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## NATIONAL CULTURAL VALUES, FIRM'S CULTURAL ORIENTATIONS, INNOVATION, AND PERFORMANCE: TESTING CULTURAL UNIVERSALS AND SPECIFIC CONTINGENCIES ACROSS FIVE COUNTRIES

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# **NATIONAL CULTURAL VALUES, FIRM'S CULTURAL ORIENTATIONS, INNOVATION, AND PERFORMANCE: TESTING CULTURAL UNIVERSALS AND SPECIFIC CONTINGENCIES ACROSS FIVE COUNTRIES**

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## **ABSTRACT**

The purpose of this study was to clarify the cross-cultural validity of the relationship between innovation, entrepreneurial orientation (EO), and performance in five different countries: China, Germany, The Netherlands, Peru, and Russia. We found that innovation and EO are effective in each country, suggesting universal relationships. At the same time, both national culture and cultural orientations of owners moderated the relationship between innovation and performance. We conclude that entrepreneurship research needs to address culture in order to test the boundaries of theory. Additionally, cross-cultural entrepreneurship research needs to study multiple levels of culture.

## **INTRODUCTION**

The role of innovation and EO has been addressed in a number of studies and most researchers seem to share consensus about the importance of innovation and EO for business performance (Rauch, Wiklund, Lumpkin, & Frese, 2009; Rosenbusch, Brinckmann, & Bausch, 2010). However, there is a high variety in effect sizes and, therefore, more recent research look at conditions where the relationship between innovation and performance is strong or weak. Our study contributes to this stream of research by clarify the cross-cultural validity of the relationship between innovation, entrepreneurial orientation and performance. Both innovation (product/service, process, and marketing) and EO address firm level strategy variables that are conceptualized as universal predictors and treated as universals in many empirical studies. On the other hand, it is well recognized that there are cross national differences in the level of entrepreneurial activities, innovation and entrepreneurial orientation (Harding & Bosma, 2006) Additionally, there is evidence that the national culture affects both innovation (Shane, Venkataraman, & MacMillan, 1995) and entrepreneurial orientation (Mueller & Thomas, 2000).

This study moves beyond these approaches by asking whether or not innovation and EO are equally important for venture performance in different cross-cultural contexts. Thus, we want to know whether innovation and entrepreneurial orientation are related to success even in cultures that share values that do not support innovation and EO. Thereby, we do not assume that national culture affects venture success directly. Rather, we assume that business strategies have to be adapted to the cultural context in order to be successful.

Additionally, our study addresses different levels of analysis by looking at both national culture and cultural orientations of business owners. Addressing culture as a multi-level construct (Erez & Gati, 2004) allows to test whether or not national culture and cultural orientations

differently moderated the relationship between innovation/EO and performance. Thus, we look at how individual orientations lead to the same effects as national cultural constructs.

### **THE ROLE OF NATIONAL CULTURE AND CULTURAL ORIENTATIONS OF OWNERS**

Culture represents the shared set of core values and norms of its members (Erez & Gati, 2004). Cultural values are socially constructed and based on the learning processes of its members over a period of time. Our study addresses four dimensions of cultural values that are important at the national level as well as at the level of the business owner: Uncertainty avoidance, collectivism, power distance, and assertiveness. Uncertainty avoidance, collectivism, and power distance have been related to entrepreneurship, innovation, and growth in previous studies (Hayton, George, & Zahra, 2002; Mueller & Thomas, 2000; Shane et al., 1995). Uncertainty avoidance is defined as the extent to which members of a group feel threatened by uncertain and unknown situations (Hofstede, 1991). Power distance reflects the extent to which people accept that power should be stratified and concentrated at higher levels of organizations or governments (Hofstede, 1991; House, Hanges, Javidan, Dorfman, & Gupta, 2007). Collectivism reflects the degree to which people express pride in and loyalty to their in-groups such as a family or an organization. Assertiveness refers to the degree to which individuals are assertive, confrontational, and aggressive in social relationships (House et al., 2007). We used assertiveness as an additional dimension of culture from the GLOBE study because we think that assertiveness is associated with emphasizing initiative, competition, and rewarding performance. Therefore, assertiveness may be important in the context of our study because it is closely related to the competitiveness associated with entrepreneurship (competitive aggressiveness; Lumpkin & Dess, 1996).

Moreover, culture is a multilevel construct with reciprocal relationships between different levels of culture (Erez & Gati, 2004). For example, an entrepreneur belonging to a national culture may also be nested in an entrepreneurial subculture and, moreover, establish an own organizational culture in his venture (Tung, Walls, & Frese, 2007). Thus, there are differences of national values on the whole and cultural orientations of entrepreneurs (McGrath, MacMillan, & Scheinberg, 1992). Our study predicts the relationship between innovation and EO on performance and, thus, is looking at the firm level of analysis. As a consequence, looking at the impact of the national culture alone is not sufficient for analyzing the impact of culture on innovation-performance relationships. We assume that an important level of culture for our study is the level of the cultural orientation of business owners, because this level is directly related to the practices the owner applies in his business (König, Steinmetz, Frese, Rauch, & Wang, 2007). The owners and managers of businesses have a strong influence on the specific practices in their enterprises (Frese, 2000). Therefore, the cultural orientation of the business owner provides a starting point for the development of an organizational culture (Schein, 1987). Consequently, the owners support a culture they consider being related to firm performance (Schein, 1987).

Theoretically, there are different models of how cultural values affect the behavior of its members (Tung et al., 2007). Most studies in the context of entrepreneurship analyzed direct relationships between cultural values and entrepreneurship (Davidsson & Wiklund, 1997; Morris, Avila, & Allen, 1993); see (Levie & Hunt, 2004), innovation (Shane et al., 1995), entrepreneurial orientation (Mueller & Thomas, 2000) and strategic alliance portfolio extensiveness (Marino, Strandholm, Steensma, & Weaver, 2002). Implicitly, this position assumes that the “mental programming of nations” (Hofstede, 1991) finds a direct representation in individual level behavior. An alternative model of culture does not predict direct effects of culture on entrepreneurship behavior (Freitag & Thurik, 2007), but assumes that the match between culture

and behavior explains entrepreneurial success. This position is particularly interesting with regard to whether or not culture affects the effectiveness of entrepreneurial behavior. The most prominent hypothesis in this approach assumes that business owners need to adapt their strategies to the cultural context in order to be successful. For example, elaborated business planning is particularly important for business success in countries that are highly uncertainty avoidant (Rauch, Frese, & Sonnentag, 2000). We now develop specific hypotheses how owner level and country level uncertainty avoidance, collectivism, power distance and assertiveness moderate the effectiveness of innovation and EO.

### **Uncertainty Avoidance**

We argue that uncertainty avoidance may very well be functional at the level of the business owner and, thereby, increasing the relationship between innovation and EO on the one hand and performance on the other hand. Theoretically, innovation and EO increase the uncertainty within a firm. For example, EO focuses on investing into unknown future demand, and innovation may not be accepted in a market. Such uncertainty may create doubts and resistance in a firm. Therefore, the owner may very well try to reduce the uncertainty associated with innovation and EO in the business, for example, by creating a safe environment for experimentation, establishing plans and milestones for goal achievements, and routines for innovation implementation.

At the level of the country, uncertainty may inhibit innovation implementation, thereby, reducing the relationship between innovation, EO and performance. By definition, uncertainty creates resistance toward risk, innovation, and change (Hofstede, 1991), suggesting that high uncertainty avoidant countries have little support for entrepreneurship (Hayton et al., 2002). For example, in countries high in uncertainty avoidance, customers may prefer established products and services rather than new ones, and investors might only invest in ventures that considerably reduce risk and innovation. Therefore, implementing innovation and EO in a high uncertainty avoidant culture may be difficult to do.

*H1: The relationships between innovation and performance and between EO and performance are higher if the cultural orientation of owners is high in uncertainty avoidance as compared to owners who are low in uncertainty avoidance.*

*H2: The relationships between innovation and performance and between EO and performance are higher in countries with low levels of uncertainty avoidance as compared to countries with high levels of uncertainty avoidance.*

### **Power Distance**

We argue that high power distance may be functional to innovation implementation at the level of the cultural orientation of the owner. High power distance can produce a higher adherence to strategies already established in a firm. Moreover, high power distance enables the entrepreneur to envision and implement novel ideas and strategies. Thus, owners high in power distance help successful innovation implementation and, thereby, facilitate business performance; this is true at least in small companies where the owner can be the sole innovator. Accordingly, Geletkanycz's (1997) findings indicated that power distance is related to less resistance to changes of executives.

At the level of the country, it may be difficult to implement innovation and EO successfully in a country high in power distance because power distance refers to maintaining the status quo and resistance to change. The bureaucratic structures of countries high in power distance aim to

maintain the distribution of power and, thereby, built barriers for the initiatives of innovative entrepreneurs. Thus, there are little incentives for innovation in high power distance countries. As a consequence, it may be difficult to implement innovation and change in societies high in power distance which, in turn, reduces the effects of innovation on performance.

*H3: The relationships between innovation and performance and between EO and performance are higher if the cultural orientation of owners is high in power distance as compared to owners who are low in power distance.*

*H4: The relationships between innovation and performance and between EO and performance are higher in countries with low levels of power distance as compared to countries with high levels of power distance.*

### **Collectivism**

With regard to innovation-performance relationships, collectivism seems to be important at the level of the firm (Triandis, 1984). Successful innovation implementation is an effort of multiple persons (Klein & Sorra, 1996) and, therefore, innovation implementation may well benefit from a collective culture. Collectivism focuses its emphasis on group goals, socialization, high loyalty and commitment, and a cohesive management team (Hofstede, 1991). The effectiveness of innovation and EO should increase when employees and management jointly pursue agreed upon goals and share the risk of failure. Moreover, the collectivistic orientation of owners may provide a protected environment that minimizes the uncertainty associated with innovation implementation (Morris et al., 1993). Therefore, we assume that the collectivistic orientation of owners affects the effectiveness of innovation and EO.

With regard to the effect of country level individualism versus collectivism on the relationship between innovation and success, one has to consider the cohesive nature of a collectivistic society. Collective cultures provide more opportunities for communicating the new product innovations to employees, investors, and customers (Dwyer, Mesak, & Hsu, 2005). This makes it more likely to accept the innovation implementation successfully introduced by entrepreneurs.

*H5: The relationships between innovation and performance and between EO and performance are higher if the cultural orientation of owners is high in collectivism as compared to owners who are low in collectivism.*

*H6: The relationships between innovation and performance and between EO and performance are higher in counties with high levels of collectivism as compared to countries with low levels of collectivism.*

### **Assertiveness**

At the level of the business owner, assertiveness helps to implement innovation, because assertiveness helps to shape the environment to one's advantage in order to achieve results and it emphasizes initiatives to establish a competitive market position. However, at the national level, we assume that assertiveness reduces the relationship between EO and performance and between innovation and performance. In high assertive countries, firms either defend their market position or aggressively enter the markets of their competitors, for example, by cutting prices and, thereby, sacrificing profitability (Venkatraman, 1989). In this way, firms reduce opportunities and, moreover, innovations cannot be exploited to their full potential.

*H7: The relationships between innovation and performance and between EO and performance are higher if the cultural orientation of owners is high in assertiveness as compared to owners who are low in assertiveness.*

*H8: The relationships between innovation and performance and between EO and performance are higher in countries with low levels of assertiveness as compared to countries with high levels of assertiveness.*

## METHODS

### Sample

The study compares owners/managers from China, Germany, The Netherlands, Peru and Russia. In order to make the samples more comparable, the participants were selected by using three criteria: First, the participant had to be the owner and active manager of the business (Stewart & Roth, 2001). Second, the enterprise had to have at least one employee (Frese, 2000). Third, the participant's enterprise had to belong to one of four different industries: car and machinery components manufacturing, software development, hotel and catering, and building and construction. In China, 289 business owners from the area of Hangzhou in the Zhejiang province participated in our survey; the response rate was 65%. The German sample was drawn in the Rhine-Main area and consists of 302 business owners; the response rate was 43%. The sample from The Netherlands consists of 87 enterprises; the response rate was 3%. In Peru 220 entrepreneurs were contacted of which 112 participated, resulting in a response rate of 51%. In Russia, 67 entrepreneurs participated in the survey; the response rate was 35%.

### Measures

*Innovation* was ascertained in a series of questions about the introduction of new products, services, and marketing strategies, similar to the instrument used by (Heunks, 1996) Since most entrepreneurs indicated that they introduced some kind of innovation, the interviewee was asked to describe the innovations in detail. The answers were coded on a five-point scale on the degree of innovation. The interrater reliabilities (ICCs) of degree of innovativeness were .73 in China, .86 in Germany, .85 in The Netherlands, .63 in Peru, and .96 in Russia.

*EO* was measured using Covin and Slevin's (1986) scale that consists of six bipolar items assessing the management style of key decision makers regarding innovativeness, risk taking, and proactiveness of firms. The scale has been frequently used in entrepreneurship research (Rauch et al., 2009), and the psychometric properties are well established in cross-cultural studies (Knight, 1997; Kreiser, Marino, & Weaver, 2002). The items of the Covin and Slevin (1986) scale usually converge into one single factor. In the present study, a factor analysis indicated a one-factor solution in all countries studied. Cronbach's alpha for the 6-item scale were .71 in Germany, .79 in China, .72 in The Netherlands, .87 in Peru, and .80 in Russia.

We measured the same dimensions of *culture* for assessing the national culture and the cultural orientation of owners: uncertainty avoidance, power distance, collectivism, and assertiveness. The values of the *national culture* were taken from the GLOBE study (House, et al., 2007). The GLOBE data was aggregated at the level of the country, and, thus, is varying only between countries and not within countries. To measure *cultural orientations of owners*, we used a measure

that builds on the GLOBE (House et al., 2007) framework and adapted the measure to the level of the business owners (König et al., 2007). This instrument presents different scenarios related to the practices business owners apply in their businesses. Each scenario provides two behavioral options that represent high and low values of a cultural dimension. The reliabilities (Cronbach's alpha) of the dimensions were .77 for uncertainty avoidance, .81 for power distance, .66 for collectivism, and .87 for assertiveness.

We measured business performance by two indicators: growth and organizational success. *Growth* was measured in the interview by asking about the number of employees over the last three years. Growth was calculated by the change in the number of employees within the last three years. *Organizational success* was measured with a questionnaire by Wiklund and Shepherd (2003). The scale asks owners to compare their own firm performance relative to their most important competitors on 10 different dimensions of performance: sales growth, revenue growth, growth in employees, net/profit margin, product/service innovation, process innovation, adoption of new technology, product/service quality, product/service variety, and customer satisfaction. The questionnaire scale was internally consistent in all countries (Cronbach's alphas of .92, .80, .79, .90, and .86 in China, Germany, The Netherlands, Peru, and Russia, respectively).

We controlled for company age. Moreover, our design included enterprises from four different industries and, therefore, we controlled for these types of industry.

### Analysis

Since our design included main and interaction effects of country level variables and owner level variables, our analysis needed to account for these cross-level effects. The cross-level operator analysis (CLOP, James & Williams, 2000) can be used to test the interaction effects of higher level variables and lower level variables on lower level outcomes (Klein & Kozlowski, 2000). The method is conceptually related to hierarchical linear modeling (HLM) and provides similar parameter estimates (Klein & Kozlowski, 2000). CLOP can be used when the number of higher level observations (in our case country samples) does not allow the use of HLM (Blau, 1995; Fischer et al., 2007). Accordingly, we used a hierarchical regression analysis including control variables in step one. In the second step, firm level variables (innovation, EO, and the cultural orientation of owners), and in the third step, the firm level interactions between innovation/EO and the cultural orientation of owners were included in the equation. Finally, to assess the amount of variance attributed to the national culture, we included country level predictors (national culture) in step four and country level interactions (innovation with national culture and EO with national culture) in step five of the equation.

## RESULTS

We tested the hypotheses concerning the moderator effect of culture separately for each cultural dimension because the intercorrelations between the dimensions of culture were too high to enter all of them into one equation. Hypothesis 1 predicted that uncertainty avoidance of owners moderates the size of the relation of innovation and EO on performance. When we entered firm level predictors first in the regression equation, the interaction terms increased explained variance in growth by 2%. Moreover, the interaction effect between innovation and uncertainty avoidance was positive and significant ( $\beta = .11, p < .05$ ). When we plotted the interaction we found that the relationship between innovation and growth was higher for owners high in uncertainty avoidance (Figure 1). Therefore, Hypothesis 1 was supported. Hypothesis 2 predicted that country level

uncertainty avoidance positively moderates the relationship between innovation and performance and between EO and performance. When we entered country level uncertainty avoidance into the regression equation, the interaction between innovation and uncertainty explained growth ( $\beta = .16$ ,  $p < .05$ ) and increased explained variance by 2%. However, when we plotted the interaction (Figure 2), we found that the relationship between innovation and growth was higher in high uncertainty avoidant countries as compared to countries low in uncertainty avoidance. Therefore, Hypothesis 2 had to be rejected. Hypothesis 3 assumed that the cultural orientation of owners in power distance positively moderates the relation of innovation and EO on performance. Our regression analysis indicated support for Hypothesis 3 and when we plotted the interaction term, one can see that the interaction was in the expected direction (Figure 3). However, the country level moderator variable power distance did not increase explained variance in growth and, therefore, we had to reject Hypothesis 4. Hypotheses 5 and 6 assumed that collectivism moderates positively the relationship between innovation and performance and between EO and performance. Both hypotheses were supported (Figure 4 and 5, respectively). Hypothesis 7 proposed that assertiveness of owners positively moderates both the relationship between innovation and performance and the relationship between EO and performance, while Hypothesis 8 assumed that country level assertiveness negatively moderated the relationship between innovation and performance and between EO and performance. Both hypotheses were supported (compare Figures 6 and 7).

## DISCUSSION AND IMPLICATIONS

This study investigated the relations of EO and innovation on performance in different cultural contexts. First of all, our study indicated that EO and innovation predict performance fairly well. These results are in line with prior empirical studies (Rauch et al., 2009; Rosenbusch et al., 2010). These effects appeared in within country analyses as well as in cross-country analyses when we hold the effect of the country constant. Since we found positive effects in five quite different cultures, we conclude that there is some evidence for the universal validity of innovation and EO. Second, we found that cultural variables moderated the relationships between innovation and performance. The increased variance due to the moderator “culture” was small in general. Nevertheless, uncertainty avoidance, power distance, collectivism, and assertiveness explained some of the variance in innovation/EO-performance relationships. Thirdly, our study indicates that both national culture and cultural orientations of owners explained variation in performance relationships. Sometimes, but not always, the two levels of culture affected the relationship between innovation and performance in the same way. For example, both country level collectivism and the collectivistic orientation of owners positively influenced the strength of the relationship between innovation and performance. However, country level assertiveness reduced the relationship between innovations and growth, while assertiveness of owners increased the relationship between innovation and growth. Thus country level culture as well as owner level culture differentially influenced firm success and, therefore, both levels need to be assessed when studying entrepreneurship success across countries. Most previous studies ascertained culture only at the level of the countries. Our results indicate that such designs are oversimplified, at least when studying success relationships. Thus, including different levels of analysis in the design may help to achieve more consistent results in cross-cultural entrepreneurship research.

At the level of the country, uncertainty avoidance positively influenced the relationship between innovation and performance. We did not expect a positive effect here because innovations should not be easily accepted in a high uncertainty avoidant culture. Moreover, the entrepreneurship literature argued countries high in uncertainty avoidance and collectivism demonstrate less entrepreneurship behavior (Hayton et al., 2002). Possibly, only very few

entrepreneurs choose entrepreneurial and innovative strategies in countries high in uncertainty avoidance and collectivism. As a consequence, entrepreneurship and innovations might be easier exploited to their full potential in such countries.

It is interesting to discuss why we found the proposed interaction effects relatively consistent with regard to innovation-growth relationships, suggesting a culture specific interpretation, while we found no interaction effect for the relationship between EO and organizational success, suggesting a process common in all cultures. Possibly, this is due to the level of abstraction in which we studied cultural differences. Both EO and organizational performance are concepts that are relatively broad because EO reflects a general management process and organizational performance a global performance assessment on 10 different dimensions. Such an assessment might be too broad to disentangle cultural differences. As a matter of fact, EO has been validated across countries in a number of studies (Rauch et al., 2009). Both innovation and growth are specific because innovation is concerned with the introduction of specific innovations, and growth in employment focuses on one specific performance criterion. It is more likely to reject the proposition of universal effects at a specific level of abstractness (Norenzayan & Heine, 2005). This would suggest that culture becomes more important if studies are interested in investigating the implementation effectiveness of specific types of innovation (e.g., radical versus incremental innovation).

Our results need to be interpreted in light of some limitations, such as the small number of countries included in our country level analysis. Additionally, as in any cross-country study, the fixed group design allows for alternative explanations. For example, the economic or institutional environment may impact reported relationships (Lee, Peng, & Barney, 2007). We cannot rule out such influences and, in fact, there is evidence that the environment affects entrepreneurship activity and innovation (Reynolds, 1987). However, our study addressed the effect of culture on performance relationships; testing relationships across countries is less vulnerable to biases than testing mean differences. Therefore, based on our results, a number of theoretical and practical implications can be suggested. Our finding that the national culture affects innovation-performance relationships beyond the effects of the cultural orientation of owners indicates that entrepreneurship needs to include culture in order to test the boundaries of theories. We suggest moving beyond simple descriptive studies that show that the amount of entrepreneurship and innovation is different across cultures. It is more important to test whether entrepreneurship and innovation is functional and effective in certain cultural contexts. This requires conceptualizing cultural values as moderator variables and not as independent variables. Finally, testing the boundaries of entrepreneurship theory requires addressing different levels of culture because such levels affect each other and, additionally, differently impact the prediction of business success. Practitioners and counselors of business ventures may be well advised to recognize that business ventures need to differentiate their venture from competitors but, at the same time, that differentiation is dependent on the cultural context that may either help or hinder successful innovation implementation.

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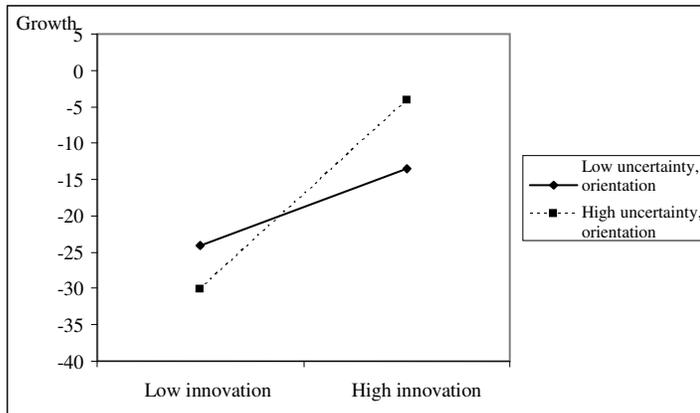
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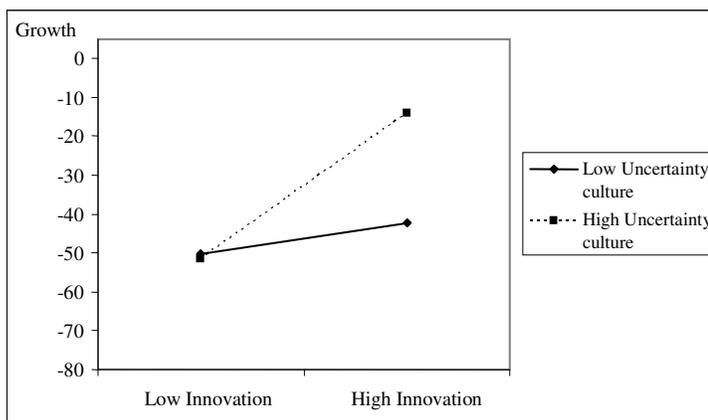
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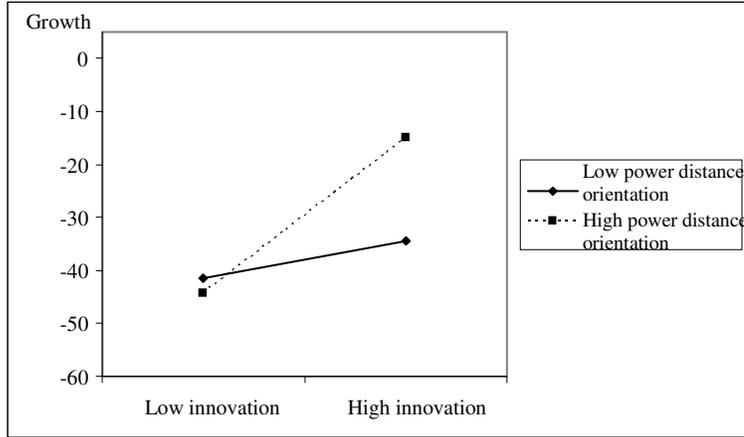
**Figure 1. Uncertainty Avoidance of Owners Moderating the Relationship between Innovation and Growth**



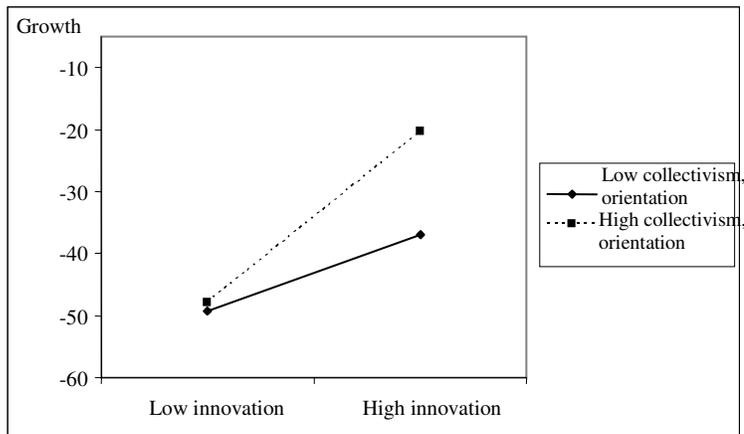
**Figure 2. Country Level Uncertainty Avoidance Moderating the Relationship between Innovation and Growth**



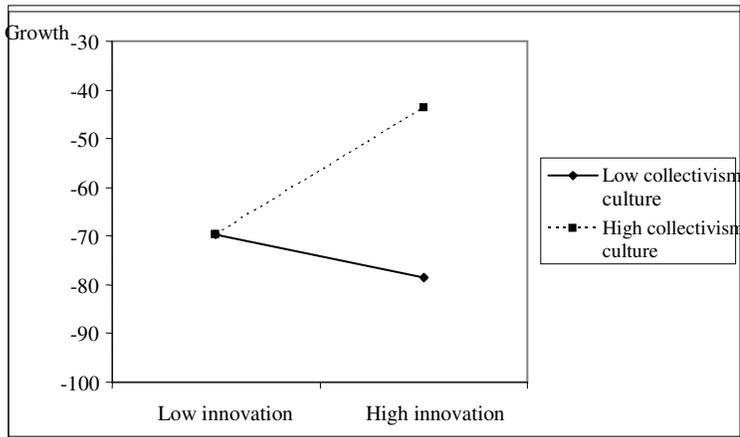
**Figure 3. Power Distance Of Owners Moderating The Effect Of Innovation On Venture Growth**



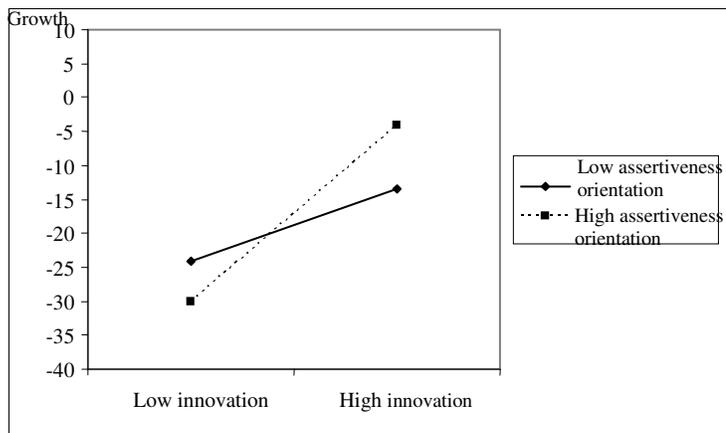
**Figure 4. Collectivism of Owners Moderating the Relationship between Innovation and Growth**



**Figure 5. Country Level Collectivism Moderating the Effect of Innovation on Growth**



**Figure 6. Assertiveness of Owners Moderating the Relationship between Innovation and Growth**



**Figure 7. Country Level Assertiveness Moderating the Relationship between Innovation and Growth.**

