, it is a little bit disappointing to find that the cultural variables signifying modernistic culture (for example, performance orientation, future orientation and uncertainty avoidance) are only related to high-growth entrepreneurship and high-innovation entrepreneurship in some situations, especially, most of interaction terms between GDP and modernistic cultural variables are not significant in interpreting for high quality entrepreneurial activities. This is largely contrast to previous literature and our hypotheses. We guess one of the possible reasons is due to that the proportion of high GDP countries and high quality entrepreneurship in our sample is relatively small. Therefore, it may limit the power of regression analysis to detect a significant relationship between modernistic cultural variables and high quality entrepreneurship. Future scholars can continue to test or challenge our theory by employing a large sample size.

### 5.2 Limitations and Future Directions

Some limitations need to be discussed in order to assess the generalizability of our results. First, although our analysis has a decent sample size for studies of this kind, there are restrictions with an N of 42 and this has clearly affected the range of statistical procedures possible as well as the way we approached our data. On the other hand, we relied on data from two independent datasets and, therefore, there is no common method bias in our analysis.

Second, we studied culture at the national level to predict prevalence rates at the national level. Thus, there was a good match between the independent and dependent variables in our study. Moreover, the study variables were based on validated measurement. However, we do not suggest that culture directly affects an individual's decision to start up a company. Culture is a multi-level construct with reciprocal relationships between different levels of culture (Erez & Gati, 2004). In order to study how the effects of culture are transmitted to individual-level activity, one needs to study multiple levels of culture. Thus, our study results should be generalized to the country level and not to the level of the individual entrepreneur.

However, this study is among the few attempts in the entrepreneurship literature to provide insights into the role of culture on country level entrepreneurial activity. Our results indicate that entrepreneurship theory needs to include culture in a model explaining entrepreneurship.

First, we found that the effect of culture on entrepreneurial activity depends on the economical development of a country. Thus, entrepreneurship theory needs to address the interactions between culture and other variables. Such potential moderators might include the institutional environment (Lee et al., 2007), which is shaped by cultural values (Hofstede, 1980). For example, cultural values may be less important in societies with a strong institutional context because tight regulations and legislations determine individuals' decisions rather than cultural values. In societies with a weak institutional context, culture may function as a social support system for entrepreneurial activities.

Second, the vast majority of previous studies used either a selection or the whole set of general cultural dimensions, such as e.g. those of Hofstede (1980) and GLOBE (House et al., 2004). While these are well validated conceptualizations of culture, they are general and not related to the context of entrepreneurship. The classification of traditionalism and modernity directly addresses entrepreneurial activity and economic development and, therefore might be more useful for studying a cultures' impact on entrepreneurial activities. Future studies can explore this line of theory further.

Third, our study indicated the importance of cultural dimensions that have been ignored in previous entrepreneurship literature. These dimensions were, for example, humane orientation. Actually, humane orientation was the strongest cultural variable predicting entrepreneurship in our analysis. Humane orientation supports entrepreneurship because it provides support in case of errors and failure. As such, future research should analyze the effect of these new dimensions, as well as their interaction with national wealth, rather than focusing solely on the dimensions proposed by Hofstede (1980). Thus, entrepreneurship research should rely on more sophisticated approaches of culture and study the effectiveness of multiple dimensions of culture.

### 5.3 Practical Implications

Our finding that national culture plays a different role on entrepreneurial activities depending on the economic development has important practical implications. Most theories in entrepreneurship research were developed in the Western and wealthy countries. Without specifying the cultural context to which such theories apply, one assumes that the effectiveness of entrepreneurial values and practices is universally valid in different countries.

However, our study indicates that culture plays a different role in fostering entrepreneurial activity. The practices that are successful in one culture may very well be dysfunctional in other cultures. Therefore, it would be incorrect to suggest that, for example, individual rewards and tolerance to uncertainty per se stimulate entrepreneurial activity. Rather, practice recommendations need to take the cultural context and economic development into account.

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**Table 1: Means, Standard Deviations and Correlations in This Study**

	Mean	<i>S.D.</i>	<i>N</i>	1	2	3	4	5	6	7	8	9	10	11
1. GDP per capita (US \$)	20165	12247	42	--										
2. Institutional variable	29.37	17.11	42	-.57**	--									
3. Performance orientation	4.11	0.43	42	.29	-.43**	--								
4. Future orientation	3.90	0.50	42	.45**	-.44**	.68**	--							
5. In-group collectivism	5.03	0.75	42	-.74**	-.12	-.21	-.41**	--						
6. Humane orientation	4.03	0.47	42	-.27	.55**	.26	.17	.17	--					
7. Power distance	5.16	0.39	42	-.54**	.64**	-.42**	-.60**	.72**	-.10	--				
8. Uncertainty avoidance	4.21	0.65	42	.51**	-.52**	.62**	.79**	-.60**	.06	-.65**	--			
9. Early-stage Entrepreneurship	10.09	6.99	42	-.56**	.28*	.06	-.25	.45**	.53**	.37*	-.30	--		
10. Established entrepreneurship	6.89	3.97	42	-.34*	.16	.12	-.11	.30	.51**	.22	-.12	.72**	--	
11. high-growth entrepreneurship	0.37	0.20	32	.53**	-.32	.39*	.15	-.41*	-.43	.29	.28	.02	.38*	--
12. High-innovation Entrepreneurship	11.46	6.36	38	.02	-.18	.41*	.28	-.02	.14	-.08	.19	.29	-.05	.39*

**Table 2:** The Results of Hierarchical Regression Analysis

	Early-stage entrepreneurship		
	(In-group collectivism)	(Humane Orientation)	(Power distance)
Institutional variable	.35*	.35*	.35*
R <sup>2</sup>	.12	.12	.12
Adjust R <sup>2</sup>	.10	.10	.10
F	5.15	5.15	5.15
Institutional variable	-.04	.21	-.07
GDP	-.60**	-.30†	-.57**
Cultural dimension	.00	.52**	.07
R <sup>2</sup>	.33	.54	.33
Adjusted R <sup>2</sup>	.27	.51	.27
ΔR <sup>2</sup>	.21**	.43**	.21**
F	5.81	14.34	5.90
Institutional variable	-.05	.19	-.04
GDP	-.40†	-.24	-.47*
Cultural dimension	.28	.54**	.33†
Interaction	-.34*	-.19	-.39*
R <sup>2</sup>	.40	.57	.43
Adjust R <sup>2</sup>	.33	.53	.36
ΔR <sup>2</sup>	.08*	.03	.10*
F	5.86	11.78	6.53
	Established entrepreneurship		
	(In-group collectivism)	(Humane Orientation)	(Power distance)
Institutional variable	.22	.22	.22
R <sup>2</sup>	.05	.05	.05
Adjust R <sup>2</sup>	.02	.02	.02
F	1.84	1.84	1.84
Institutional variable	.06	.34†	.05
GDP	-.21	.06	-.22
Cultural dimension	.06	.56**	.07
R <sup>2</sup>	.09	.34	.09
Adjust R <sup>2</sup>	.00	.28	.01
ΔR <sup>2</sup>	.04	.29**	.04
F	1.05	5.68	1.06
Institutional variable	.04	.30	.07
GDP	.01	.15	-.13
Cultural dimension	.40	.60***	.33
Interaction	-.41*	-.28†	-.37†
R <sup>2</sup>	.20	.41	.17
Adjust R <sup>2</sup>	.10	.33	.07
ΔR <sup>2</sup>	.12*	.07†	.08†
F	2.03	5.48	1.64

Note: \*\* significant at .01 level; \* significant at .05 level; †significant at .10 level.

**Table 2 (Continued)**

	High-growth entrepreneurship		
	(Performance orientation)	(Future orientation)	(Uncertainty avoidance)
Institutional variable	-.31	-.31	-.31
R <sup>2</sup>	.10	.10	.10
Adjust R <sup>2</sup>	.06	.06	.06
F	2.74	2.74	2.74
Institutional variable	.28	.02	.10
GDP	.57*	.49†	.47†
Cultural dimension	.39†	-.05	.15
R <sup>2</sup>	.32	.21	.23
Adjust R <sup>2</sup>	.24	.11	.13
ΔR <sup>2</sup>	.23*	.11	.13
F	3.66	2.06	2.24
Institutional variable	.28	-.13	.11
GDP	.58*	.29	.52†
Cultural dimension	.40	.31	.24
Interaction	-.01	.47†	-.20
R <sup>2</sup>	.32	.33	.25
Adjust R <sup>2</sup>	.20	.21	.12
ΔR <sup>2</sup>	.00	.12†	.03
F	2.63	2.75	1.85
	High-innovation entrepreneurship		
	(Performance orientation)	(Future orientation)	(Uncertainty avoidance)
Institutional variable	-.21	-.21	-.21
R <sup>2</sup>	.05	.05	.05
Adjust R <sup>2</sup>	.01	.01	.01
F	1.46	1.46	1.46
Institutional variable	.08	-.05	-.08
GDP	.13	.09	.14
Cultural dimension	.40*	.22	.08
R <sup>2</sup>	.18	.09	.06
Adjust R <sup>2</sup>	.09	.00	-.03
ΔR <sup>2</sup>	.13*	.05	.02
F	2.09	.96	.65
Institutional variable	.11	-.06	-.12
GDP	.13	.08	.12
Cultural dimension	.36†	.24	.13
Interaction	.15	-.08	-.19
R <sup>2</sup>	.20	.10	.09
Adjust R <sup>2</sup>	.08	-.03	-.04
ΔR <sup>2</sup>	.02	.01	.03
F	1.71	.74	.71

Note: \*\* significant at .01 level; \* significant at .05 level; † significant at .10 level.

**Figure 1**

The Relationships between GLOBE Cultural Practice Dimensions and Entrepreneurial Activities: GDP as a Moderator

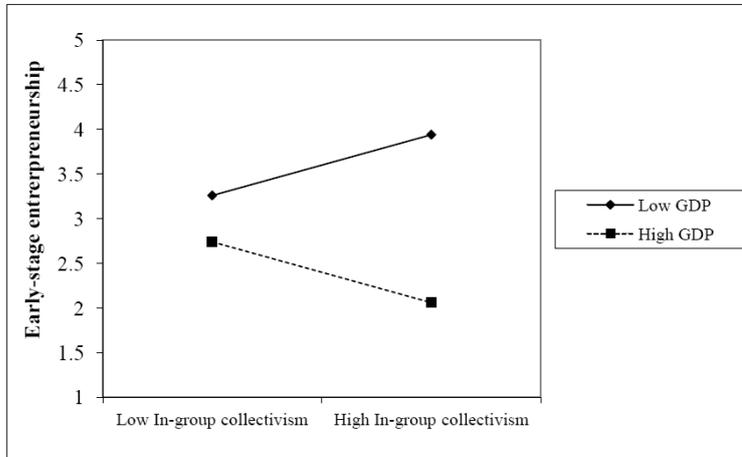


Figure 1(1). In-group collectivism and GDP on early-stage entrepreneurship

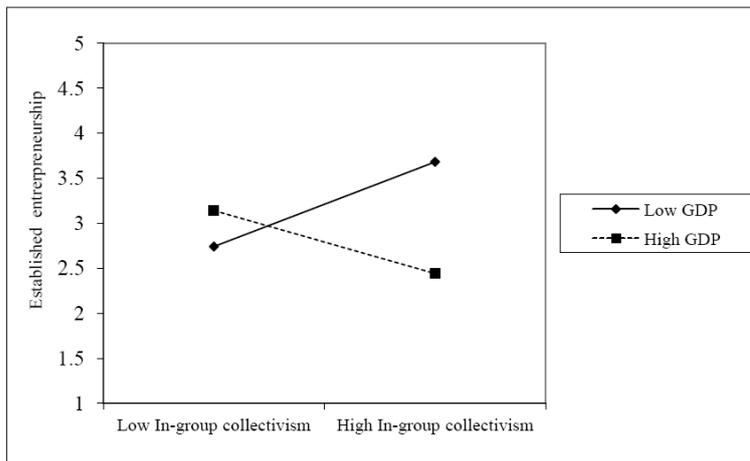


Figure 1(2). In-group collectivism and GDP on established entrepreneurship

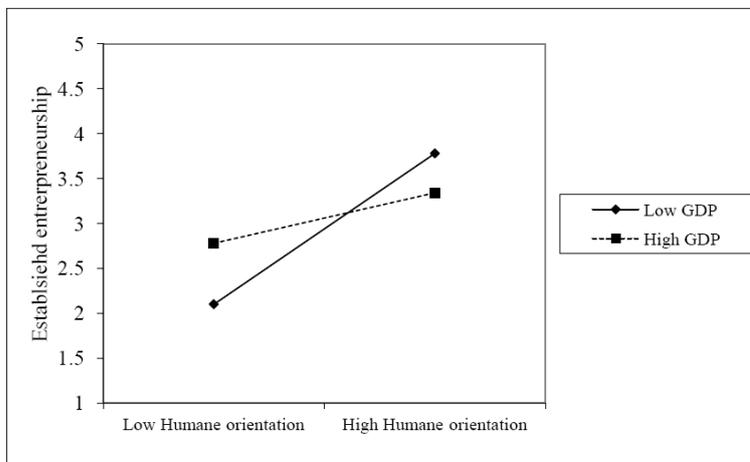


Figure 1(3). Humane orientation and GDP on established entrepreneurship

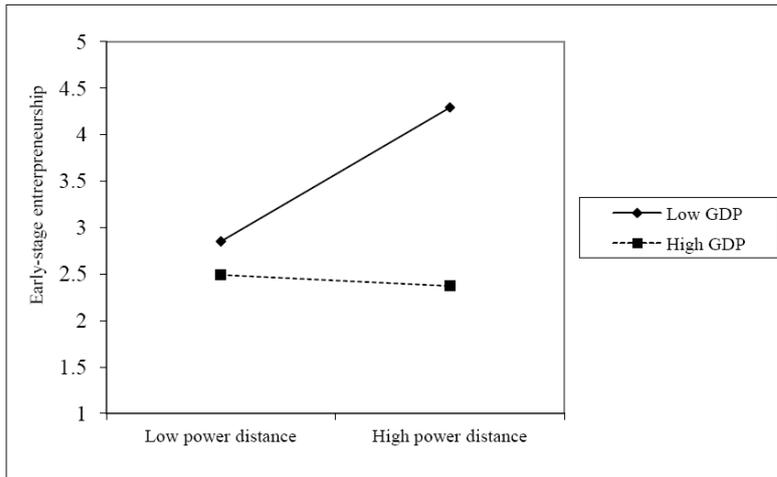


Figure 1(4). Power distance and GDP on early-stage entrepreneurship

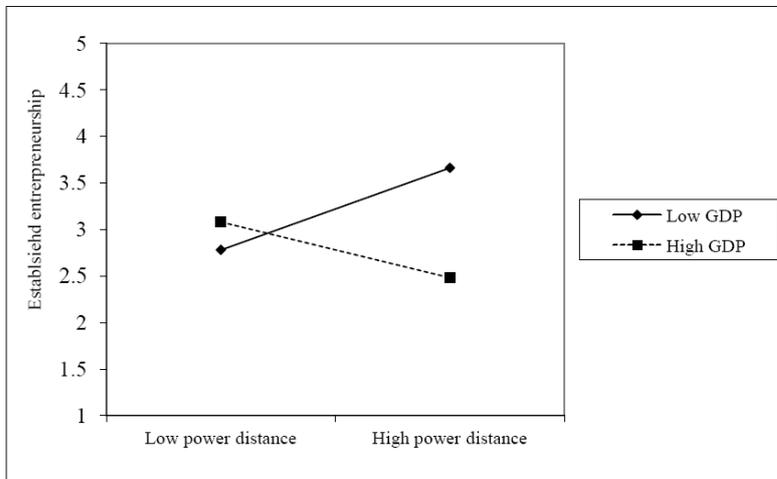


Figure 1(5). Power distance and GDP on established entrepreneurship

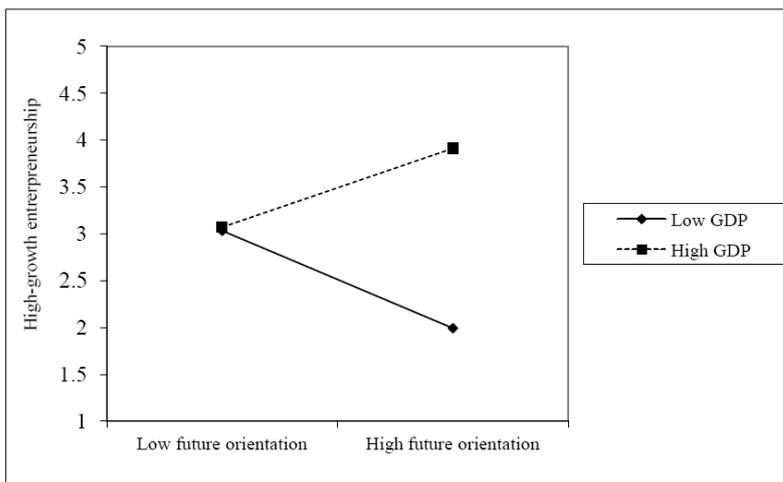


Figure 1(6). Future orientation and GDP on high-growth entrepreneurship