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# Two Essays on the Impact of Institutional Structures on Entrepreneurship: Country Level Analysis

Mehdi Sharifi Khobdeh  
*Old Dominion University*

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**TWO ESSAYS ON THE IMPACT OF INSTITUTIONAL STRUCTURES ON  
ENTREPRENEURSHIP: COUNTRY LEVEL ANALYSIS**

By

Mehdi Sharifi Khobdeh

B.S. August 2007, Sharif University of Technology

MBA, August 2011, Sharif University of Technology

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Approved by:

Dr. Anil Nair (Director)

Dr. Edward Markowski (Member)

Dr. Jing Zhang (Member)

Dr. Amir Pezeshkan (Member)

**ABSTRACT****TWO ESSAYS ON THE IMPACT OF INSTITUTIONAL STRUCTURES ON  
ENTREPRENEURSHIP: COUNTRY LEVEL ANALYSIS**

Mehdi Sharifi Khobdeh

Old Dominion University, 2017

Director: Dr. Anil Nair

Entrepreneurship has long been viewed as an engine of innovation and economic growth; however, there is limited understanding of cross-national differences in rates and types of entrepreneurship. This dissertation mainly uses an institutional theory framework to investigate whether shared social knowledge, value systems, and regulations influence differences in rates and types of entrepreneurial activities among countries.

This dissertation's central research question is addressed in two essays. In Essay 1, I examine what factors explain the recovery of entrepreneurial activities in countries after the 2008 global financial crisis (GFC). Nearly all countries experienced a sharp drop in entrepreneurial activities during the GFC; however, entrepreneurial activities rebounded to pre-crisis level in some countries, and not others. I test my propositions using Fuzzy-set Qualitative Comparative Analyses (FSQCA) and identify the distinct configurations of institutional arrangements that explained recovery of entrepreneurial activities after the GCF. The findings broadly indicate that there is an equifinality in countries' recovery in which either formal institutions (regulatory) or informal institutions (normative and cognitive) are sufficient conditions for entrepreneurial recovery indicating multiple paths for countries to pursue after an entrepreneurial crisis, and the

simultaneous presence of all three institutional structures (cognitive, normative and regulative) was not necessary for the recovery.

Essay 2 investigates the relationship between countries' institutional profile (cognitive, normative and regulatory) coupled with national innovation system and individuals, entrepreneurial choice: necessity driven entrepreneurship and opportunity driven entrepreneurship. Recent research has identified that opportunity driven entrepreneurship has more significant impact on economic growth than necessity driven entrepreneurship. I examine how national innovation system factors such as entrepreneurship training and education, university–industry collaboration, technology and availability of venture capital impact the type of entrepreneurship. Using Hierarchical Linear Modeling, the findings shows that while either institutional profile or national innovation system factors cannot solely encourage people to choose OME over NME, if supportive institutional arrangements (cognitive, normative and regulatory) get coupled with national innovation system factors, it can be expected to see more potential entrepreneurs to get engaged in opportunity driven entrepreneurship rather than necessity driven entrepreneurship.

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## **DEDICATION**

To my parents, Farhad and Leila, for all their love and endless support and encouragement.

Without their sacrifices, I would not have achieved this.

To my lovely fiancée, Sogand, for her unconditional love.

And to my dear sister, Dr. Shirin Sharifi Khobdeh who always wants his brother to prosper.

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## CHAPTER 1

### 1. INTRODUCTION

Entrepreneurship has long been viewed as an engine of innovation and economic growth; however, there is limited understanding of cross-national differences in rates and types of entrepreneurship. This dissertation uses an institutional theory framework to investigate whether shared social knowledge, value systems, regulations and different levels of access to the sources of innovation influence differences in rates and types of entrepreneurial activities among countries.

There are numerous studies indicating that entrepreneurship is a key factor for nations to improve their economic conditions (See Table 1.1). On the other hand, big share of entrepreneurship literature, particularly recent studies, have found significant relationships between country-level framework conditions and national culture and entrepreneurial activities (See Table 1.2), but our knowledge about how these framework conditions, national conditions, and supporting institutions create a fertile environment for new ventures is still limited. In addition, studies examining this topic have, in large measure, focused on the variance in the rate of entrepreneurial activity across countries and have neglected to consider how these same country-level institutional arrangements might influence the quality of entrepreneurial activity. In other words, we do not know why countries with similar institutional profile (Kostova. 1997) have different rates or types of entrepreneurship. Furthermore, we do not why countries with totally different institutional environment have reached similar entrepreneurial outcomes after going through similar critical situations such as the 2008 Global Financial Crisis.

**[INSERT Table 1.1 ABOUT HERE]**

**[INSERT Table 1.2 ABOUT HERE]**

This dissertation's central research question is addressed in two essays. In Essay 1, I examine what factors explain the recovery of entrepreneurial activities in countries after the 2008 global financial crisis (GFC). Nearly all countries experienced a sharp drop in entrepreneurial activities during the GFC; however, entrepreneurial activities rebounded to pre-crisis level in some countries, and not others. I test my propositions using Fuzzy-set Qualitative Comparative Analyses (fsQCA). The premise of fsQCA is that in most cases, a combination of multiple conditions leads to an outcome in social sciences instead of each independent variable influencing the outcome individually (Crilly, Zollo, & Hansen, 2012). It allows me to explore certain configurations of causal conditions leading to the high and low levels of an outcome variable (Ragin, Drass, & Davey, 2006; Ragin, 2000). This empirical study is based on a sample of countries that have experienced a decline in their rate of entrepreneurial activity during the 2008 Global Financial Crisis. Using fuzzy set analysis, I identify the distinct configurations of institutional arrangements that explained recovery of entrepreneurial activities after the GCF. The findings broadly indicate that presence of either regulatory institutions or informal institutions (normative and cognitive) was sufficient to achieve recovery of entrepreneurial activities, and the simultaneous presence of all three institutional structures (cognitive, normative and regulative) was not necessary for the recovery.

Furthermore, in a more fine-grained analysis I investigate the role of each pillar of countries' institutional profile on entrepreneurial recovery. I found that society's view on entrepreneurship as a good career, status and respect given to those engaged in entrepreneurship and visibility of entrepreneurship in the media, are the most common factors to conduct countries toward entrepreneurial recovery. Simplified regulations of starting new businesses and lower tax

burdens on new businesses are the second most popular factors to conduct countries toward entrepreneurial recovery. Providing individuals with knowledge and skills needed for new venture creation and creating networks of entrepreneurs to share essential knowledge and information, which result in decrease of fear of failure and increase of opportunity recognition, are other solutions of recovery from entrepreneurial crisis.

Essay 2 investigates the relationship between countries' institutional profile (cognitive, normative and regulatory) and national innovation system on individuals' choice between necessity motivated entrepreneurship (NME) and opportunity motivated entrepreneurship (OME). I examine how national innovation system factors such as entrepreneurship training and education, university–industry collaboration, access to the latest technology and availability of venture capital impact the type of entrepreneurship. Analysis using Hierarchical Linear Modeling show that neither institutional profile nor national innovation system factors solely determine the choice between OME and NME; however, OME tends to be higher in instances when supportive institutional arrangements (cognitive, normative and regulatory) get coupled with national innovation system factors.

I use Hierarchical Linear Modeling (HLM) to conduct a variance decomposition analysis in order to examine the explanatory power of the countries institutional arrangements toward individuals' entrepreneurial choice. The hypotheses are tested using a sample of 10,776 individuals interviewed by Global Entrepreneurship Monitor in 55 different countries. The results show that while neither institutional profile elements nor national innovation system components cannot significantly impact the entrepreneurial choice, if these institutional frameworks get coupled with each other, they may increase the likelihood of individuals getting engaged in opportunity motivated entrepreneurship instead of necessity motivated entrepreneurship. In other words, while previous studies (Bruton, Ahlstrom & Li, 2010, Valdez & Richardson, 2013, Stenholm, Acs & Wuebker,

2013) have found that countries cognitive, normative and regulatory institutions may positively impact the rate entrepreneurship regardless of the type, they can determine the choice of OME over NME only if they get coupled with high levels of innovation.

Overall, the findings of this dissertation make several theoretical and empirical contributions to the institutional theory and entrepreneurship literature. While previous studies believe that high quality cognitive, normative and regulatory institutions are needed to enhance the country-level entrepreneurship (Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013), in this study, I have found that there are different combinations of institutional pillars that can result in enhancement of entrepreneurship in countries. In other words, there is no need to have all three major institutions together simultaneously to improve entrepreneurship. Having at least one of the formal (regulatory) or informal (cognitive and normative) institutions can result in entrepreneurial recovery despite financial limitations due to global financial crisis.

From the empirical stand point, essay 1 introduces new approaches to make policies to improve entrepreneurship in country. While making improvements in all aspects of entrepreneurial institutions would be very difficult, my findings show that there are multiple configurations of institutional arrangements that leads to the entrepreneurial enhancement. So, policymakers may have different options to choose based on their countries strengths and weaknesses in terms of entrepreneurial institutions. For instance, in cases of inadequacy of formal institutions toward entrepreneurship, countries can compensate this void by relying on their normative and cognitive institutions. In second essay, I found out that to increase the likelihood of choosing OME over NME, there is a need for increasing the access of individuals to the sources of innovations. Those countries desiring economic growth through opportunity motivated entrepreneurship (McMullen, Bagby & Palich, 2008), must provide their people with higher entrepreneurial education and training, higher access to the latest technology and higher availability of venture capitalists.

## 1.1. REFERENCES

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## 1.2. TABLES AND FIGURES

Table 1.1: Entrepreneurship and Economic Growth

Year	Authors	Journal/Book	Title
1952	Bert F. Hoselitz	The American Journal of Economics and Sociology	Entrepreneurship and economic growth
1998	Holcombe, R. G.	Quarterly journal of Austrian economics	Entrepreneurship and economic growth
1999	Sander Wenekers and Roy Thurik	Small Business Economics	Linking Entrepreneurship and Economic Growth
2005	Poh Kam Wong, Yuen Ping Ho and Erkkko Autio	Small Business Economics	Entrepreneurship, Innovation and Economic Growth: Evidence from GEM Data
2006	David Audretsch and Max Keilbach	Book	Entrepreneurship & Growth
2006	Zoltan Acs	Innovations	How is entrepreneurship good for economic growth?
2007	William J. Baumol and Robert J. Strom	Strategic Entrepreneurship Journal	Entrepreneurship and economic growth
2010	Martin A. Carree and A. Roy Thurik	Chapter 20 In Handbook of entrepreneurship research	The impact of entrepreneurship on economic growth
2013	Heather M. Stephens, Mark D. Partridge and Alessandra Faggian	Journal of Regional Science	Innovation, entrepreneurship and economic growth in lagging regions
2016	James E. Priegeera, Catherine Bampokyb, Luisa R. Blancoa, Aolong Liua	World Development	Economic Growth and the Optimal Level of Entrepreneurship
2016	Iman Moheb Zaki Nagia Hassan Rashid	The Business and Management Review	Entrepreneurship Impact on Economic Growth in Emerging Countries

Table 1.2: Institutions and Entrepreneurship

Year	Authors	Journal/Book	Title
2000	Mitchell, R. K., Smith, B., Seawright, K. W., & Morse, E. A.	Academy of Management Journal	Cross-cultural cognitions and the venture creation decision
2000	Thomas, A. S., & Mueller, S. L	Journal of international business studies	A case for comparative entrepreneurship: Assessing the relevance of culture
2004	Hofstede, G., Noorderhaven, N. G., Thurik, A. R., Uhlaner, L. M., Wennekers, A. R., & Wildeman, R. E.	Innovation, entrepreneurship and culture: The interaction between technology, progress and economic growth	Culture's role in entrepreneurship: self-employment out of dissatisfaction.
2008	McMullen, J. S., Bagby, D., & Palich, L. E.	Entrepreneurship Theory and Practice	Economic freedom and the motivation to engage in entrepreneurial action
2010	Lim, D.S.K., Morse, E.A., Mitchell, R.K., & Seawright, K.K.	Entrepreneurship Theory and Practice	Institutional environment and entrepreneurial cognitions: A comparative business systems perspective.
2010	Kreiser, P.M., Marino, L.D., Dickson, P., & Weaver, K.M.	Entrepreneurship Theory and Practice	Cultural influences on entrepreneurial orientation: The impact of national culture on risk taking and pro-activeness in SMEs.
2013	Stenholm, Pekka, Zoltan J. Acs, and Robert Wuebker	Journal of Business Venturing	Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity
2013	Michael E. Valdez and James Richardson	Entrepreneurship theory and practice	Institutional Determinants of Macro-Level Entrepreneurship



## **CHAPTER 2**

### **2. ESSAY I: THE IMPACT OF INSTITUTIONAL ARRANGEMENTS ON ENTREPRENEURIAL RECOVERY DURING THE GLOBAL FINANCIAL CRISIS**

#### **2.1. ABSTRACT**

During the global financial crisis, nearly all countries experienced a sharp drop in the rate of entrepreneurship and not all of them had reached their level of new firm creation they had before the global financial crisis hit in 2007. Using a sample of 56 countries, this study employs fuzzy-set Qualitative Comparative Analyses to investigate the relationship between distinct configurations of institutional arrangements and countries' recovery from entrepreneurial crisis. The data for this study are taken from Global Entrepreneurship Monitor (indicators of cognitive and normative pillars), Heritage Foundation/Wall Street Journal IEF and World Bank's Ease of Doing Business Index (indicators of regulative pillar and new business registration). The findings indicate that either formal institutions (regulatory) or informal institutions (normative and cognitive) result in entrepreneurial recovery and there is no need to have all institutions simultaneously to enhance entrepreneurship in a country.

## 2.2. INTRODUCTION

Entrepreneurship has long been viewed as an engine that drives innovation and promotes economic growth, but much of the literature on entrepreneurship studies the characteristics of individuals, the resources they bring together, and the opportunities that are present in the competitive environment. There is a limited understanding of why rates of entrepreneurship vary cross-nationally and why certain types of entrepreneurial activities may be more pursued in one country than in another. Apparent differences in entrepreneurial activities across countries have led to research aimed at understanding the sources of these differences.

It is obvious that multidimensionality in defining entrepreneurship resulted in drawing attention to different aspects of the concept by different research questions (Busenitz, Gomez & Spencer, 2000). In this stream of research, the broad focus was on the development of small and medium enterprises (Acs, 1992; Aronson, 1991) and the narrower focus was on establishing and success of firms that are offering new products and services (Schumpeter, 1934). In both approaches it is claimed that entrepreneurial firms are providing incentives for economic growth (Reynolds, 1997; Rondinelli & Kasarda, 1992).

Many international management scholars believe that firms are embedded in nation-specific institutional arrangements (Busenitz et al., 2000). Nelson (1993) argues that specific institutional frameworks conduct firms' strategic endeavors and innovation taking place within countries borders can be determined by means of institutional arrangements specifications. In other words, differences in countries' institutions may result in different levels of entrepreneurial activities across countries. Many of these studies have investigated the linkage between Hofstede's (1980) national culture dimensions and different aspects of entrepreneurship, with particular emphasis on individualism. An institutional point of view, either explicitly or

implicitly, is used by aforementioned studies. In other words, these studies suggest that institutions may be powerful predictors of countries' entrepreneurial activities. On the other hand, some studies found out that the countries' national culture dimensions are not a strong predictor of countries entrepreneurship by their own (Acs, 1992; European Network for SME Research, 1996; Mueller & Thomas, 1997). These findings suggest that national culture indicators do not have adequate explanatory power to describe country level entrepreneurial activity variations. Busenitz et al., 2000 believe that the best predictor for cross-country differences in entrepreneurship is a broader set of institutional arrangements that conduct and limit entrepreneurial behavior within a specific country.

In 1997, using Scott's (1995) three institutional pillars, Kostova introduced the concept of three-dimensional country institutional profile to explain the effects of country's government policies (regulatory dimension), widely shared social knowledge (a cognitive dimension), and value systems (a normative dimension) on domestic business activity. In 2000, Busenitz, Gomez & Spencer used Kostova's (1997) approach to explore how and why levels of entrepreneurship are different, country by country.

The argument that nations' institutional arrangements shape entrepreneurial behavior could be considered as a special case of the argument that nations' institutional arrangements shape people social behavior in general (Busenitz et al., 2000; Scott, 1995). Based on this proposition, it can be said that institutions (regulative, cognitive, and normative) may influence the types of opportunities people see, their start-up decision making process, the types of organizations they establish, the ways they acquire their financial resources, the managerial approaches they pursue, and the level of success they obtain (Valdez & Richardson, 2013).

In this study, focusing on “Global Financial Crisis” period, I am going to investigate the role of institutions in countries’ entrepreneurial recovery after experiencing a sharp drop in entrepreneurship in almost all countries around the world due to the global financial crisis (Klapper and Love, 2011). In 2014, World Bank published a report stating that only 56 percent of countries had reached their level of new firm creation they had before the global financial crisis hit in 2007 after experiencing a drastic fall during the crisis. For instance, in Austria the percentage of population who are either a nascent entrepreneur or owner-manager of a new business was 5.28% before the crisis and it dropped drastically to 2.44 during the crisis and it reached to 9.58 by 2012, while Italy never came back to 5% which it had before the crisis. During the crisis, people in general and entrepreneurs particularly had difficulties in terms of accessing financial capital (Lee, Sameen and Cowling, 2015), but other than financial capital, entrepreneurs also need social and human capital to create a new venture. Entrepreneurial Intention Model developed by Liñán and Chen (2006) states that, the perception of the easiness or difficulty of financing a new firm, is just one motivational factor that influences entrepreneurial behavior and people’s cognition and society’s norms also can act as motives. So, it can be inferred that due to lack of financial resources because of crisis, people may be influenced by other factors to start a new venture.

Since “the institutional context provides the tools, models, and constraints that shape the entrepreneur’s choices” (Valdez & Richardson, 2013, p. 1150), in this study, I am going to find out why some countries managed their entrepreneurial crisis while some others did not. Despite several studies using institutional theory to study country level entrepreneurship, there are two major gaps in the literature: first the role of institutions during the global crisis and the ways some countries utilized their institutions to recuperate from entrepreneurial decline, are unclear.

Second, the prior studies that used the concept of three-dimensional country institutional profile to explore country level entrepreneurship, are concentrated on a unique set of three institutional pillars while in this study I am going to investigate if different countries have used different combinations of institutional arrangements to obtain entrepreneurial recovery. I examine how different combinations of institutional arrangements resulted in a same outcome, which is recovery from entrepreneurial crisis. Further, I investigate what are the most prevalent institutional constructs that have helped countries to manage their entrepreneurial decline.

The article is structured as follows. First, I explain the role of entrepreneurship in economic growth of the nations which is the motivation of studying the entrepreneurial activities while nations are in financial crisis situation. This section is followed by a review of the impact of national institutions on entrepreneurial activities. Next, I discuss the institutional circumstances of nations during the Global Financial Crisis leading to the propositions. Next, I explain the data, methodology and findings. Finally, I discuss the implications of this study and future research recommendations.

## **2.3. THEORY DEVELOPMENT**

### **2.3.1. Entrepreneurship and Economic Growth**

There are several studies on relationships between entrepreneurship and economic growth (Baumol and Strom, 2007; Hoselitz, 1952; Wennekers and Thurik, 1999; Wong and Autio, 2005; Acs, 2006, Audretsch, Keilbach and Lehmann, 2006, Holcombe, 1998). The early work of Schumpeter (1934) conceptually recognized the "entrepreneur as innovator" as a key player in economic enhancement. Schumpeter (1942) believed that the innovative activity of entrepreneurs feeds a creative "destruction process" through disturbing an economic system in equilibrium, which finally results in opportunity creation for economic rent. During the process of equilibrium

adjustment, other entrepreneurial opportunities will outgrow and more entrepreneurs enter the economic system. Accordingly, Schumpeter's theory anticipates that the growing number of entrepreneurs results in economic growth (Wong, Ho, & Autio, 2005).

The linkage between entrepreneurship and economic growth have developed from various fields of economics and management study, including economic history, industrial economics and management theory (Wong, Ho, & Autio, 2005). Wennekers and Thurik (1999) and then Carree and Thurik (2003) provide extensive surveys of the diverse literature on the relationship between entrepreneurship and economic growth. One simple explanation is that entrepreneurship contributes to economic performance by introducing innovations, creating change, creating competition and enhancing rivalry. The other simple explanation for this relationship would be that entrepreneurs create new ventures and in turn by creation of new ventures more job opportunities would be created and this will enhance the level of competition and productivity (Acs, 2006).

Mueller and Thomas, (2001) argue that, since entrepreneurship is related to creating job opportunities, in developed countries such as United States of America, entrepreneurial activities are considered as solutions for unemployment problems occurred after restructuring and downsizing (Birley 1986; Birch 1979). Moreover, many studies introduce entrepreneurship as a prerequisite for technological improvements (Schumpeter 1934; Hagen 1962; Kilby 1971; Baumol 1986). Inferring from above arguments, entrepreneurship is positively and significantly related to the extent of economic growth of countries. Wong and Autio (2005) state that; not only the literature suggests that entrepreneurship and economic growth are related directly through innovation introduction, change creation and competition increase, but also there are empirical studies on linkage between entrepreneurial activities and national level economic growth.

The association between entrepreneurship and nations' economic growth, make entrepreneurship an important subject of study during the global financial crisis while almost all countries were suffering from economic decline to their own extent. Figure 2.1 shows the GDP growth of the world countries between 2006-2013. As an indicator of economic growth, the GDP growth in this figure shows that the whole world was not in a good economic shape during the global financial crisis (2007 till 2010).

**[INSERT Figure 2.1 ABOUT HERE]**

Summarizing above arguments, it can be stated that the prescription for financial crisis recovery could be written by hands of entrepreneurs. In other words, through development of entrepreneurship, countries can expect economic progress after experiencing decline.

### **2.3.2. Institutional Theory and Entrepreneurship Research**

Primarily, institutional theory was developed to explain how different groups and organizations better establish their positions and win legitimacy by meeting the requirements of the institutional environment in terms of rules, norms and cognitions (Meyer & Rowan, 1991; Scott, 2007). Broadly speaking, institutions refer to formal sets of rules (North, 1990), agreements (Bonchek & Shepsle, 1996), less formal shared interaction sequences (Jepperson, 1991), and implicit assumptions (Meyer & Rowan) that organizations and individuals are expected to follow. These come out of regulatory structures, governmental entities, laws and legislations and other societal and cultural practices (DiMaggio & Powell, 1983, 1991; Bruton, Ahlstrom, & Li, 2010). Based on institutions, appropriate actions that organizations and individuals are expected to do, can be determined (Meyer & Rowan, 1991). On the other hand, unacceptable behaviors can also be recognized (DiMaggio & Powell, 1991).

Institutional theory deals with regulatory, social and cultural factors that support survival and legitimacy of an individual or an organization. Institutional forces can be determined in various disciplines such as sociology (DiMaggio & Powell, 1983, 1991), organizational theory (Meyer & Rowan, 1991), political science (Bonchek & Shepsle, 1996), and economics (North, 1990). Differences in national institutions may also bring about different levels of entrepreneurial activity across countries (Busenitz et al., 2000). These institutional forces are summarized in Scott's (2007) three pillar framework; regulative, normative and cognitive.

The regulative pillar is mostly the result of studies in economics and illustrates a rational manner of behavior (Bruton et al., 2010). North (1990) believes that institutions are determining, monitoring and enforcing the rules of the game and by means of these, institutions conduct behaviors in a society. The regulative pillar factors come out of governmental laws and legislation, industrial standards and protocols.

The normative pillar shows the proper behaviors for organizations and individuals relying on dimensions of social, professional, and organizational preferences. In other words, normative institutions try to illustrate the acting model by stating what is preferred or suitable in different circumstances in a society (Bruton et al., 2010). Scott (2007) asserts that the normative pillar of institutions is made of two major components; values and norms. Values are referred to what is expected or considered to be suitable and norms are the way things should be done aligned with the values (Scott, 2007). Hence, it is because of social obligations that normative institutions can influence behaviors (March & Olsen, 1989).

The third pillar, cognitive part derives mostly from cognitive approaches in social science (DiMaggio & Powell, 1991). Cognitive institutions demonstrate behavioral models based on subjective rules and meanings that define preferred beliefs and attitudes (Bruton et al., 2010).



Scott (2007) believes that the cognitive pillar is usually meaningful in the individual level where culture and language are at work (Scott, 2007).

After Scott (1995), Kostova (1997) introduced the concept of a “three-dimensional country institutional profile” to explain how domestic business activities of nations can be understood through a country's government policies (constituting a regulatory dimension), widely shared social knowledge (a cognitive dimension), and value systems (a normative dimension). She emphasized that countries' institutional profiles lose meaning when they are generalized across a broad set of issues. Institutional profiles must, instead, be measured with regard to specific domains. Research in cognitive psychology has shown that cognitive and normative categories are domain-specific (Abelson & Black, 1986; Walsh, 1995). Countries' regulations and government policies also tend to affect specific domains differently.

However, this profile must be directed toward a specific sphere of activity or field and cannot be generalized across multiple domains. Accordingly, and for the first time, Busenitz et al. (2000) utilized Kostova's three-dimensional country institutional profile to develop and validate measures of the regulative, cognitive, and normative dimensions of a nation's institutional profile particularly within entrepreneurship activity. Their six-country (Germany, Italy, Norway, Spain, Sweden, and United States) study focused on defining the regulative, cognitive, and normative dimension constructs demonstrated differences between the countries.

Entrepreneurship scholars believe that using institutional theory as a theoretical lens in entrepreneurship studies is increasing. They assume that theories used before are mostly neglecting the role of social forces as drivers of business activities (Barley & Tolbert, 1997). The institutional approach points to the rules, norms, values, cognitions and beliefs that shape people's behavior, which may vary country by country and culture by culture (Fang, 2010; Scott,

2007). Entrepreneurial activities can be more understood by investigating what is institutionalized in different countries. In other words, by realizing the activities, beliefs and cognitions that have been taken for granted or reached rule-like status (or those that have not), the factors that are enabling and constraining entrepreneurship in various environments can be recognized (Bruton & Ahlstrom, 2003).

It can be argued that institutions will shape entrepreneurial behavior along the entire entrepreneurial process. It seems plausible that regulative, cognitive, and normative institutions will affect the types of opportunities people see, the decision to start up a venture, the types of organizations they form, the financing arrangements, the management methods they employ, and the growth they achieve. The institutional context provides the tools, models, and constraints that shape the entrepreneur's choices about each of these. In this study, as in most of the institutional studies cited earlier, I focus on the decision to start a venture. This critical step is central to the definition of an entrepreneur and is widely used to measure the degree to which a society is entrepreneurial. It is also clearly shaped by regulative, cognitive, and normative societal institutions. The regulatory burden and economic policies certainly affect the difficulty as well as incentives to launch a venture (McMullen et al., 2008). Cognitive characteristics like awareness, information, and knowledge seem to be important precursors to launching a venture (Mitchell et al., 2000). And social norms such as the degree to which a society admires entrepreneurs and values innovation will affect an individual's motivation to launch a venture (Busenitz et al., 2000).

### **2.3.3. Entrepreneurship during the global financial crisis**

In this section, I am going to discuss the impact of global financial crisis and its consequences on the individuals' decisions to start a business, using the "Entrepreneurial

Intention Model". The body of literature arguing that intentions play a very relevant role in the decision to start a new firm, is growing fast (Liñán and Chen, 2006). Liñán and Chen (2006) believe that the intention toward starting a new business would be an excellent predictor of the actual behavior of entrepreneurship. They also claim that there are three motivational factors that influence entrepreneurial behavior. The extent to which an individual holds a positive (negative) personal evaluation toward being an entrepreneur affects the intention of starting anew business (Ajzen, 2002, Kolvereid, 1996). This includes both affective (personal feeling about being an entrepreneur) and evaluative (profit estimation) considerations. The other motivational factor that can affect the intention to be an entrepreneur is the way people perceive social norms. It refers to the perception that the decision to become an entrepreneur is approved by "reference people", or not (Ajzen, 2001). The third part of the model argues that the perception of the easiness or difficulty in the fulfillment of the behavior of becoming an entrepreneur will affect the actual behavior. It means the degree to what individuals perceive themselves capable of running a new business will affect their intentions.

It was discussed in previous section that the institutional context provides the tools, models, and constraints that shape the entrepreneur's choices about types of opportunities they see, decision to start up a venture, types of organizations they form, financing arrangements, management methods they employ and growth they achieve (Valdez and Richardson, 2013).

Other than the motivational factors stated in the Entrepreneurial Intention Model, the perception of the easiness or difficulty of financing a new firm is another major concern of individuals to start a new business (Engelschiøn, 2014). Earlier studies (e.g. Evans and Leighton, 1989, and Evans and Jovanovic, 1989) found out that financial constraint is an important obstacle to entrepreneurship and wealthy people are more likely to start a new business. This was further tested by Blanchflower and Oswald (1990), and they reached findings consistent with the former studies

‘results and revealed that people who received gifts and inheritances were more likely to become entrepreneurs. In their concluding remarks, they promote the removal of financial constraints to be the most efficient way of promoting firm growth. It can be inferred that financial constraints caused by global financial crisis can hinder people to start new business (See Figure 2.2). In the wake of the 2008 financial crisis, there has been increased focus on access to finance for small and medium sized firms. Some evidence from before the crisis suggested that it was harder for innovative firms to access finance and while start-ups are more likely to be turned down for finance than other firms, this worsened significantly during the 2008 financial crisis (Lee, Sameen & Cowling, 2015).

**[INSERT Figure 2.2 ABOUT HERE]**

These arguments justify why nearly all countries experienced a sharp drop in business registration during the global financial crisis (Klapper and Love, 2011). On these grounds, it can be concluded that access to funds is a crucial determinant for entrepreneurship, which leads to the conclusion that decreased access to financial capitals would decrease entrepreneurship levels in the world.

Despite the sharp decline of entrepreneurship during the global financial crisis, 56 percent of the countries had reached their level of new firm creation they had before the global financial crisis hit in 2007 after experiencing a fall during the crisis (World Bank Database, 2014). The question is why did some countries recover from entrepreneurial crisis occurred during the financial crisis and some other did not? As an example, Figure 2.3 compares two countries where one of them has recovered from entrepreneurial crisis (India) and the other has not (Argentina).

**[INSERT Figure 2.3 ABOUT HERE]**

Since almost all countries were commonly sharing the financial constraints during the global financial crisis, based on Entrepreneurial Intention Model (Liñán and Chen, 2006) and the concept of a Three-Dimensional Country Institutional Profile, introduced by Kostova (1997) and validated for entrepreneurship by Busenitz et.al, (2000), recovered countries may have employed other institutional motives to manage their entrepreneurial crisis.

**2.3.4. Country institutional profiles and entrepreneurial recovery: Proposition**

**Development**

As it was mentioned earlier, the notion of a “country institutional profile” was first introduced by Kostova (1997). She believed that specific national business activity could be explained through the understanding of Scott’s three institutional pillars: regulatory, normative and cognitive. In 2000, Busenitz et al. utilized Kostova’s approach to develop and validate measures of the regulative, normative, and cognitive dimensions of a nation’s institutional profile particularly in entrepreneurship activity. The results showed differences among the countries.

Afterward, Spencer and Gomez (2004), following Busenitz et al.’s (2000) study, conducted studies to validate Busenitz et al.’s (2000) findings. The results confirmed the positive association between country’s institutional profile and entrepreneurial activity. Although these studies had some methodological limitations, the concept of exploring a country’s institutional profile regarding entrepreneurship seems to be a promising direction. This point of view seems to be further supported through the Global Entrepreneurship Monitor (GEM) data collection from entrepreneurship experts. The semi-structured face-to-face interviews focusing on national entrepreneurship-related issues conducted by GEM, from 1999 to 2001 (Reynolds, Camp, Bygrave, Autio, & Hay, 2003) show that cultural social norms, financial support, and

government policies are the three most often mentioned issues related to entrepreneurial activity in interviewed experts' opinions.

In recent years, two studies conducted by Valdez and Richardson (2013) and Stenholm, Acs and Wuebker (2013), empirically investigated how nations' normative, cultural-cognitive, and regulative pillars reflect the systems, beliefs, and practices regarding countries' entrepreneurial activity. Using quantitative data drawn from several years (2005, 2006, and 2007) of the multinational GEM study (i.e., aggregated survey data of individuals at the national level), the IEF from the Heritage Foundation, and economic data from the World Bank, these studies showed that normative, cognitive, and regulative determinants are significantly related to entrepreneurial activity.

Considering the well-established relationship between countries' institutional arrangements and entrepreneurial activity, in this study, I am going to develop propositions with respect to the same relationship during the global financial crisis and in the presence of financial constraints for individuals as a serious barrier to be an entrepreneur. Facing with financial constraints as significant obstacle to entrepreneurship, countries who have reached the rate of entrepreneurship they had before the crisis after experiencing a drastic decline during the crisis, may have utilized cognitive, normative and regulative institutional arrangements to recover from their entrepreneurial crisis.

### **2.3.5. Cognitive institutional arrangements and entrepreneurial recovery**

The cognitive institutional pillar refers to the people's collective understandings of the social reality that is used as a reference of meaning within a society (including organizational, individual, and other levels). This pillar states that society's cognitions form the individuals' interpretations and beliefs (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Scott, 1995).

“Traits” research in entrepreneurship is one approach toward cognitive differences among nations, which goes back to Weber (1904) and McClelland (1961), who used the Protestant work ethic and the need for achievement to explain the apparent differences in entrepreneurship among societies. After that, much entrepreneurship research has been done about the association between cognitive attributes and entrepreneurship mostly drawn upon psychology methods and conducted at individual-level. There is an extensive body of literature using entrepreneurial “traits” perspective. The individual traits those research has looked at are innovativeness (Fernald & Solomon, 1987; Hornaday & Aboud, 1971; McClelland, 1987; Schumpeter, 1949; Timmons, 1978), risk-propensity (Begley & Boyd, 1987; Bird, 1989; Brockhaus, 1982; Kets de Vries, 1977; Sexton & Bowman, 1983; Shaver & Scott, 1991), persistence (Neider, 1987), internal locus of control (Ahmed, 1985; Brockhaus, 1982; Cromie & Johns, 1983; Shapiro, 1975; Shaver & Scott, 1991), desire for personal control (Greenberger & Sexton, 1988), need for achievement (McClelland, 1987; Shaver & Scott, 1991), self-efficacy (Chen, Greene, & Crick, 1998), and energy level (Begley & Boyd, 1987; Sexton & Bowman-Upton, 1986). Closely related personality research in psychology has some potential concerns (Mischel, 1996), which we can imagine them for trait research in entrepreneurship as well. Mitchell et al. (2002) believe that trait-based research cannot distinguish between entrepreneurs and other business leaders and so fails to distinguish the contribution that the entrepreneur makes to the entrepreneurial process. While some studies revealed that some traits may be universal to entrepreneurship activity (e.g., Baum et al., 1993; Hisrich, 1988, 1990; McGrath, MacMillan, & Scheinberg, 1992), others believed that culture plays a significant role in entrepreneurial activity and nations may differ culture by culture in terms of entrepreneurship (Thomas & Mueller, 2000). If we accept that entrepreneurs share traits universally, it would be very easy for policy makers to merely identify

potential successful entrepreneurs to invest on and gain better returns and help the economy (Valdez and Richardson, 2013). Since these entrepreneurial individual traits approach did not seem to be applicable, entrepreneurship scholars initiated to overcome the limitations of prior studies by focusing on national level cognition-related entrepreneurship. These studies started with explanations for nations' differences in entrepreneurship attributed to the cultural variances. National culture refers to "the collective programming of the mind which distinguishes the members of one human group from another . . . [and] includes systems of values" (Hofstede, 1980, p. 25). This approach avoids the issue of that intrinsic personal traits can predict the individual behavior. On the other hand, it claims that shared cognition within a society due to that society's culture affects the aggregate behavior (Valdez and Richardson, 2013). The major limitations of these cross-national studies (e.g., Baum et al., 1993; McGrath et al., 1992; Shane, 1992), are that they are mostly concentrated on the United States and Western Europe (Thomas & Mueller, 2000) and are focused on Hofstede's definition of national culture (Hayton, George, & Zahra, 2002).

To overcome these limitations, in more recent studies (e.g., Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013), the concept of national-level cognition was studied in multiple countries using Scott's (1995) cognitive institutional pillar and Kostova's (1997) Country institutional profiles. Their goal was incorporating measures of cognitive attributes into a broader set of institutional measures (Valdez and Richardson, 2013). Additionally, using available cross-national data on differences among entrepreneurs' knowledge, beliefs, and understanding as indicators of differences in country-level cognitive institutions, these recent studies, tried to lessen the limitations of the existing measures of cultural dimensions such as Hofstede's national culture dimensions. The explanatory power of this approach will be



improved through using the other measures of institutional constructs including normative and regulative (Kostova, 1997; Busenitz et al., 2000).

Advancing the previous studies, recent findings revealed that the variance of entrepreneurial cognitions across countries will result in different rates of entrepreneurship country by country (Bosma and Levie, 2010). Complimentary study suggests that the regional cultural environment may influence perceived entrepreneurial opportunities more than the political environment (Mai and Gan, 2007).

As it was discussed earlier, financial constraint is the most significant barrier in front of entrepreneurial activity (Evans and Leighton, 1989; Evans and Jovanovic, 1989). On the other hand, social capital and social networks are other major determinants of recognition and exploitation of entrepreneurial opportunities (De Carolis and Saporito, 2006) and entrepreneurial intentions (Aidis, Estrin, & Mickiewicz, 2008; Brockhaus, 1982). Accordingly, I believe that the cognitive entrepreneurial dimension consisting of the knowledge and skills possessed by the people in a country pertaining to establishing and operating a new business (Busenitz et al., 2000), may have helped some countries to reach the rate of entrepreneurship they had before the global financial crisis, after experiencing a decline during that period:

*P1: Countries with higher quality cognitive entrepreneurial institutions are more likely to recover from entrepreneurial crisis.*

### **2.3.6. Normative institutional arrangements and entrepreneurial recovery**

Social norms, values, and beliefs related to human behavior form the normative institutional pillar (Scott, 1995; Busenitz et al., 2000). Values and norms shape human behaviors through background influence (Hofstede, 1980). Within a society, perspectives are shared

socially, embedded and transmitted by people (Kostova, 1997) and they gain legitimacy based on the extent to which the related action is getting accepted (Veciana and Urbano, 2008).

Translating these insights into entrepreneurship language, norms and values can define the desirability of entrepreneurship as a career within a society. In other words, individuals' entrepreneurial intentions are influenced by the attitudes, beliefs and expectations of a social reference group (Krueger et al., 2000). This perspective is not just about close social groups such as family, relatives, and spouses, but also the larger set of social references (national-level) influence individuals' intentions toward entrepreneurship (Stenholm, Acs and Wuebker, 2013).

Lounsbury and Glynn (2001) believe that, the extent to which successful entrepreneurs are introduced publicly is significantly associated with entrepreneurial activity in a society. This can be simply justified that the access to necessary resources would be eased entrepreneurially oriented individuals through influencing entrepreneurial norms and foster a favorable impression of entrepreneurial activity by means of the educational system and the media (Verheul et al., 2002; Stenholm, Acs and Wuebker, 2013). Earlier studies (e.g. Reynolds, Levie, Autio, Hay, and Bygrave, 1999) also found that there is a positive correlation between the new venture creation and a positive view toward entrepreneurs, and a negative societal view toward those who previously failed was negatively correlated to founding rates, within a country.

However, opportunity recognition is essential for entrepreneurship, an entrepreneur should feel supported by the society to carry on the entrepreneurial activity (Wennekers, Uhlaner, & Thurik, 2002). In this study and based on previous research (e.g., Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013), existing cross-national data on entrepreneurs' perceptions of societal norms toward entrepreneurial activity can be used as a good indicator of the relevant normative institutions.

What makes the normative pillar distinct from the cognitive pillar is that the normative pillar is concerned with what people consider to be legitimate, acceptable ways of gaining something that has broad societal approval; while, the cognitive pillar reflects beliefs that are believed and internalized by individuals (DiMaggio & Powell, 1983). In other words, the normative elements are broader and more collective social pulses of what is legitimate in the view of the society; while the cognitive elements are aggregates of every single individual's concepts and beliefs that drive individuals (Valdez and Richardson, 2013).

During the entrepreneurial decline, due to the global financial crisis, those recovered countries may have utilized entrepreneurial norms and fostered a favorable impression of entrepreneurial activity in the society (Verheul et al., 2002), because the society that confer high status on entrepreneurs is more likely to progress industrially (Casson, 2003) and within such a society other obstacles in front of entrepreneurs are more likely to be overcome (Cuervo, 2005):

*P2: Countries with higher quality normative entrepreneurial institutions are more likely to recover from entrepreneurial crisis.*

### **2.3.7. Regulative institutional arrangements and entrepreneurial recovery**

The regulatory pillar refers to regulations, policies, rules and laws that shape individual behavior (Scott, 1995; Veciana and Urbano, 2008). This dimension of institutional arrangements can either promote or hinder entrepreneurship through defining the extent of risk involved in the formation and start of a new business, and entrepreneurial behavior is also influenced by the rules adopted and their enforcement (Baumol and Strom, 2007). Other than defining the risk associated with new business creation within a society, regulatory part influences entrepreneurship through the impact it has in terms of providing access to the resources required

to create new businesses for individuals (Busenitz et al., 2000) or even the ease of starting a new business (Verheul et al., 2002). Earlier in 1988, El-Namaki found out that entrepreneurial opportunities are higher in nations with less regulation, free markets and few barriers to entry. Other empirical studies also show that the small-business sector is larger where business start-up costs are lower (Ayyagari et al., 2008).

The regulatory dimension consisting rules, administration, and legitimacy (Veciana and Urbano, 2008), implies that individuals' intentions to engage in new firm formation can be negatively influenced in presence of administrative burdens, procedures, and bureaucracy related to starting or even closing a business. Accordingly, in countries with unstable regulatory settings and lack of intellectual property rights, respectively, entrepreneurship opportunity cost may increase significantly and individuals may be discouraged to specialize or exploit their capabilities to the fullest (Aidis, 2005; Boettke and Coyne, 2003; Autio and Acs, 2010).

In a society, individuals should make sure that they are compensated for their efforts in creating value for society, otherwise, motivations for entrepreneurial activity and innovation become too low (Baumol, 1990). In other words, weak support from regulatory institutions may result in unproductive country-level entrepreneurship (Webb et al. 2009) and excessive bureaucracy, taxation and other types of regulations have harmful effects on entrepreneurial activities (European Commission, 2007a) and hinders individuals with entrepreneurial intentions from registering their businesses (Acs et al., 2008b; Djankov et al., 2002; Webb et al., 2009).

Entrepreneurship can be affected by rules, regulation and policies in numerous ways (Storey, 1994, 1999). Fiscal incentives, tax rates, subsidies, labor market regulation, and bankruptcy legislation influence entrepreneurship in a society through determining the rewards and the risks of the various occupational opportunities (Wennekers et al., 2002).

In 2008, McMullen et al., using the GEM 2002 measures of entrepreneurship across 37 countries, showed that supportive government regulations such as strong property rights, fiscal freedom, and monetary freedom (see Index of Economic Freedom [IEF]) are positively related to entrepreneurship activity levels. They argued that laws and regulations that restrict economic freedom results in enhancement of the transaction cost for entrepreneurially-oriented individuals who want to launch a new venture. Thus, regulatory arrangements can be set in a way to manipulate this equation for entrepreneurs to make “new venture creation”, easier for entrepreneurs.

Restricting regulations may bring entrepreneurs even more concerns during the financial crisis. The transaction cost and the opportunity cost of switching from employment to starting a new business would be more considerable. Government can enact policies to encourage individuals to make their own investments by allowing new firms to be legally incorporated with ease, or by protecting investors from the full extent of investment risk.

So, I assume that it would more probable to see recovery from entrepreneurial decline due to global financial crisis, in countries with more supportive and facilitating regulations toward entrepreneurship.

*P3: Countries with higher quality regulatory entrepreneurial institutions are more likely to recover from entrepreneurial crisis.*

### **2.3.8. Formal and informal institutional arrangements and entrepreneurial recovery**

Previous studies (e.g., Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013) argue that a society’s normative, cognitive, and regulative institutions are related to entrepreneurial activity and differences in institutional arrangements are associated with variance

in the rate of entrepreneurial activity across countries. Accordingly, in previous sections I proposed that the better quality institutional arrangements may have facilitated the process of entrepreneurial recovery (reaching the level of new firm creation countries had before the global financial crisis hit in 2007 after experiencing a fall during the crisis) while access to the financial resources was acting as an obstacle during the global financial crisis.

Looking at the list of the countries that have recovered from entrepreneurial crisis (e.g., Switzerland, United Arab Emirates, Malaysia, Turkey, India and Tunisia), it can be inferred that they are not similar in terms of their normative, cognitive, and regulative institutions. Thus, this question comes to mind that have all recovered countries used same prescription to attain entrepreneurial recovery? While previous studies revealed the positive impact of cognitive, normative and regulative institutions on entrepreneurship, should recovered countries have all high quality institutional arrangements together to reach the rate of entrepreneurial activity they had before the crisis?

Douglass North (1990) defines institutions as ‘rules of the game in a society, or more formally, the constraints that shape human interaction’. In his book, “Institutions, institutional change and economic performance” he states that these institutions can be either formal, such as regulations, contracts, procedures, etc., or informal, such as the culture, values or social norms of a society. Combining Scott’s institutional pillars and North’s approach of formal and informal institutions, it can be stated that formal part consists of regulatory institutions and informal part consists cognitive and normative pillars.

Particularly in entrepreneurship domain, Ahlstrom, Bruton, & Lui (2000) believes that, formal institutions can be replaced with informal institutions when individuals perceive that legal enforcement of contracts and property rights are not effective enough. In such a case individuals

try to develop alternative governance structures and contractual arrangements (Peng, 2010). Informal ties and relational governance fill in the “institutional voids” resulting from an inadequate formal institutional infrastructure (Khanna & Palepu, 1997).

To manage the drastic decline of entrepreneurship due to financial constrains during the global financial crisis, nations can utilize normative, cognitive, and regulative institutions. But, it can be argued that in case of lack of either formal or informal institutions, nations can rely on the other.

*P4: Countries with either higher quality formal institutions (regulatory) or higher quality informal institutions (combination of cognitive and normative) are more likely to recover from entrepreneurial crisis.*

## **2.4. METHODOLOGY**

### **2.4.1. Sample and Data**

Data for recovery from entrepreneurial crisis (dependent variable) were taken from the World Bank's Entrepreneurship Survey and database. This dataset includes standardized measures for various aspects of each surveyed country's entrepreneurial activities. Data for independent variables (causal conditions; cognitive, normative and regulatory pillars) were taken from Global Entrepreneurship Monitor, Heritage Foundation/Wall Street Journal Index of Economic Freedom and World Bank's Ease of Doing Business Index, respectively. Considering the correspondence between the data for nations' dependent and independent variables, I was able to retain data for 56 countries across the world. Table 2.1 shows the list of the countries.

**[INSERT TABLE 2.1 ABOUT HERE]**

### 2.4.2. Dependent Variable: Entrepreneurial Recovery

The outcome variable of entrepreneurial crisis recovery is calibrated as 1 for those countries that had reached the level of entrepreneurship they had before the crisis hit in 2007, after experiencing a fall during the crisis, and 0 for those that had not. Thus, the countries should have experienced a fall in their entrepreneurship during the global financial crisis to be considered in this sample. To facilitate cross-country comparability, the World Bank's Entrepreneurship Survey and database employs a consistent unit of measurement of entrepreneurship that is applicable and available among the diverse sample of participating economies (Klapper and Love, 2011). The data collection process involves telephone interviews and email correspondence with business registries in 139 economies. The main sources of information are national business registries. In a limited number of cases where the business registry was unable to provide the data - most often due to an absence of digitized registration systems - the Entrepreneurship Database uses other alternatives sources, such as statistical agencies, tax and labor agencies, chambers of commerce, and private vendors or publicly available data. The units of measurement are private, formal sector companies with limited liability. The data shows the trends in new firm creation across regions, the relationship between entrepreneurship and the business environment and financial development, and the financial crisis' effect on the entrepreneurial activity in the formal sector, which makes it absolutely appropriate for this study. The concept of new business registration (new limited liability corporations registered in the calendar year) has been validated as a means of capturing countries' *entrepreneurial activities* by prior literature (e.g., Ardagna, and Lusardi, 2008; Klapper, Amit and Guillén, 2010; Klapper and Love, 2011; Ács, Autio and Szerb, 2014).



It should be noted that the definition of entrepreneurship used is limited to the formal sector. This exclusion of the informal sector is based on the difficulties of quantifying the number of firms that compose it, rather than on its relevance.

To measure the actual dependent variable, which is the recovery from the crisis, I compared the average of “New businesses registered” for 2004-2006, 2007-2009 and 2010-2012. A country is considered as recovered from entrepreneurial crisis if it reached the number of new businesses registered it had before the global financial crisis hit after experiencing a decline during the crisis. It is very important to notify that nearly all countries experienced a sharp drop in business registration due to the financial crisis (Klapper and Love, 2011).

### **2.4.3. Causal conditions (Independent Variables)**

#### **2.4.3.1) Cognitive institutional arrangements**

The GEM research program provided valuable data in the operationalization of the cognitive and normative dimensions of the Countries institutional profiles. In this study, I used items that have been validated and used in previous studies (e.g., Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013). Prior studies have used perception of perceived business opportunities (*Opportunity perception*) and the skills (*Skills*) necessary for starting a business, the role of the fear of failure in preventing the starting of businesses (*Fear of failure*) and the percentage of the non-entrepreneurial adult population who personally knows someone who started a business in the previous two years (*Knows an entrepreneur*). These items are percentages reflective of participants’ answers to the GEM’s categorical questions. The first item measures the percentage of the adult population who see promising opportunities to start a business in the area in which they live. The second item captures the participants’ perceived knowledge, skill, and experience required to start a new business. This item taps the participants’

framing to make sense of their uncertain environment. It reveals how the participant views the handling of uncertainty, given their resources and background within the national context. It can be viewed as related to self-confidence in the entrepreneurial domain (Valdez and Richardson, 2013). The third item is to show the impact of the fear of failure in preventing the starting of businesses. This item can be viewed as aversion to risk and should be reverse coded to capture the entrepreneurial cognitive institutional arrangement within the national level. The fourth item captures the role of networks on cognition of participants toward entrepreneurship. These four aspects provide a national-level reflection of the determinants of entrepreneurial intentions, such as the perceived feasibility and desirability of entrepreneurship (Krueger et al., 2000).

In this study, using the participants' answers to the 2007–2009 GEM's categorical questions, I tried to create one composite item out of these four. The GEM data of these four items were not available for those 139 countries whose entrepreneurial recovery data were available. Keeping countries with available data on GEM database from 2007 through 2009 among those 139 countries with available data for dependent variable, 56 countries were kept (see Table 2.1). To create a composite item out of these four items, we conducted factor analysis. For the data set from 2007 through 2009, the item of "Knows an entrepreneur" did not load on the same higher-order factor as well as the other three. Accordingly, we created a composite item using Opportunity perception, Skills and Fear of failure. The role of "Knows an entrepreneur" will be analyzed separately as a more fine-grained analysis.

#### **2.4.3.2) Normative institutional arrangements**

To capture normative construct, I used three already validated variables from the GEM study. The first item measures the status of entrepreneurship in a country through the percentage of the adult population that agreed with the statement that in their country people attaches high

status to successful entrepreneurs (*High status*). The second item captures the population perception of the desirability of entrepreneurship by measuring the percentage of adults who agreed with the statement that in their country, most people consider starting a business as a desirable career choice (*Entrepreneurship as a desirable career choice*). The third item measures the level of perceived media attention paid to entrepreneurship through the percentage of the adult population who agree with the statement that in their country they will often see stories in the public media about successful new businesses (*Media Attention*). All three components align with Scott's (1995) conceptualization of normative institutions (Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013).

Like the cognitive institutional arrangements, the availability of data of normative components for countries from 2007 through 2009, made me capable of retaining 56 countries. Factor analysis for these 56 countries' data, showed that all three components were loaded on one unique factor: Normative institutional arrangements.

#### **2.4.3.3) Regulatory institutional arrangements**

Prior studies (e.g., McMullen, Bagby and Palich, 2008; Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013) have used Heritage Foundation/Wall Street Journal Index of Economic Freedom (IEF) and Ease of starting up a business to operationalize the regulative dimension. The concept of economic freedom is closely related to the concept of regulative institutions which are the government laws and regulations that guide and restrict economic action (Miller & Holmes, 2009). Regulative institutions that can impede or foster economic freedom should influence entrepreneurial activity (Valdez and Richardson, 2013)

There are 10 components that form Index of Economic Freedom (IEF). These components are trade freedom, fiscal freedom, freedom from government, monetary freedom,

investment freedom, labor freedom, property rights, business freedom, freedom from corruption, and financial freedom where each component is a composite of underlying measures (See McMullen, Bagby and Palich, 2008). The data is available from 1995 to present, with over 161 countries. Countries are scored on a one to five scale where low scores represent less governmental interference and high scores mean that a country has less economic freedoms.

In this study, other than the Heritage Foundation IEF, I am also using the concept of Ease of starting up a business that includes the number of procedures needed to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations and the time it takes to start a business, which is the number of calendar days needed to complete the procedures to legally operate a business (Stenholm, Acs and Wuebker, 2013).

The data for these constructs were available for those aforementioned 56 countries from 2007 through 2009. Using factor reduction to create a composite construct out of these 12 items, Fiscal Freedom and Freedom from Government did not loaded on same factor as well as the other ten. Eliminating these two and rerunning factor analysis, a composite factor of regulative institutional arrangements was created out of other 10 items.

## **2.5. STUDY 1**

### **2.5.1. Analytical Technique: Fuzzy-Set Qualitative Comparative Analysis**

To answer the research question, and test the credibility of the propositions, I am using fuzzy-set qualitative comparative analysis (fsQCA). In the parlance of fsQCA, independent variables are often referred to as causal conditions or causal attributes and dependent variables are termed outcomes. fsQCA involves these major steps: assigning cases to sets (based on their configuration of attributes) through a calibration process; evaluating the sets and configurations

of sets in terms of their ability to consistently lead to a particular outcome; and using Boolean logic to reduce complexity by minimizing both the number of configurations leading to the outcome and the essential sets within each configuration. The resulting solutions of fsQCA identify the different paths (configurations of attributes) that consistently lead to an outcome. From this, researchers can make inferences regarding the equifinality of outcomes as well as the necessity and sufficiency of attributes (or combinations of attributes).

This methodology allows me to describe the outcome (recovery from entrepreneurial crisis) by means of different configurations of causes (institutional arrangements) and it does not just focus on each individual independent variable's impact on the outcome. Different cases can have different membership associations (full member, partial member, or full non-member) to each causal condition (Fiss, 2011). Thus, the membership does not have to be binary allowing for more meaningful grouping (Crilly et al., 2012). The fsQCA is not based on the normal distribution assumption which makes it more capable of handling the samples with small size, outliers and without normal distribution (Fiss, 2011). Based on how causal conditions combine in different cases, fsQCA can result in different configurations of causal conditions represented by the cases that lead to same outcome variable (Fiss, Cambre, & Marx, 2013).

#### **2.5.1.1) Preparing the Data and Calibration**

To calibrate the raw data, I followed the recommended procedure by (Fiss, 2011) for continuous data, because the independent variables have continuous structure. In this approach, the raw data should be divided into four sections based on three membership points. The top quartile are the data with full membership, the data between the cross-over point and top quartile are mostly member, the bottom quartile data are full non-members and the data between bottom quartile and cross-over point are mostly non-members. In instances of dichotomous data, this continuous calibration technique cannot be applied. Since my outcome variable has such a structure,

value of 0 (not recovered from the entrepreneurial crisis) indicates complete non-membership and 1 shows the full membership (recovered from the entrepreneurial crisis).

### **2.5.1.2) Creating the Truth Table**

In this step, a truth table should be created to assess the sufficiency of conditions and configurations of conditions. After specifying the outcome (calibrated recovery from entrepreneurial crisis) and causal conditions (calibrated institutional arrangements), the program creates a truth table such as that shown in Table 2.2. From this, I must decide which rows to include in the logical minimization procedure by imposing frequency and consistency cut-offs. Any rows that do not meet the desired frequency cut-off should be deleted. I impose a criterion that configurations must include at least one case (country) to be considered. In essence, each solution has to include at least one country to be kept.

**[INSERT TABLE 2.2 ABOUT HERE]**

Next, I manually enter values of “1” for rows that are deemed to consistently lead to the outcome (recovery from crisis) and values of “0” for rows that do not pass this threshold. According to Ragin et al. (2006), minimum recommended consistency threshold is 0.75. Thus, in this case, rows with Raw Consistency scores above 0.75 are considered to lead to recovery from crisis. Looking at Table 2.2, it can be seen that the cut-off used in this study is even higher than .75 (it is almost .8).

### **2.5.1.3) Running the Truth Table Analysis**

In this step, applying Boolean algorithm to the set of configurations that consistently lead to the outcome, I run the “Standard Analyses” to minimize the causal recipe. After running the “Standard Analyses”, the software displays the results of three different solutions: the complex

solution, the parsimonious solution, and the intermediate solution, which falls between the extremes of the first two. The complex solution – sometimes referred to as the conservative solution (Schneider & Wagemann, 2013) – is the most stringent of the three. It is based solely on the empirical evidence at hand and incorporates no simplifying assumptions or counterfactuals<sup>1</sup> whatsoever. However, as its moniker indicates, it is almost always very complex and generally not very insightful (Fiss, 2011). The parsimonious solution, on the other hand, incorporates both easy and difficult counterfactuals, meaning more simplifying assumptions are involved in the analysis and resulting in a very simple solution. Finally, the intermediate solution utilizes only easy counterfactuals, striking a balance between the two extremes of the complex and parsimonious solution. For this reason, the intermediate solution is generally the basis for theoretical inference and the preferred solution to discuss at length in scholarly manuscripts (Schneider & Wagemann, 2013).

#### 2.5.1.4) Interpreting Results of the Truth Table Analysis

Table 2.3 displays the intermediate solution based on the 56 countries dataset and the truth table created earlier. The symbol ● indicates that the presence of a condition was a critical ingredient in the configuration’s recipe while the symbol ⊗ indicates that the absence of the condition was essential. A blank cell indicates that a particular condition was irrelevant in determining whether the configuration consistently led to the outcome.

**[INSERT TABLE 2.3 ABOUT HERE]**

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<sup>1</sup> There are two types of counterfactuals that fsQCA procedure applies to simplify the complex configurations between causal conditions: easy and difficult. Fiss (2011) defines these two types of counterfactuals as follow: “Easy counterfactuals refer to situations in which a redundant causal condition is added to a set of causal conditions that by themselves already lead to the outcome in question. In contrast, “difficult” counterfactuals refer to situations in which a condition is removed from a set of causal conditions leading to an outcome on the assumption that this condition is redundant.”

When interpreting a solution, one must consider each configuration within the solution (if more than one) as well as the solution as a whole. The entire solution set is assessed using the *solution consistency* and *solution coverage* scores and the same standards previously discussed apply, such as a minimum acceptable consistency score of 0.75. My solution consistency score of 0.79 indicates that countries falling in any one of the three outlined configurations consistently achieved recovery from entrepreneurial crisis. Solution coverage is akin to  $R^2$  values; a value of 0.77 indicates that more than two third of the countries that achieved entrepreneurial recovery were captured in one of the three configurations. Moreover, each configuration within a solution set has its own consistency score to show how reliably it leads to the outcome, as well as measures of *raw coverage* and *unique coverage*. Raw coverage refers to coverage as I have already defined it and indicates the proportion of occurrences of the outcome that is explained by that configuration. Unique coverage considers the fact that configurations can overlap by accounting for the proportion of the outcome explained only by that particular configuration.

Configuration 1 states that regardless of high quality cognitive institutions and in absence of high quality regulatory institutions, during 2007-2009 period, countries with high quality normative institutions have recovered from entrepreneurial crisis. This means that the countries with high quality normative institutions are more likely to recover from entrepreneurial recovery. In other words, the normative institutional pillar is a sufficient causal condition for countries to recover from entrepreneurial crisis, which supports proposition 2.

Configuration 2 states that regardless of high quality regulative institutions, those countries with the combination of high quality normative and cognitive institutional arrangements have recovered from entrepreneurial crisis. This solutions reveals two major points. First, it claims that regardless of formal institutions, countries can manage their



entrepreneurial crisis relying on informal institutions merely. This statement supports the first part of proposition 4. The second point is that the cognitive institutional arrangements are not sufficient to help countries recover from entrepreneurial crisis and this pillar should be accompanied with normative pillar to do so. This means that proposition 1 is not supported. Perhaps, the knowledge and skills possessed by the people, risk taking attitude and the extent to what people see good opportunities a country pertaining to establishing and operating a new business, were not enough to overcome the insufficiency of funds due to global financial crisis.

Finally, configuration 3 states that, in absence of high quality normative and cognitive institutions (informal institutions), countries have recovered from entrepreneurial crisis just by means of regulatory or formal institutions. This supports proposition 3 and the second part of proposition 4.

## **2.6. STUDY 2**

In study 1, some of the indicators did not load on a same causal condition as prior studies predicted. In this stage, I will run another fuzzy-set qualitative comparative analysis (fsQCA) to include those indicators and find out their impacts on nations' entrepreneurial recovery in conjuncture with other causal conditions.

Fortunately, all three previously validated measures for normative institutional pillar had acceptable loading on same factor. Thus, I will use normative pillar as it was used in study 1.

For cognitive institutional pillar, "Knows an entrepreneur", as one of previously validated and utilized indexes, did not load on same factor as "Opportunity perception", "Skills" and "Fear of failure" did. It can be justified that the last three are manifestation of internal and the former indicates the external relations of people's cognition shaping factors. In other words, knowing someone who started a firm in the past two years has different direction of influence on people's

cognitive scripts compared to other three. So, I decided to use “Knows an entrepreneur” separately as “External cognitive institution” and the combination of other three as “Internal cognitive institution”.

As it was stated earlier, previous studies have used two separate major indicators to capture regulatory institutions: IEF and ease of starting a new business. I decided to investigate the impact of “ease of starting a new business” on entrepreneurial recovery, separately in this more fine-grained study. Fiscal Freedom and Freedom from Government are the two indicators that did not load on same factor. Fiscal freedom refers to the absence of burdensome tax rates and government expenditures as a portion of GDP (Haan & Sturm, 2000). Tax rates reflect the price of engaging in entrepreneurial activity (Beach & O’Driscoll, 2003). Freedom from government complements fiscal freedom. It refers to the absence of government intervention in the direct use of scarce resources for its own purposes (i.e., consumption), control over resources through ownership (i.e., production), and interference with capital allocation in the stock market (Heckelman, 2000). These two indicators were fully loaded on one single factor consistent with the previous studies. Thus, I decided to explore the impact of these two indicators as a single factor called “Governments’ tax and expropriation assistance” on entrepreneurial recovery.

For study 2, I have 6 factors (Normative institutions, Internal Cognitive institutions, External Cognitive institutions, Ease of starting a new business, Economic Freedom and, Governments’ tax and expropriation assistance) which are sub-factors of the major institutional pillars investigated in study 1. The objective of this fine-grained study is avoiding to neglect the effects of valid indicators that did not have acceptable loading on the main causal conditions. The results of this second study will reveal the importance of each of these 6 factors in

conjunction with absence or presence of others. The calibration process would be the same as what I did in first study. The sample also is the same as the one I used for first study.

### **2.6.1.1) Interpreting Results of the Truth Table Analysis**

Table 2.4 displays the intermediate solution based on the 56 countries dataset and the truth table created with 6 causal conditions. Following same nominations for the symbols, I have 7 acceptable solutions that 86 percent consistently leads to the desired outcome, which is the entrepreneurial crisis recovery.

**[INSERT TABLE 2.4 ABOUT HERE]**

The coverage percentage is reduced. That can be explained by “Set Theory”. If an element (country) is a member of a set (one of the three solutions of the first study) it may or may not be a member of any of the subsets (any of the seven solutions of the second study). In other words, a country that have been captured in first study, may or may not be captured by any single solutions of second study because even these 7 solutions are subsets of those earlier 3, they are not all subsets. By the way, the coverage still is very good (%38).

In first solution, regardless of how easy starting a business in a country is, countries with high quality normative institutions could recover from entrepreneurial crisis. In these countries, even low levels of internal and external cognition shaping institutions and on the other hand, difficulties in regulative area coming from government taxation and expropriation policies couldn't inhibit these countries from recovery. So, it can be safely said that normative institution is a pillar that can sufficiently lead countries to increase the rate of entrepreneurial activities without need of other pillars, which is consistent with the findings of study 1.

In second solution, regardless of people's internal perceptions about their knowledge, capability and also their fear of failure, high levels of normative institutions combined with being acquainted with successful entrepreneurs and government's assistance via taxation and expropriation policies even with existence of very time consuming procedures of starting a new business and without economic freedom, have conducted countries to resolve their entrepreneurial issues during the crisis.

In third solution, there are countries that have managed their entrepreneurial crisis just by combination of their external cognitive institutions, ease of doing business and tax and expropriation assisting policies. In other words, in countries with successful entrepreneurs whom people are familiar with, governments just need to facilitate the process of new venture establishment and alleviate the situations by means of tax and expropriation policies for people in the country. It means, however people may not perceive themselves in high capability of starting a new business, if they find it easy to do so, they may be intended to peruse entrepreneurship with getting tax incentives from the government.

In solution four, countries without facilitating normative and both types of cognitive institutions, have just relied on their regulative infrastructures such as ease of establishing a new business, tax and expropriation assisting laws and economic freedom policies enacted by the government.

In solution five, I can see almost opposite conditions of solution four. Just having little part of regulatory institutions in terms of less timely and easier way to register a new business, is not enough. They need to have higher quality normative and cognitive institutions. In essence, countries without laws and legislation that can facilitate entrepreneurial activities (taxation,

expropriation and economic freedom) should just emphasize on their combination of cognitive and normative institutions.

Solution six is very similar to solution one. The only difference is that in solution one it was ease of starting a business that did not matter, but in solution six, it is taxation and expropriation policies that do not matter. In other words, both solutions are stating that those countries with lack of high quality cognitive institutions, and partially incomplete facilitating conditions in their regulatory section, should have high quality normative institutional arrangements.

Solution seven is another sub-solution of solution one. It says if countries are partially suffering from their cognitive and regulatory pillar, it would be highly likely to recover from financial crisis by having facilitating taxation and expropriation laws accompanied with high quality normative institutions.

Summarizing these solutions, the normative pillar is the most prevalent pillar that can lead countries to the entrepreneurial recovery solely. In 5 out of 7 solutions, normative pillar is necessary and in 2 of those it can result in recovery on its own. Regulative dimension of institutional arrangements and specifically “Governments’ tax and expropriation assistance” and “Ease of starting a new business”, respectively are the next most important causes of entrepreneurial recovery. Cognitive pillar, individuals’ internal perceptions of themselves in terms of knowledge and skills needed for new venture creation, fear of failure and external perception about the successful entrepreneurs in terms of getting essential knowledge and information, are the next dominant causes. Finally, economic freedom is the less prevalent cause that can help countries recover from entrepreneurial crisis combined with the other two sections of regulative pillar. This could be because of that amending the regulatory pillar toward

facilitation of entrepreneurial activities, is costly and that makes it even more unreachable for countries during the financial crisis.

## **2.7. DISCUSSION AND IMPLICATIONS**

This study sheds light on the importance of institutional arrangements, as expressed through the Kostova's (1997) Countries' institutional profiles and Scott's (1995) institutional pillars, for the nations' entrepreneurial recovery while they are facing with serious financial constraints. Using regression method of analysis, previous studies have investigated the influence of each institutional pillars on entrepreneurship. Previous findings indicate that high quality cognitive, normative and regulatory institutions are positively associated to the country-level entrepreneurship (Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013). In this study, I have found that there are different combinations of institutional pillars that can result in enhancement of entrepreneurship in countries. In other words, there is no need to have all three major institutions together simultaneously to improve entrepreneurship. Having at least one of the formal (regulatory) or informal (cognitive and normative) institutions can result in entrepreneurial recovery despite financial limitations due to global financial crisis. While the first study extends the knowledge about the influence of institutional arrangements on country-level entrepreneurship, the second study reveals the areas in each pillar that are more prevalent among countries where have managed their entrepreneurial crisis. Society's view on entrepreneurship as a career, status and respect given to those engaged in entrepreneurship and visibility of entrepreneurship in the media, as indicators of normative institutional arrangements, are the most common fields where policy-makers should emphasize on to increase the rate of entrepreneurial activity in a country particularly during the financial crises. Simplifying

regulations of starting new businesses and lowering the tax burdens on new businesses are the next most dominant approach to enhance entrepreneurship in presence of financial constraints.

Providing individuals with knowledge and skills needed for new venture creation and creating networks of entrepreneurs to share essential knowledge and information, which result in decrease of fear of failure and increase of opportunity recognition, would be next dominant way toward recovery from entrepreneurial crisis. Finally, due to being costly to modify Economic Freedom indicators, this would be the less common approach among countries to manage their entrepreneurial issues.

Drawing from institutional theory, this study reveals how institutional arrangements within countries that facilitate entrepreneurial activities, can help countries recover from severe entrepreneurial issues. Consistent with previous studies (Busenitz et al., 2000; McMullen, et al., 2008; Nasra, and Dacin, 2010), this study shows that variations among nations entrepreneurial activities can be understood through a country's government policies, widely shared social knowledge, and value systems. Having institutional arrangements all in high levels would be hard to get. Unlike the same previous studies, this study shows that there is no need to have all institutional factors in high level to encourage people to peruse entrepreneurship. This study proposes that, countries can enhance their entrepreneurial activities just by focusing on either formal (regulatory) or informal (normative and/or cognitive) institutions. Even more specific, countries can choose particular areas of formal or informal institutions to emphasize on to make entrepreneurial progresses.

This study also contributes to an ongoing research streams in the development, public policy, and political economy literatures. Governments may utilize different configurations of entrepreneurial institutional arrangements (cognitive, normative, and regulative) to recover from

entrepreneurial declines that may happen because of different financial jolts and crises. They can analyze their strengths and weaknesses in terms of various factors of institutional arrangements and based on the findings of this study, they may need to take care of proper combinations of institutional factors to reach the desired outcome which is entrepreneurial activities prosperities. Institutional arrangements are not easy to modify. Thus, in cases of crisis, policy makers seeking to simply increase the rate of entrepreneurial activity in a country, need to find their country's institutional arrangements that can be improved easier.

## **2.8. LIMITATIONS AND FUTURE RESEARCH**

However, the concept of new business registration has been validated and utilized by prior studies (e.g., Ardagna, and Lusardi, 2008; Klapper, Amit and Guillén, 2010; Klapper and Love, 2011), it is limited to the formal sector. As it was discussed earlier, this exclusion of the informal sector is just based on the limitations I had in terms of data availability, rather than on its relevance. More recent studies (e.g., Valdez and Richardson, 2013) have used other variables such as “total entrepreneurial activities” (TEA) to operationalize country-level entrepreneurship. Entrepreneurial activity is the enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets (Global Entrepreneurship Monitor (GEM), Ahmad & Seymour, 2008). The concept of “total entrepreneurial activities” encompasses both formal and informal sectors. Accordingly, future research could use more comprehensive measures to capture country-level entrepreneurship to consider bigger portion of entrepreneurial activities.

my dataset is focused on the period of Global Financial Crisis to investigate the role of institutional arrangements on country-level entrepreneurship in cases of financial constraints. This may reduce the generalizability of the findings. Future research could test my propositions



in similar financial situations to find out if this study's findings hold, although this type of worldwide epidemic financial circumstances are very rare.

While institutional data are gathered at the country level, this is not always the way in which institutions manifest their effects. Within countries as large as China and India there is significant variations in terms of institutional constructs. While these measures are not systematically skewed (i.e. biased) for the individuals within each country, geography may improve the reliability of their application in the sample. Future research could examine the role of institutions on more fine-grained geographical clusters, taking the idea that the institutional framework has uneven effects within large geographical regions.

Finally, while the analytical approach I used (fsQCA) is highly appropriate for this study, it has limitations. fsQCA is limited in the number of causal conditions that can be included in an analysis. Since the number of potential configurations in a truth table increases exponentially as the number of causal conditions increase, including too many conditions will lead to several configurations with few, if any cases. Generally, the absolute maximum is 10-12 conditions (Ragin, 2008) because solutions become less stable and more difficult to interpret. This prevents me to use as many causal conditions as I want. That is why, I used factor reduction to mitigate this issue, which is one of the strategies for coping with this limitation (Ragin, 2000; Schneider & Wagemann, 2010). Future research could use other strategies instead to include even more causal conditions (see Schneider & Wagemann, 2006).

Despite these limitations, this study provides rigorous and relevant empirical insights into how national institutions influence country-level entrepreneurial activities under circumstances of financial constraints. This study sheds light on the importance of widely shared social knowledge, value systems, and the government policies as expressed through the country institutional profile, for the entrepreneurial recovery during the financial crisis. Results of the

analyses suggest that countries may utilize their institutional arrangements differently to manage their entrepreneurial decline due to financial deficiencies. Findings expand knowledge about the role of institutional arrangements in combinations with each other, within nations with totally different institutional profile, to reach same desirable outcome. Finally, results reveal new paths in front of policymakers to better utilize the formal and informal institutions in cases of financial disasters.

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## 2.10. TABLES AND FIGURES

Table 2.1: Countries of the data sample

Name of the Countries			
Argentina	South Africa	Hong Kong	Macedonia
Australia	Switzerland	Croatia	Malaysia
Austria	Syria	Hungary	Netherlands
Belgium	Tunisia	India	Norway
Brazil	Uganda	Ireland	Peru
Ca1da	UK	Iceland	Portugal
Chile	United Arab Emirates	Israel	Romania
China	Uruguay	Italy	Russian Federation
Colombia	Venezuela	Jamaica	Serbia
Germany	Denmark	Jordan	Slovenia
Greece	Algeria	Japan	Sweden
Guatemala	Spain	Korea, Rep.	Thailand
Kazakhstan	Finland	Latvia	Turkey
Panama	France	Mexico	United States

Table 2.2: Study 1 Truth Table

ROW	Cognitive	Normative	Regulatory	Cases	Recovery	Raw Consistency	PRI Consistency
1	1	1	0	11	1	0.866873	0.848858
2	0	1	0	6	1	0.863753	0.835913
3	1	1	1	5	1	0.809589	0.760758
4	0	0	1	13	1	0.797165	0.710147
5	1	0	0	6	0	0.64869	0.553816
6	0	1	1	6	0	0.637444	0.532567
7	1	0	1	5	0	0.599269	0.505263
8	0	0	0	4	0	0.568992	0.444

Table 2.3: Study 1 results of Truth Table Analysis (Intermediate Solution)

Configuration	1	2	3
Cognitive		●	⊗
Normative	●	●	⊗
Regulatory	⊗		●
Consistency	0.85	0.83	0.79
Raw Coverage	0.45	0.40	0.31
Unique Coverage	0.11	0.06	0.23
Solution Consistency=0.79		Solution Coverage=0.77	

Table 2.4: Study 2 results of Truth Table Analysis (Intermediate Solution)

Configuration	1	2	3	4	5	6	7
Normative	●	●	⊗	⊗	●	●	●
Internal Cognitive	⊗		●	⊗	●	⊗	⊗
External Cognitive	⊗	●	⊗	⊗	●	⊗	
Ease of starting a new business		⊗	●	●	●	⊗	⊗
Economic Freedom	⊗	⊗	⊗	●	⊗	⊗	⊗
Governments' tax and expropriation assistance	⊗	●	●	●	⊗		●
Consistency	0.89	0.84	0.93	0.84	0.85	0.93	0.85
Raw Coverage	0.08	0.23	0.04	0.08	0.05	0.093	0.12
Unique Coverage	0.014	0.13	0.01	0.05	0.02	~	~
Solution Consistency=0.79				Solution Coverage=0.77			

Figure 2.1: World economic decline during the Global Financial Crisis

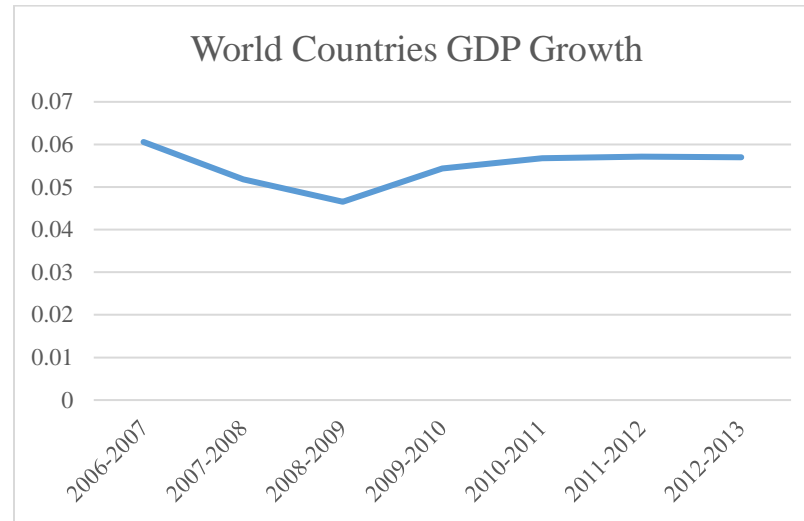


Figure 2.2: Lack of financial capital during the Global Financial Crisis

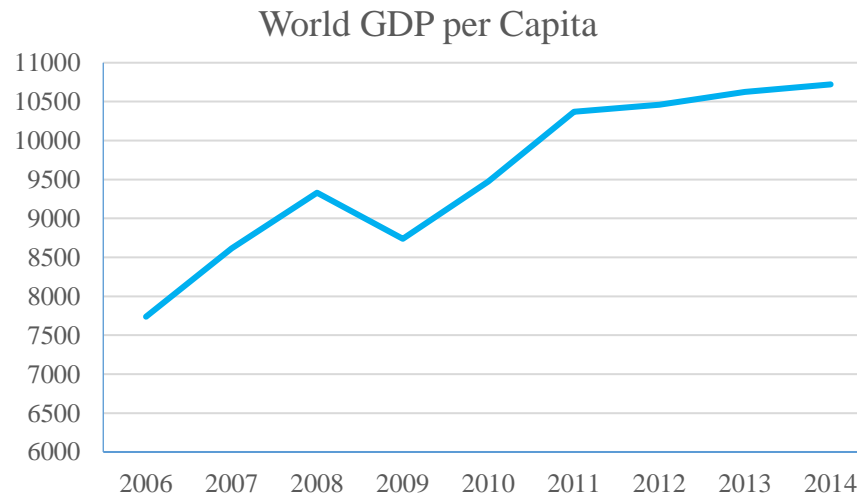
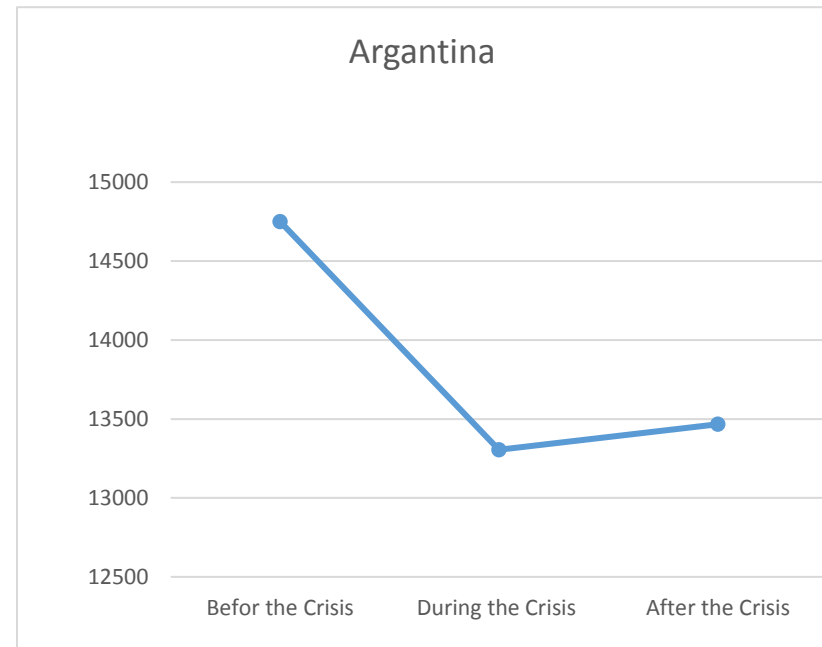
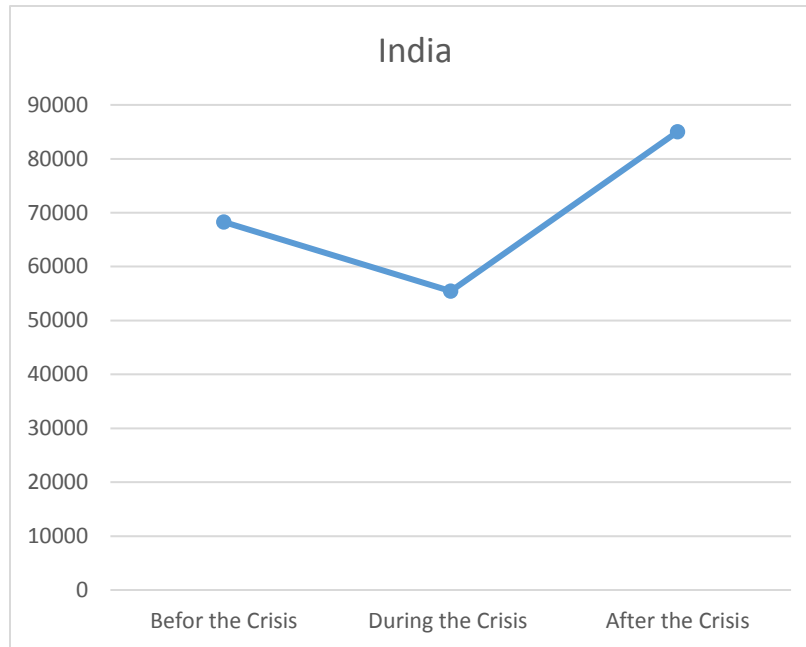




Figure 2.3: Examples of recovered and not-recovered countries



### **3. COUNTRIES' INSTITUTIONAL PROFILE AND TYPES OF ENTREPRENEURSHIP:**

#### **ROLE OF NATIONAL INNOVATION SYSTEM COMPONENTS**

##### **3.1. ABSTRACT**

This study advances scholarship on the institutions-entrepreneurship relationship. Previous studies propose that the dimensions of a country's institutional profile (Kostova, 1997) directly impact entrepreneurial activities in general and regardless of the type (Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013). Furthermore, while there are several studies indicating that personal characteristics such as age, gender, employment status, household size, marital status may influence the type of entrepreneurship (Robichaud, LeBrasseur, & Nagarajan, 2010; Block & Wagner, 2010; Verheul & Van Mil, 2011; Ashourizadeh, Chavoushi & Schøtt, 2014; Jensen, Rezaei, & Wherry, 2014), there is a limited knowledge about the role of institutional structures.

To address this gap, in this study, I cross level analyze 10776 individuals from 55 diverse countries to find out how countries institutional factors (e.g. countries' institutional profile and national innovation system) encourage people to choose specific type of entrepreneurship. Using Hierarchical Linear Modeling, the findings indicate that neither institutional profile nor national innovation system factors solely determine the choice between opportunity motivated entrepreneurship (OME) and necessity motivated entrepreneurship (NME); however, OME tends to be higher in instances when supportive institutional arrangements (cognitive, normative and regulatory) get coupled with national innovation system factors. The study contributes to a more nuanced understanding of embedded agency within the institutional logics perspective. It bridges the literatures on individual entrepreneurship and the institutional logics perspective. Furthermore, the study provides context and evidence on the impact of entrepreneurial education,

access to the latest technology and support from venture capitalists on individuals' entrepreneurial choice.

### 3.2. INTRODUCTION

Do institutions have equal impact on everyone in the society? Under what circumstances individuals will may act differently in terms of choosing entrepreneurial activity? Which individuals are more likely to start a business to exploit un-exploited or under-exploited opportunity rather than starting a business merely out of necessity? These are key issues in examining how social, economic, cultural, and technological change occur; Yet, the literature is yet to fully address them. Though some scholars have examined the role of institutions (e.g. cognitive, normative and regulatory) on the rate of entrepreneurship (Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013) no one has explored which institutional factors are responsible for individuals choosing specific type of entrepreneurship. Under the institutional logics perspective, such questions can begin to be answered.

The main focus of the institutional logics perspective (e.g. Thornton & Ocasio, 1999; Thornton, 2002; Seo & Creed, 2002; Thornton, Ocasio, & Lounsberry, 2012; Pache & Santos, 2012; Friedland, 2013) is in the way broader belief systems may shape the cognition, behavior, identity, and goals of economic actors. Under this view, entrepreneurs demonstrate individual agency subject to complex systems of institutional forces. While, usually individuals comply and agree with dominant institutional forces which shape their willingness and ability to act; Under specific circumstances and within certain contexts, individuals may contrast from each other in terms of engaging in business activities (Battilana & D'Aunno, 2009; Lawrence, Suddaby, & Leca, 2009). This situation of limited freedom due to institutions is known as *embedded agency*

(Granovetter, 1985; Seo & Creed, 2002; Garud & Karnoe, 2003; Greenwood & Suddaby, 2006; Green, Li, & Nohria, 2009).

To help address issues relating to embedded agency under the growing institutional logics perspective literature's view of individuals' future goals, I examine individuals' choice in new venture activity. It seems plausible that regulative, cognitive, and normative institutions will affect the types of opportunities people see, the decision to start up a venture, the types of organizations they form, the financing arrangements, the management methods they employ, and the growth they achieve (Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013). The institutional context provides the tools, models, and constraints that shape the entrepreneur's choices about each of these (Valdez and Richardson, 2013).

In this study, I address the role that institutional factors play in shaping individuals' behavior to engage in specific type of entrepreneurship. I do so by examining whether innovation level moderates the relationship between nation's institutional profile and entrepreneurial choice. Entrepreneurial choice was selected as the appropriate outcome variable because not all types of entrepreneurship have equal impact on countries' economic development (Acs and Varga, 2005).

Results indicate that in countries where the innovation level is higher, supportive and facilitative cognitive, normative and regulatory may encourage potential entrepreneurs to get more engaged with opportunity entrepreneurial activities rather than necessity motivated ones.

My study has several implications for the understanding of institutions, entrepreneurship, and opportunity recognition. First, it further demonstrates the value of the institutional logics perspective in explaining the nature of how institutions impact individuals. By highlighting a situation in which agents differ in their responses to institutional forces, the importance of one of the institutional logics perspective's defining features, embedded agency, is further validated.

Second, this study advances understanding about the entrepreneurship opportunity 7 (Shane, 2000). Entrepreneurship scholars have increasingly grappled with whether personal or contextual characteristics matter most for successful entrepreneurship. Third, this study has important implications for the study of nations' economic development. It does so by highlighting conditions in which national innovation system factors seem to have a stronger impact on potential entrepreneurs' entrepreneurial choice. Specifically, supportive institutional profile components coupled with higher levels of entrepreneurial education, access to the latest technology and support from venture capitalists, increase the likelihood of individuals getting engaged in opportunity motivated entrepreneurship rather than necessity motivated ones.

### **3.3. THEORY DEVELOPMENT**

#### **3.3.1. Institutional Logics, Embedded Agency, and Entrepreneurship**

The institutional logics perspective considers institutions as the outcomes of systems of interconnected and logically cohesive ideologies that have taken root within societies over long periods of time. These systems of institutional logics are socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality (Thornton & Ocasio, 1999). In sum, institutional logics are the underlying thought patterns and worldviews that support and shape human behavior.

Each institutional logic includes several practices, beliefs, values, and rules. By participating with these institutions, agents gain identity, legitimacy, a basis of attention, a basis for strategy, and goals for the future (Ocasio, 1997). Relying on these insights, the notion of embedded agency is supported arguing that individuals are embedded agents using individual discretion within a complex institutional environment. (Thornton et al., 2012). In other words,

people have freedom but it's limited. All the time, individuals' activities are formed based on the logics they are surrounded with.

Individuals end up choosing which goals to pursue based on the institutional logic that shapes their focus of attention (Thornton et al., 2012). Individuals' focus of attention is shaped by: (a) the degree to which a particular institutional logic has been historically institutionalized within a given society (b) the degree to which agents are embedded in fields consisting of conflicting logics and (c) the situational context(s) (i.e. the immediate time and place) in which individuals find themselves (Thornton, et al., 2012).

### **3.3.2. Institutional arrangements and entrepreneurial activity**

There have been quite a few studies of the relationship between entrepreneurial activity and what we are calling institutional variables, such as culture, government regulations, and economic policies. These are described later. There have also been a few studies examining the three pillars of institutions around entrepreneurship. Since it is difficult to develop and operationalize measures of institutional pillars, not many studies have investigated the role of institutional arrangements on entrepreneurship. While some of the viewed the Scott's (1999) three institutional pillars as dependent constructs (e.g., Hirsch, 1997), other studies treated them as separate constructs that have different impacts on entrepreneurial activities (Busenitz, Gomez, Spencer, 2000). This is in line with previous research and arguments by Kostova (1997) and Scott (1995, 1998). Even accepting the argument that the three pillars have considerable conceptual overlap in the institutional literature, the argument by these scholars is that the constructs can be defined to focus on three distinct dimensions of institutions.

The notion of a "country institutional profile" was introduced by Kostova (1997). Kostova believed that nation business behavior could be explained through the understanding of

government policies, common shared knowledge by a society or culture, and the societal values and norms. However, this profile must be directed toward a specific sphere of activity or field and cannot be generalized across multiple domains. Busenitz et al. (2000) used Kostova's approach using college business students to develop and validate measures of the regulative, cognitive, and normative dimensions of a nation's institutional profile particularly around entrepreneurship activity.

***Cultural-Cognitive Components.*** The cognitive institutional pillar refers to the people's collective understandings of the social reality that is used as a reference of meaning within a society. This pillar states that society's cognitions form the individuals' interpretations and beliefs (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Scott, 1995). "Traits" research stream literature is an example of cognitive research in entrepreneurship, which goes back to Weber (1904) and McClelland (1961), who used the Protestant work ethic and the need for achievement to explain the apparent differences in entrepreneurship among societies. Thereafter, there has been an extensive body of entrepreneurship research investigating the relationship between different aspects of entrepreneurship and cognitive factors (particularly from entrepreneurial trait perspective) such as innovativeness (McClelland, 1987; Schumpeter, 1949), risk-propensity (Sexton & Bowman, 1983; Shaver & Scott, 1991), persistence (Neider, 1987), internal locus of control (Shapiro, 1975; Shaver & Scott, 1991), desire for personal control (Greenberger & Sexton, 1988), need for achievement (McClelland, 1987; Shaver & Scott, 1991), self-efficacy (Chen, Greene, & Crick, 1998), and energy level (Sexton & Bowman-Upton, 1986).

While some studies revealed that some traits may be universal to entrepreneurship activity (e.g., Baum et al., 1993; McGrath, MacMillan, & Scheinberg, 1992), others believed that

culture plays a significant role in entrepreneurial activity (Thomas & Mueller, 2000). Due to the limitations of the individual traits approach, entrepreneurship scholars have shifted their focus toward national level cognitive factors, mostly the elements of national culture. While this approach avoids the issue that intrinsic personal traits can completely predict the individual behavior, the major limitations of studies adopting this approach (e.g., Baum et al., 1993; McGrath et al., 1992; Shane, 1992), are that they are mostly concentrated on the United States and Western Europe (Thomas & Mueller, 2000), and are focused on Hofstede's (1980:25) definition of national culture which is "the collective programming of the mind which distinguishes the members of one human group from another . . . [and] includes systems of values" (Hayton, George, & Zahra, 2002).

Addressing these limitations, some recent studies (e.g., Valdez and Richardson, 2013; Stenholm, Acs and Wuebker, 2013), have attempted to incorporate measures of cognitive attributes into a broader set of institutional measures. Additionally, using available cross-national data on differences among entrepreneurs' knowledge, beliefs, and understanding as indicators of differences in country-level cognitive institutions, these recent studies, have tried to lessen the limitations of the existing measures of cultural dimensions. The results acknowledge the notion that the variance of entrepreneurial cognitions across countries will result in different rates of entrepreneurship. However, they do not provide the full picture since they mostly miss other measures of institutional constructs including normative and regulative (Kostova, 1997; Busenitz et al., 2000).

***Normative Components.*** Social norms, values, and beliefs related to human behavior form the normative institutional pillar (Scott, 1995; Busenitz et al., 2000). Within a society, perspectives are shared socially, embedded and transmitted by people (Kostova, 1997) and they



gain legitimacy based on the extent to which the related action is getting accepted (Veciana & Urbano, 2008). Translating these insights into entrepreneurship language, norms and values can define the desirability of entrepreneurship as a career within a society. In other words, individuals' entrepreneurial intentions are influenced by the attitudes, beliefs and expectations of a social reference group which can be family, relatives, and also a larger set of social references (national-level) (Krueger, Reilly, & Carsrud, 2000; Stenholm, Acs & Wuebker, 2013). Indeed, prior studies have found a positive correlation between the rate of new venture creation and a positive view toward entrepreneurs, and a negative correlation between undesirable societal view toward those who previously failed and the founding rates within a country. For instance, Lounsbury and Glynn (2001) found that the extent to which successful entrepreneurs are introduced publicly is significantly associated with entrepreneurial activity in a society. In fact, a favorable impression of entrepreneurial activity by educational system and the media can make access to necessary resources easier for entrepreneurs (Verheul, Wennekers, Audretsch, & Thurik, 2002; Stenholm, Acs & Wuebker, 2013).

What makes the normative pillar distinct from the cognitive pillar is that the normative pillar is concerned with what people consider legitimate, acceptable ways of gaining something that has broad societal approval, while the cognitive pillar reflects principles that are believed and internalized by individuals (DiMaggio & Powell, 1983). In other words, the normative elements are broader and more collective social pulses of what is legitimate in the view of the society; while the cognitive elements are aggregates of every single individual's concepts and beliefs that drive individuals (Valdez & Richardson, 2013).

***Regulatory Components.*** The regulatory pillar refers to policies, rules and laws that shape individual behaviors (Scott, 1995; Veciana & Urbano, 2008). This dimension of

institutional arrangement can either promote or hinder entrepreneurship through defining the extent of risk involved in the formation and start of a new business (Baumol & Strom, 2007). Further, regulatory institutions influence entrepreneurship by influencing the access to the resources required by individuals to create new businesses (Busenitz et al., 2000) or even the ease of starting a new business (Verheul et al., 2002). In general, entrepreneurial opportunities are higher in nations with less regulation, free markets and few barriers to entry (El-Namaki, 1998) and small-business sector is larger where business start-up costs are lower (Ayyagari, Beck, & Demirguc-Kunt, 2007). In countries with unstable regulatory settings and lack of intellectual property rights, respectively, entrepreneurship opportunity cost may increase significantly and individuals may be discouraged to specialize or exploit their capabilities to the fullest (Aidis, 2005; Autio & Acs, 2010).

Further, weak support from regulatory institutions may result in unproductive country-level entrepreneurship (Webb, Tihanyi, Ireland, & Sirmon, 2009) and excessive bureaucracy, taxation and other types of regulations have negative effects on entrepreneurial activities and new venture creation (Webb et al. 2009). Fiscal incentives, tax rates, subsidies, labor market regulation, and bankruptcy legislation are other examples of how regulations can directly impact entrepreneurship in a society through determining the rewards and the risks of the various occupational opportunities (Wennekers, Uhlaner, & Thurik, 2002). In fact, laws and regulations that restrict economic freedom result in enhancement of the transaction cost for entrepreneurially-oriented individuals who want to launch a new venture. Thus, regulatory arrangements can be set in a way to manipulate this equation to make “new venture creation” easier for entrepreneurs (McMullen, Bagby & Palich, 2008).

### 3.3.3. Types of Entrepreneurial Activity

In the previous sections, it was mentioned that countries institutional profile components (cognitive, normative and regulatory) have positive impacts on the rate of entrepreneurship in general.

Entrepreneurial activity can be conceptualized as either opportunity or necessity motivated. Opportunity motivated entrepreneurship activities are embarked upon in the spirit of innovation (Wennekers & Thurik, 1999) and profit and growth (Carland, Hoy, Boulton, & Carland, 1984) or may entail the leveraging of existing information in a new way (Kirzner, 1973, 1985, 1997). On the other hand, a necessity-motivated venture may be undertaken to provide employment and meet financial obligations out of economic necessity (Reynolds et al., 2002). An opportunity-motivated entrepreneur might create a new company and establish a new venture even he or she may have other occupations to satisfy their financial needs. On the other side, a necessity-motivated entrepreneur would generally start a new business to provide self-employment. Based on these insights, it could be argued that opportunity-motivated entrepreneurship has the potential to advance a country's economy, while necessity entrepreneurship mainly sustains it.

Previous research has indicated that necessity- and opportunity-motivated entrepreneurship should be considered separately when attempting to understand how context relates to the level of entrepreneurial activity (Valdez & Richardson, 2013). Institutions appear to shape both the type and the level of entrepreneurial activity. In a study using 2001 GEM data, two elements of the culture-cognitive pillar were significantly related to these two branches of entrepreneurship (Morales-Gualdrón & Roig, 2005). Specifically, when respondents felt that they had the skills, knowledge, and experience to start a business, they were more likely to

engage in both opportunity- and necessity-motivated entrepreneurship. When respondents were fearful of starting a business, they were less likely to engage in either type of entrepreneurship. The environmental context of countries may support one type of entrepreneurship more than the other (Valdez and Richardson, 2013). Opportunity motivated entrepreneurship is more consistent with the Schumpeterian innovations which contribute significantly to economic growth through providing greater job growth, exports, and exploitation of new market niches (McMullen, Bagby & Palich, 2008). While previous studies believe that opportunity entrepreneurship has a positive significant effect on economic development, Acs and Varga (2005) go beyond that and argue that necessity motivated entrepreneurship has no effect (Acs and Varga, 2005).

Accordingly, it would be critical for countries to encourage their potential entrepreneurs to choose opportunity motivated entrepreneurship over necessity motivated ones. The environmental context of countries may support one type of entrepreneurship more than the other (Valdez and Richardson, 2013), so it can be assumed that set of institutional structures that provide an opportune environment for innovations and knowledge-driven economic growth would increase the probability of people being engaged more in opportunity motivated entrepreneurship.

#### **3.3.4. Necessity/opportunity entrepreneurship and country-level innovation**

As it was described earlier, necessity entrepreneurship comprises of individuals who decide on entrepreneurship without considering any entrepreneurial opportunity, because they do not have a better employment alternative, and opportunity entrepreneurship, which constitutes the voluntary decision to enter the entrepreneurial career in order to exploit an unexploited or underexploited entrepreneurial opportunity, either imitative (Kirznerian) or innovative (Schumpeterian), even if other employment alternatives are available (Reynolds et al., 2002)

Accordingly, it can be expected that the necessity entrepreneurship and opportunity entrepreneurship may have different relationships with level of innovation, since the two activities are fundamentally different (cf. Reynolds et al. 2002).

In the case of necessity entrepreneurship, it is highly likely that the entrepreneurial action is related to a negligible extent of innovation, and therefore, that necessity entrepreneurship either has no significant relationship or even a negative relationship with innovation, when the aggregated national level is taken into consideration (Mrożewski & Kratzer, 2016). This tendency is a result of the fact that necessity entrepreneurs, e.g. unemployed persons, tend to have less human capital and entrepreneurial talent (Lucas 1978; Thurik et al. 2008) and are less likely to sustain growth-oriented firms (Wong et al. 2005; Shane 2009). Necessity entrepreneurship may therefore be better classified as self-employment rather than as growth entrepreneurship (Anokhin and Wincent 2012). If a country's entrepreneurship structure is dominated by this kind of unproductive entrepreneurship, growth-oriented entrepreneurial strategies (e.g. innovation) are not likely to be prevalent among entrepreneurs, which results in less innovation on the national level. Consequently, the relationship between innovation and necessity entrepreneurship is either insignificant or negative (Mrozewski, Kratzer, 2016)

On the other side, opportunity entrepreneurs have the motivations to advance their economic, social or mental status through the pursuit of a certain entrepreneurial opportunity. It is very common for opportunity entrepreneurs to give up employment alternatives and in effect face high opportunity costs. This is why opportunity motivated entrepreneurship is characterized by high levels of risk. This situation translates into a high degree of motivation, a strong goal orientation as well as a more sophisticated business strategy (e.g. innovation), which guarantees satisfying returns in order to level opportunity costs (Mrozewski, Kratzer, 2016).

At an aggregated level, therefore, it is expected that countries with lower innovation levels will have relatively high necessity-driven entrepreneurial activity and countries with higher innovation levels will have relatively high opportunity-driven entrepreneurial activity.

### **3.3.5. National innovation system**

The theoretical framework that allows scholars to identify the distinctive aspects of a nation's innovation environment that provides people with more opportunities is reflected in National Innovation Systems which refers to the flow of knowledge, technology and information among people, enterprises and institutions which is key to the innovative process at the national level (OECD, 1996, Bartholomew, 1997).

Country-specific general and structural components of society (such as political and educational systems) influence the accumulation and diffusion of knowledge required for innovation. Institutional perspectives mention two ways in which national institutional arrangements impact country patterns of innovation. First, the societal institutions which support industrial innovation vary substantially country by country. For example, in many countries, the policies and practices of a nation's universities and government research institutes are shaped by the nation's singular historical development. In other words, since technology-driven industries are often supplied by universities and research institutes for knowledge and human capital, the technological performance of a country's firms is influenced by the features of these institutions (Ergas, 1987; Nelson, 1993; Porter, 1990). Second, national context influences the institutional arrangements and behavioral patterns of firms and individuals. For example, the organization of work and patterns of communication within and between firms, or between firms and universities reflect broader societal characteristics that have been imprinted on firms and institutionalized over time (Kogut 1991; Powell and DiMaggio 1991).

Table 3.1 shows some of the definitions for national system of innovation.

**[INSERT TABLE 3.1 ABOUT HERE]**

A country's innovative performance extremely relies on the way these elements work with each other to create and diffuse knowledge and technology. For example, public research institutes, academia and industry serve as research producers carrying out R&D activities. On the other hand, governments either central or regional play the role of coordinator among research producers in terms of their policy instruments, visions and perspectives for the future (Bartholomew, 1997). Furthermore, in order to enhance innovation level in a country, innovative actors must get coupled with each other and the government has to promote and activate trust among the different innovation actors (Chung, 2002). These corporations could take place in forms of joint research, personnel exchanges, cross patenting, and purchase of equipment (OECD, 1997).

NIS has been captured in different ways in previous studies (Bartholomew, 1997, Godin, 2009). Examples include capital market actors like venture capitalists; a skilled labor force, laws related to the use of information technology as well as the availability of the latest technologies; and the proximity of universities (Bruno and Tyebjee, 1982; Lee, Florida & Acs, 2004; van De Ven, 1993).

In following section, I am going to see how the components that shape a nation's innovation performance, affect the likelihood of potential entrepreneurs getting involved in opportunity motivated entrepreneurship, which is significantly related to the level of innovation in a country.

### 3.3.5.1) Entrepreneurship Education and Training

There are several arguments for why individuals' differences in terms of education play an important role in explaining the discovery of and opportunities. There is a network argument that relates education to opportunity recognition. Whereas prior research has often focused on how access to resources is important after opportunities for business creation have been recognized (Steven-son and Jarillo, 2007), Arenius & Clercq (2005) argue that opportunities are recognized by some individuals and not by others based on their differential access to resources. More specifically, they reason that individuals' education may enhance opportunity recognition through the facilitation of access to knowledge, e.g., connections to other "knowledgeable" others such as alumni network contacts (Cohen and Levinthal, 1990; Burt, 1992).

It can be also argued that individuals' educational level will positively affect the likelihood to perceive opportunities because highly-educated individuals have a broader knowledge base to draw from and thus a higher likelihood that they can relate this knowledge to potential entrepreneurial opportunities (Cohen and Levinthal, 1990).

training and education specifically in the field of entrepreneurship, in one hand, enhances population's ability to recognize and pursue entrepreneurial economic opportunities and on the other hand provides people with the necessary technical skills and competencies required to launch new start-up firms (Hynes, 1996; Henry, Hill & Leitch, 2005). Based on the arguments above, it can be hypothesized that:

*Hypothesis 1: Countries' institutional profile will be more significantly positively associated with OME in countries with higher levels of Entrepreneurship Training and Education.*



### 3.3.5.2) University–Industry Collaboration

The collaboration between universities and the industry is increasingly perceived as a vehicle to enhance innovation through knowledge exchange. The collaboration between industries and universities is defined as interaction between any parts of the higher educational system such as universities and industry aiming mainly to encourage knowledge and technology exchange (Stenholm, Acs and Wuebker, 2013). Countries vary in the extent to which firms collaborate with research institutions and higher educational system, reflecting differences in the commercial orientation of academia (Kenney, 1986; Ergas, 1987).

Promoting university–industry collaborations results in improvements in innovation and economic competitiveness at institutional levels (e.g. countries and sectors) through knowledge exchange between academic and commercial domains (Perkmann et al., 2013). Additionally, linkage between universities and industries has been accepted as a determining tool for enhancing organizational capacity in open innovation — where an organization employs external networks in developing innovation and knowledge (Dess & Shaw, 2001), as a complementary option to traditional internal R&D (Harvey & Tether, 2003).

Summarizing these arguments, it can be stated that, collaboration between universities and industry is largely seen as one approach to improve innovation in the economy by facilitating the flow and utilization of technology-related knowledge and experience across sectors (Inzelt, 2004; Perkmann, Neely & Walsh, 2011). Since, opportunity motivated entrepreneurship is characterized by innovation level, it can be assumed that higher levels of university–industry collaborations, may induce higher opportunity motivated entrepreneurial activities. This leads to the second hypothesis:

*Hypothesis 2: Countries' institutional profile will be more significantly positively associated with OME in countries with higher levels of University–Industry Collaboration.*

### **3.3.5.3) Availability of Latest Technology**

The most traditional way that comes to our minds in terms of knowledge flow in the innovation system may be the diffusion of technology as new equipment and machinery. Nations vary substantially in manner in which technology is diffused within the society (Bartholomew, 1997). In some nations technology diffusion is considered to be an explicit part of the government's mandate; "diffusion-oriented innovation policies". Accordingly, programs, institutions and structural linkages are established by government expressly for this purpose of facilitating industry's appropriation of new scientific developments (Ergas, 1987; Ostry, 1990).

Most studies show that technology diffusion at country level has positive impacts on productivity and innovation. The dissemination of technology is also shown to be as important as R&D investments to innovative performance in many cases (Lundvall, 2007)

“Technological change provides the basis for the creation of new processes, new products, new markets, and new ways of organizing; and entrepreneurship is central to this process” (Schumpeter 1934, p. 66). Shane (2000) believes that any given technological change will generate a range of entrepreneurial opportunities that are not obvious to all potential entrepreneur. Accordingly, it can be assumed that in a country where individuals have more access to the latest technology and are aware of technological change, it is more likely for potential entrepreneurs to start a new business to exploit new opportunities rather than alleviating their financial needs through necessity motivated entrepreneurship. Thus,

*Hypothesis 3: Countries' institutional profile will be more significantly positively associated with OME in countries with higher levels of Availability of Latest Technology.*

#### **3.3.5.4) Availability of Venture Capital**

The availability of venture capital markets that fund start-up firms varies substantially cross-nationally (Ergas, 1987; Porter, 1990)]. Kortum and Lerner (2000) are among the early scholars who systematically study the relationship between VC and innovation by examining the influence of VC on patented innovations in the United States across 20 industries in the manufacturing sector from 1965 to 1992. Although corporate R&D spending and VC funding are highly substitutable in generating innovations, they estimate that a dollar of VC appears to be about three times more effective in stimulating patenting than a dollar of traditional corporate R&D. Specifically, they found that while the ratio of VC to R&D spending averaged less than 3% from 1983 to 1992, their estimates indicate that VC may have accounted for 8% of industrial innovations during that period. In this connection, they suggest that there is a strong association between VC and patenting activity and that VC funding has a stronger positive impact on innovation than corporate R&D.

Similarly, Hellmann & Puri (2000) find that VC-backed firms follow more innovative strategies than non-VC-backed firms and that the former tends to grow faster than their industry counterparts. Tykova (2000) also finds a positive relationship between VC and patent application in Germany. Availability of venture capital, indicates the relative level of capital markets support for innovative, risky projects

For high impact entrepreneurs (e.g. OME), an institutional environment filled with new opportunities created by knowledge spillovers (Audretsch & Keilbach, 2007) and the capital availability matter most (Stenholm, Acs & Wuebker, 2013). Based on these insights, it can be

proposed that higher support from VCs may encourage potential entrepreneurs to undertake riskier and more innovative projects to exploit unexploited or underexploited opportunities.

Thus,

*Hypothesis 4: Countries' institutional profile will be more significantly positively associated with OME in countries with higher levels of Venture Capital Availability*

Figure 3.1 displays the relationships subsumed by Hypotheses 1 through 4. In the model, there is a direct relationship between countries institutional profile and entrepreneurship in general. This relationship is positively moderated by nation innovation system components in a way that increases the likelihood of engagement in opportunity motivated entrepreneurship rather than necessity motivated entrepreneurship.

**[INSERT FIGURE 3.1 ABOUT HERE]**

### **3.4. METHODOLOGY**

Data for this study were taken from several sources. Data for entrepreneurial choice (dependent variables) are taken from the 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. The GEM includes standardized measures for various aspects of each surveyed country's entrepreneurial activities. In 2013 the GEM interviewed more than 240,000 people from 69 geographically and economically dispersed economies (coded 1 for OME and 0 for NME). Of these observations, much was not useable for this study. Observations with missing data were removed.

I wa able to retain 10,776 observations from 55 different economies. Individual level data from the GEM's 2013 Adult Population Survey, were combined with institutional level data

from the GEM's 2013 National Expert Survey, Heritage Foundation/Wall Street Journal IEF and the World Bank's Ease of Doing Business Index and Global Competitiveness Index report.

### **3.4.1. Dependent Variable: Entrepreneurial Choice**

The GEM Adult Population Survey contains data on individuals' entrepreneurial choice. The survey asks the question "Were you involved in this start-up to take advantage of a business opportunity or because you had no better choices for work?" Answers range from 0 to 5 (I don't know=-0, Take advantage of business opportunity=1, No better choice=2, Combination of both=3, Have a job but seeking better opportunities=4, Other=5). I just included those who answered 1, 2 and 4 to make my data mutual exclusive. Prior literature has validated this measure as a means of capturing entrepreneurial choice (e.g. McMullen, Bagby and Palich, 2008; Valdez and Richardson, 2013).

### **3.4.2. Country Level Independent Variables**

GEM has also developed country level entrepreneurship variables through its National Expert Survey. That survey has developed standardized measures of business and government experts' perceptions of several key indicators of the country's entrepreneurial framework. The expert questionnaire assesses the institutional environment, including elements of the nations' institutional profile, specifically as it relates to entrepreneurship. Several of the survey's constructs contain multiple items. These constructs have been demonstrated to be valid and reliable (McMullen et al., 2008; Valdez & Richardson, 2013; Stenholm, Acs & Wuebker, 2013). Here, I follow Valdez & Richardson, 2013 and Stenholm, Acs & Wuebker, 2013 and utilize those elements consistent with Kostova's (1997) framework. Accordingly, I use three independent variables to assess Kostova's institutional profile. Two of these indicators (cognitive and normative institutions) come from the 2013 Global Entrepreneurship Monitor (GEM) Adult

Population Survey. The third institution, regulatory pillar, is drawn from the Heritage Foundation/Wall Street Journal IEF and the World Bank's Ease of Doing Business Index, 2013.

The cognitive pillar is captured by four indicators of perceived opportunities, perceived capabilities, knows an entrepreneur and fear of failure (Valdez & Richardson, 2013; Stenholm, Acs & Wuebker, 2013) from 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. These items are percentages reflective of participants' answers to the GEM's categorical questions. The first item measures the percentage of the adult population who see promising opportunities to start a business in the area in which they live. The second item captures the participants' perceived knowledge, skill, and experience required to start a new business. It reveals how the participant views handling of uncertainty, given their resources and background within the national context reflecting one's self-confidence in the entrepreneurial domain (Valdez & Richardson, 2013). The third item captures the role of networks on participants' cognition toward entrepreneurship. The fourth item demonstrates the impact of fear of failure in preventing participants from starting a new business. This item shows risk aversion and should be reverse coded to capture the entrepreneurial cognitive institutions within a country.

To capture normative construct, I used three already validated measures of entrepreneurship as a good career choice, high status to successful entrepreneurs and media attention for entrepreneurship (Valdez & Richardson, 2013; Stenholm, Acs & Wuebker, 2013) from 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. The first item measures the status of entrepreneurship in a country through the percentage of the adult population that agreed with the statement that in their country people attach high status to successful entrepreneurs. The second item captures desirability of entrepreneurship by measuring the percentage of adults who agreed with the statement that in their country, most people consider starting a business as a desirable career choice. The third item measures the level of perceived media attention paid to

entrepreneurship through the percentage of the adult population who agreed with the statement that in their country they would often see stories in the public media about successful new businesses. All three components align with Scott's (1997) conceptualization of normative institutions (Valdez & Richardson, 2013; Stenholm, Acs & Wuebker, 2013).

Prior studies (e.g., McMullen et al., 2008; Valdez & Richardson, 2013; Stenholm, Acs & Wuebker, 2013) have used Heritage Foundation/Wall Street Journal Index of Economic Freedom (IEF) and Ease of starting up a business to operationalize the regulative dimension. The concept of economic freedom is closely related to the concept of regulative institutions, which are the government laws, and regulations that guide and restrict economic action (Miller & Holmes, 2009).

There are 10 components that form Index of Economic Freedom (IEF). These components are property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom and financial freedom where each component is a composite of multiple items (See McMullen et al., 2008). Countries are scored on a one to five scale where low scores represent less governmental interference and high scores indicate that a country has less economic freedoms.

In this study, other than the Heritage Foundation IEF, I also used the concept of ease of starting up a business that includes the number of procedures needed to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations as well as the time it takes to legally start a business (Stenholm, Acs & Wuebker, 2013).

To create one single factor for each institutional pillar, I used factor analysis. Among those measure, labor freedom did not load as good as the others on the regulatory pillar. After creating three major institutional pillars, I did another factor reduction process to create one

single variable of country's institutional profile. Figure 3.2 through 3.5 show the factor loadings for each institutional pillar and country's institutional profile.

**[INSERT FIGURE 3.2 ABOUT HERE]**

**[INSERT FIGURE 3.3 ABOUT HERE]**

**[INSERT FIGURE 3.4 ABOUT HERE]**

**[INSERT FIGURE 3.5 ABOUT HERE]**

### **3.4.3. Moderators**

For national innovation system components that have moderating effects in my model, I have four factors of entrepreneurship training and education, university–industry collaboration, availability of latest technology and availability of venture capital. Entrepreneurship training and education has been measured by two indicators of basic-school entrepreneurial education and training and post-school entrepreneurial education and training which are taken from the 2013 Global Entrepreneurship Monitor (GEM) national expert survey. For the other three, I used the data from Global Competitiveness Index report for 2012-2013.

### **3.4.4. Control variables**

In this study I have both individual level and country level control variables that have been shown that have significant impact on entrepreneurial choice. Data for individual level control variables were taken from the Adult Population Survey. Age in years, a binary variable for sex (male=1), a binary variable for whether the individual is employed (employed=1), and binary indicators for the highest level of education (high school, college and graduate degrees), and, finally, household size (number of family members in the household) (e.g. Verheul & Van



Mil, 2011; Ashourizadeh et al., 2014; Jensen, Rezaei, & Wherry, 2014). Countries' economic status is the country level factor that have impact on individuals' entrepreneurial choice. This is because past work has identified a structural relationship between an economy's level of development and its key entrepreneurship activities (Wennekers, Wennekers, Thurik, & Reynolds, 2005). I used Gross national income (GNI) per capita and GDP growth, both taken from World Bank Database 2013, to control for the economic conditions at country level. The means, standard deviation, and correlations of the individual and country level variables included in the study are displayed in Table 3.6.

**[INSERT FIGURE 3.6 ABOUT HERE]**

### **3.4.5. Analysis Technique**

To test the above hypotheses, I use Hierarchical Generalized Linear Modeling (HGLM) with robust standard errors. HGLM is appropriate for research designs where the data for participants is organized at more than one level and the dependent variable displays a binomial distribution. HGLM models can decompose and analyze the variance in the dependent variable that occurs both between groups and within each group. At a conceptual level, HGLM first analyzes separate regression equations within units and summarizes them with intercepts and slopes. In step two, HGLM uses the intercepts and slopes of the within unit relationships as an outcome variables and regresses them on level II characteristics. So the within group average is regressed on the level II variables (Hoffmann, 1997). Finally, HGLM uses the logit function to predict the outcome of a categorical dependent variable based on the predictor variables. As such HGLM is the most appropriate technique for testing the hypotheses.

### 3.5. RESULTS

Results of the analyses suggest that elements of the institutional profile impact entrepreneurial choice differently when they get coupled with national innovation system components. In the interests of establishing a baseline for comparison across models, I first review the results of Model 1 before proceeding to a presentation of the results for the hypotheses tests. All three HGLM models with robust standard are presented in Table 3.7.

**[INSERT TABLE 3.7 ABOUT HERE]**

Model 1 (the Control Model), in line with past work, indicates that age, being female, having job, smaller household size, having a higher country level GNI per capita and GDP growth rate all increased the likelihood that an individual will choose OME over NME. Previous studies believe that OME is substantially riskier project to start so it is understandable when the age goes high the likelihood of OME decreases. The effect of gender on choice of entrepreneurship could be explained using “gender differences” approach which stipulates that normative differences between men and women defines the family as women’s sphere and paid work as men’s domain (Keene & Quadagno, 2004). So it can be inferred that it is more likely to see men choose entrepreneurship out of necessity rather than exploiting an entrepreneurial opportunity. The house hold size significant negative sign may mean that when the number of people in your family increases the likelihood of starting a new business out of necessity increases as well. The employment status effect on the choice of entrepreneurship is very intuitive. Having a job makes it unlikely to do entrepreneurship out of necessity. The effect of the economic status of a country on choice of entrepreneurship can be explained similarly. Higher income levels makes it unlikely to start a business out of necessity or in other words

having less financial concern creates more freedom to exploit unexploited or underexploited business opportunities.

Model 2 in Table 3.6 tests the main effect hypotheses for dimensions within the institutional profile and national innovation system surrounding the entrepreneur. Results of that analysis indicate that that neither institutional profile nor national innovation system factors cannot solely determine the choice between OME and NME, but looking at interaction effects, we can see another story. Model 3 present the results for my Hypotheses, the moderating effects of national innovation system elements. Despite the effects of the institutional profile and national innovation system elements, results for their interaction effects hypotheses were largely supported.

H1 which argues that the relationship between institutional profile components (cognitive, normative, and regulatory) is positively significantly moderated by entrepreneurial education, is supported. In other words, in a country with supportive institutional environment toward entrepreneurship, if potential entrepreneurs are provided with entrepreneurial education and training, the probability of seeing individuals choosing OME over NME would be higher. In terms of individuals' cognition, entrepreneurial education will enhance their opportunity recognition ability and for those who may have fear of failure, this could be reduced because some of this fear comes from being afraid of unknowns. In a country where entrepreneurs have respectful position and the regulations are facilitative toward entrepreneurs, those with entrepreneurial education and training are more like to exploit opportunities that cannot be seen by others.

The second hypothesis, which argues that the relationship between institutional profile components and OME will be positively moderated by university-industry collaboration, is not

supported. A plausible explanation could be that however the diffusion of knowledge and information between research institutes and industries are major source of innovation at the country level, its influence may be more significant in firm level and not individual level. In other words, the opportunities created by knowledge exchange between universities and industries may just be accessible for those individuals having relationships with either of industry or universities and not all potential entrepreneurs within a country and that's why it doesn't have significant effect on the relationship between institutional profile and individuals choice of entrepreneurial activity.

In terms of availability of latest technology, it positively moderates the relationship between the countries' institutional profile and choosing OME. It can be said that access to the latest technology will increase the supportive role of cognitive, normative and regulatory components. For example, besides TV channels and newspapers, media attention toward entrepreneurial activities can be more addressed via newly introduced social media such as Instagram, Facebook, telegram and etc., or using online registration makes it even easier to go through new venture registration process which is a part of regulatory pillar. Furthermore, access to the latest technology generates a range of entrepreneurial opportunities that are not obvious to all potential entrepreneurs (Shane, 2000).

Hypothesis 4 is also supported and indicates that presence of supportive institutional profile components and higher support from venture capitalists will increase the likelihood of choosing OME over NME. In other words, in a country where being an entrepreneur is respected and desirable, having high levels of VC availability which shows higher support for risky projects such as OME, encourage potential entrepreneurs to choose OME rather than NME. Furthermore, in a country where regulations are favorable for entrepreneurship in general, higher

support for innovative ideas and risky projects, may induce people to start an opportunity motivated entrepreneurial activity. VCs also can assist potential entrepreneurs through official procedure they need to go through to start their new business, which strengthens the role of already present facilitative rules and regulations. In terms of cognitive pillar, higher support from VCs will reduce potential entrepreneurs' fear of failure to strengthen the role of cognitive pillar.

### **3.6. DISCUSSION AND IMPLICATIONS**

This study sheds light on the importance of market logics, as expressed through the institutional profile structures for entrepreneurs who live in countries with higher levels of national innovation systems components. While institutional profile and national innovation system will not determine the type of entrepreneurship on their own, improvement in both in a society will increase the odds of potential entrepreneurs getting involved with OME rather than NME. This interpretation is because of my dichotomous dependent variable. While I have 1 for OME and 0 for NME, the increase in independent variables should be interpreted as increase the probability of dependent variable occurrence and not its magnitude. So, it can be stated that 1 unit increase in each interaction terms will increase the probability of OME occurrence equal to its corresponding coefficient.

While previous studies have shown the important roles of individual characteristics such as age, gender, employment status, household size, marital status on the type of entrepreneurship (Robichaud, LeBrasseur, & Nagarajan, 2010; Wennekers, Block & Wagner, 2010; Verheul & Van Mil, 2011; Ashourizadeh et al., 2014; Jensen, Rezaei, & Wherry, 2014), the ICC<sup>1</sup> number

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<sup>1</sup> ICC is “a measure of within-cluster homogeneity and equals the proportion of variance due to between-cluster differences” (Anderson et al., 2013: 494).

shows that %13.1 of the contrast among individuals in terms of their entrepreneurial choice is explained by country-level factors.

### **3.6.1. Contribution to the Institutional Logics Literature**

The finding that agents differ in their responses to institutional forces such as cognitive, normative and regulatory institutions considering the nations' level of innovation supports the institutional logics perspective. According to Thornton and Ocasio (2008) cross-level effects between the institutional and individual level are critical because actors and institutions interact and influence one another.

The fact that personal characteristics and national innovation system components determine the extent of institutional profile elements' influence is very much in line with expectations one would have using the work of sociologist Pierre Bourdieu on fields. According to Bourdieu different individuals embedded in the same institutional/social field act differently in response to the same institutional forces. Variation in these responses is caused by both their personal features within the institutional/social field as well as their ability to access resources in the field (Bourdieu, 1988), which are sources of innovation in this case.

### **3.6.2. Contribution to the Entrepreneurial Opportunity Identification Literature**

Indeed, the notion of embedded agency fits quite well with extant theory and empirical findings regarding entrepreneurship (Garud & Karnoe, 2003). Entrepreneurship scholars argue that there are both a supply (individual) and a demand (contextual) side to entrepreneurship (e.g. Eckhardt & Shane, 2003). This idea echoes Shane and Venkataraman's (2000) seminal piece that viewed entrepreneurship as the intersection of agents' entrepreneurial actions and objective opportunities existing in the market and institutional environments. Sarason, Dean and Dillard (2006:286) explain, entrepreneurs are "reflexive agents engaging in purposeful action. Sources

of opportunities are extant features that provide the context for creating entrepreneurial ventures. The act of entrepreneurship occurs as the agent specifies, interprets, and acts upon the sources of opportunity. This is a dynamic process whereby the sources of opportunity are acted on by the agent, and the agent is affected by the sources of opportunity.” Thus the linkages between a vibrant institutional environment and an actor with important characteristics are both vital for new venture activity (Thornton, 1999). By arguing from an institutional logics perspective that broader societal institutions matter but that their impact is subject to individual characteristics, this study adds Opportunity Identification literature showing that individuals’ opportunity identification capability will be affected by the extent they are provided with or have access to the sources of innovation such as entrepreneurial education, latest technology and venture capital. This is in line with Baron (2006) statement that entrepreneurs identify opportunities for new business ventures by using frameworks they have acquired through experience to perceive connections between seemingly unrelated events or trends in the external world.

### **3.6.3. Contribution toward Economic Development Scholarship (Practical Implications)**

While previous studies have found insignificant relationship between necessity motivated entrepreneurship and economic growth (Acs and Varga, 2005; McMullen, Bagby & Palich, 2008), it would very important to find out the ways to encourage potential entrepreneurs to choose opportunity motivated entrepreneurship.

This study provides policy makers with solution how to encourage individuals to pursue more high impact entrepreneurial activities. Besides facilitative and supportive cognitive, normative and regulatory institutions, nations need to enhance their levels of entrepreneurial education and training, university-industry collaboration, latest technology availability and availability of venture capital to expect to see more constructive type of entrepreneurial

activities. In other words, In the same conditions of supportive institutional profile, those countries with higher entrepreneurial education and training, higher access to the latest technology and higher availability of VCs, can expect to see more OMEs rather than NMEs.

### **3.7. LIMITATIONS AND FUTURE RESEARCH**

In this study I used multiple indicators to capture each institutions. Furthermore, I did factor reduction to create single institutional profile indicator for each country. this approach may limit this study in a way that I may not be able to interpret the interaction effect of each element of national innovation system on every single indicator of countries' institutional profile factors. More fine-grained studies may investigate these interaction effects on entrepreneurial choice.

Second, my data is a cross-sectional analysis. Future research could examine the impact of institutional change on the same individuals over time. Such a research design would greatly increase confidence in the implications of this study. If changes in institutional profile and innovation level were shown to impact entrepreneurial choices, policymakers could be far more confident in developing remedies.

Third, while institutional data are gathered at the country level, this is not always the way in which institutions manifest their effects. As Stenholm et al., (2013: 190) notes, "an increasing amount economic development is 'spiky,' concentrating in particular geographic regions and often without regard to borders." Within, countries as large as United States there is significant variation in the national innovation system components. For instance, level of access to the latest technology in places such as Silicon Valley is quite higher. While these measures are not systematically skewed (i.e. biased) for the individuals within each country, geography may improve the reliability of their application to each individual in the sample.



Of course such nuance is in keeping with the overall framework of this paper: institutions within countries do not impact all individuals evenly. Future research could take the idea that the institutional framework has uneven effects and study the potential entrepreneurs in clusters based on their access to the sources of innovation in a same country.

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### 3.9. TABLES AND FIGURES

Figure 3.1: Institutional Profile, NIS and Entrepreneurial Choice

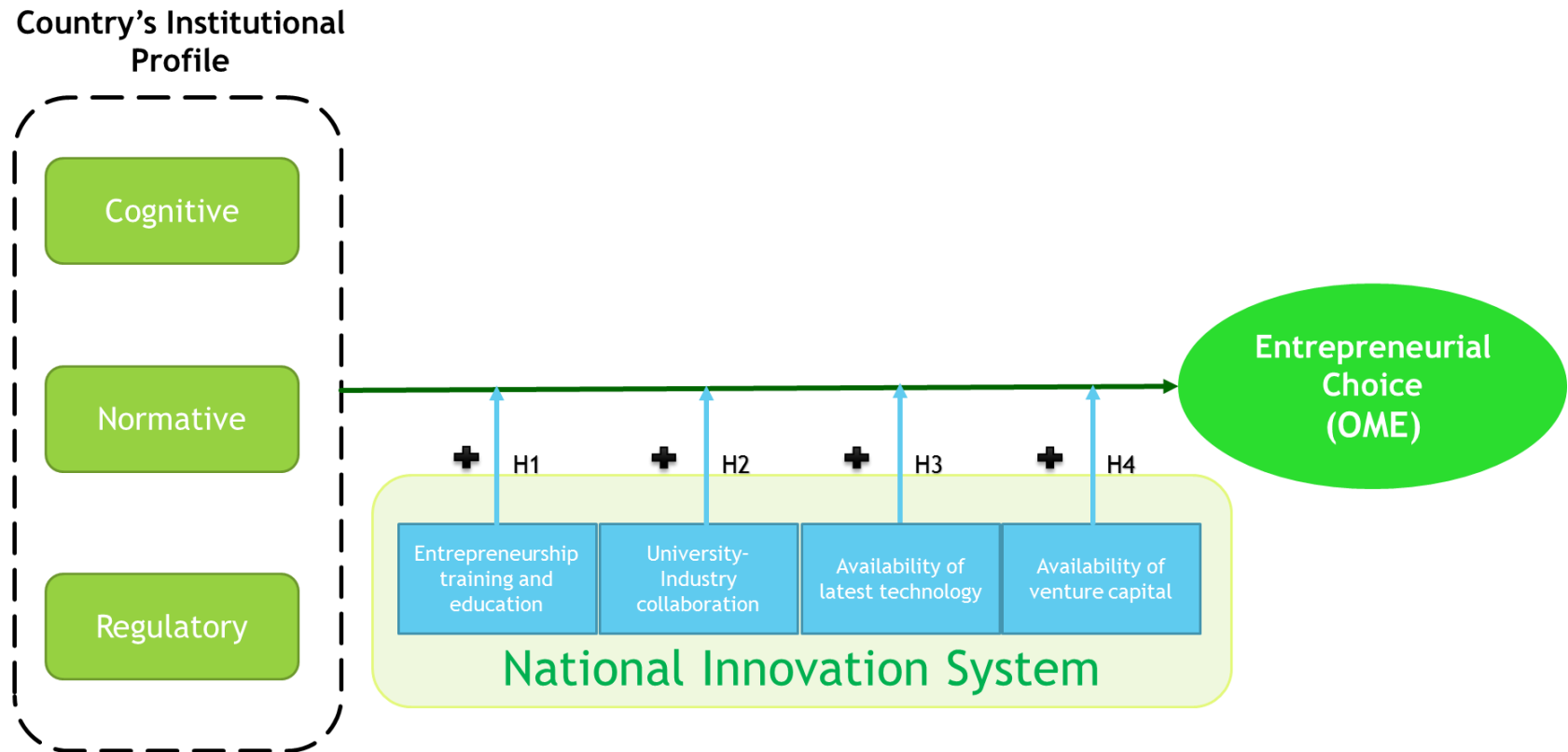


Table 3.1: National Innovation System Definitions

The network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies.	Freeman (1995)
The elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge ... and are either located within or rooted inside the borders of a nation state.	Lundvall (1992)
A set of institutions whose interactions determine the innovative performance ... of national firms.	Nelson (1993)
The national institutions, their incentive structures and their competencies, that determine the rate and direction of technological learning (or the volume and composition of change generating activities) in a country.	Patel & Pavitt (1994)
That set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts which define new technologies.	Metcalf (1995)

Table 3.2: Factor loadings for Cognitive Institutions

Perceived opportunities	.800
Perceived capabilities	.919
Fear of failure	-.695
Entrepreneurial intentions	.861
Extraction Method: Maximum Likelihood.	

Table 3.3: Factor loadings for Normative Institutions

Entrepreneurship as a good career choice	.677
High status to successful entrepreneurs	.636
Media attention for entrepreneurship	.625
Extraction Method: Maximum Likelihood.	

Table 3.4: Factor loadings for Regulatory Institutions

Time required to start a business (days)	-.411
Start-up procedures to register a business (number)	-.603
Property rights	.978
Government integrity	.953
Tax burden	-.563
Government spending	-.548
Business freedom	.746
Trade freedom	.645
Investment freedom	.774
Financial freedom	.716
Extraction Method: Maximum Likelihood.	

Table 3.5: Factor loadings for Countries' Institutional Profile

Cognitive	.817
Normative	.809
Regulatory	-.589
Extraction Method: Maximum Likelihood.	

Table 3.6: Variable Means, Standard Deviations, and Correlation Matrix

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>1.OME</b>	.72	.450	1	.135	-.077	-.038	-.032	.099	-.016	-.051	-.001	.026	.064	.056	-.011	.018
<b>2.Employment Status</b>	.28	.447	.135	1	-.123	-.041	-.069	.170	-.111	-.177	.111	-.053	-.017	.093	-.119	.036
<b>3.Gender</b>	1.39	.488	-.077	-.123	1	-.012	.047	-.089	.079	.137	-.115	.047	.049	-.093	.116	-.007
<b>4.Age</b>	36.41	11.466	-.038	-.041	-.012	1	-.039	.121	-.092	-.121	.087	-.075	-.052	.064	-.078	.050
<b>5.Household Size</b>	4.12	2.132	-.032	-.069	.047	-.039	1	-.205	.179	.185	-.147	.064	.008	-.042	.141	-.024
<b>6.GNI</b>	18.31	14.01	.099	.170	-.089	.121	-.205	1	-.542	-.797	.571	-.084	-.075	.346	-.569	-.156
<b>7.GDP growth</b>	4.02	2.47	-.016	-.111	.079	-.092	.179	-.542	1	.548	-.608	.267	.232	-.101	.573	-.048
<b>8.Cognitive</b>	-.01	2.13	-.051	-.177	.137	-.121	.185	-.797	.548	1	-.778	.306	.259	-.539	.768	-.078
<b>9.Normative</b>	-.29	.91	-.001	.111	-.115	.087	-.147	.571	-.608	-.778	1	-.168	-.280	.228	-.981	-.055
<b>10.Regulatory</b>	.47	.97	.026	-.053	.047	-.075	.064	-.084	.267	.306	-.168	1	.768	-.160	.076	-.743
<b>11.Entrepreneurial Education and Training</b>	.23	.83	.064	-.017	.049	-.052	.008	-.075	.232	.259	-.280	.768	1	-.235	.162	-.504
<b>12.Availability of Latest Technology</b>	-.19	.86	.056	.093	-.093	.064	-.042	.346	-.101	-.539	.228	-.160	-.235	1	-.180	.254
<b>13.University Industry Collaboration</b>	.14	.47	-.011	-.119	.116	-.078	.141	-.569	.573	.768	-.981	.076	.162	-.180	1	.109
<b>14.Venture Capital Availability</b>	-.47	.92	.018	.036	-.007	.050	-.024	-.156	-.048	-.078	-.055	-.743	-.504	.254	.109	1

Table 3.7: HLM Results for Opportunity Motivated Entrepreneurship

		Model 1		Model 2		Model 3	
		Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
<b>Controls</b>							
Age		-0.0115**	0.0028			-0.0117**	0.0031
Male		-0.3535**	0.0595			-0.3618**	0.0623
Household Size		-0.0239*	0.0093			-0.0238*	0.0097
Employed		0.7344**	0.0760			0.7506**	0.0807
GNI per Capita (thousands)		0.027**	0.0061			.038**	0.01
GDP Growth rate		0.0774*	0.0293			0.0071	0.0394
<b>Main Effects</b>							
Institutional Profile	Cognitive			-0.1719	0.0621	0.0828	0.2443
	Normative			-0.3663	0.3436	0.4989	0.6125
	Regulatory			0.0737	0.1648	0.0750	0.1524
National Innovation System	Entrepreneurial Education			0.2039	0.1196	0.2116	0.1416
	University-Industry Collaboration			0.0448	0.0823	0.0960	0.0911
	Availability of latest Technology			-0.2834	0.6627	0.6274	1.2527
	Availability of Venture Capital			0.1261	0.1069	0.1104	0.0744
<b>Interaction Effects</b>							
Institutional Profile X Entrepreneurial Education						1.0806**	0.4001
Institutional Profile X University-Industry Collaboration						1.4971	1.5634
Institutional Profile X University-Industry Collaboration						1.5235*	0.7023
Institutional Profile X Availability of latest Technology						2.4076*	1.0144
Deviance (-2 log likelihood)		14997.72		15307.43		15325.89	
Chi-square		535.01244**		452.00081**		372.17380	
Individual level n = 10,776 ; Country level n = 55. Unstandardized regression coefficients and robust standard errors reported.							
* = p < .05, ** = p < .01							

## CHAPTER 4

### 4. Conclusions

This study provides rigorous and relevant empirical insights into how national institutions influence country-level entrepreneurial activities in terms of rate and type. In first essay, it was revealed how different configurations of institutional arrangements may result in improvement in new business registration under circumstances of financial constraints. This study sheds light on the importance of widely shared social knowledge, value systems, and the government policies as expressed through the country institutional profile, for the entrepreneurial recovery during the financial crisis. Results of the analyses suggest that countries may utilize their institutional arrangements differently to manage their entrepreneurial decline due to financial deficiencies. Findings expand knowledge about the role of institutional arrangements in combinations with each other, within nations with totally different institutional profile, to reach same desirable outcome. Finally, results reveal new paths in front of policymakers to better utilize the formal and informal institutions in cases of financial disasters.

In this study, I have found that there is no need to have all three major institutions together simultaneously to enhance the rate of entrepreneurship. Relying on at least one of the formal (regulatory) or informal (cognitive and normative) institutions may conduct a nation toward entrepreneurial recovery despite financial limitations due to global financial crisis. The main study of the first essay extends the knowledge about the influence of institutional arrangements on country-level entrepreneurship and the second more fine-grained study reveals the areas in each pillar that are more prevalent among countries where have managed their entrepreneurial crisis. Based on the results of the second study of the first essay, it can be argued that society's view on entrepreneurship as a career, status and respect given to the successful



entrepreneurship and paying attention to the entrepreneurs in the media, as indicators of normative institutional arrangements, are the most prevalent fields where policy-makers should emphasize on to increase the rate of entrepreneurial activity in a country particularly under circumstances of financial constraints. Simplifying regulations for those who want to establish a new venture and lowering the tax burdens for them are the next most dominant approach to enhance entrepreneurship in presence of financial limitations.

Trying to reduce the fear of failure and increase the opportunity recognition capability, would be next dominant way toward recovery from entrepreneurial crisis. Finally, it seems that Economic Freedom indicators are the most difficult and less common way to manage entrepreneurial issues, maybe because it is costly to modify.

In the second essay, using institutional theory, it was shown that in countries where both institutional profile components and national innovation system elements are serving potential entrepreneurs adequately, it is more likely to see individuals choose opportunity motivated entrepreneurship over choosing entrepreneurship merely out of necessity. It was found that while institutional profile and national innovation system will not determine the type of entrepreneurship on their own, having both coupled with each other will increase the odds of potential entrepreneurs getting involved with OME rather than NME. In other words, increase in interaction between institutional profile of a country and its national innovation system can be interpreted as increase the probability of occurrence of opportunity motivated entrepreneurship as my dependent variable.

although there are several studies showing that individual characteristics such as age, gender, employment status, household size, marital status may have significant role on the type

of entrepreneurship, in this essay, it was revealed that different choices of entrepreneurial activities in a country could be influenced explained by country-level factors as well.

Despite these limitations that have been mentioned in previous sections, this study provides rigorous and relevant conceptual and empirical understandings into how country level factors such as cognitive, normative, regulatory and level of innovation impact entrepreneurial activities both in type and rate. This study sheds light on the importance of institutional logics, for the entrepreneurial activities in general and also in specific type. Results of this study suggest that individuals living within similar institutional environment may be affected differently to choose different types of entrepreneurship. On the other hand, the findings suggest that countries with different institutional arrangements can utilize their institutions to reach similar outcomes.

## VITA

### MEHDI SHARIFI KHOBDEH

Old Dominion University, Strome College of Business, Department of Management  
2111 Constant Hall, Norfolk, VA 23529-0223

#### Education:

**Ph.D.**, Strategic Management and International Business, Strome College of Business, Old Dominion University, 2013-2017

**MBA**, Sharif Graduate School of Management and Economics, Sharif University of Technology (Tehran-Iran), 2007-2010

**B.S.**, Mechanical Engineering, Sharif University of Technology (Tehran-Iran): 2002-2007

#### Publications, Conference Papers and Presentations: (\* denotes presenter):

- White III, G. O., Guldiken, O., Hemphill, T. A., He, W., & **Khobdeh, M. S.** 2016. Trends in International Strategic Management Research from 2000 to 2013: Text Mining and Bibliometric Analyses. *Management International Review*, 56(1), 35-65.
- **Sharifi Khobdeh, M.\***, Pezeshkan, A. & Nair, A. 2017. “The Impact of Institutional Arrangements on Entrepreneurial Recovery during the GFC”. Academy of Management Conference in Atlanta, GA.
- Madden, T.\*, Smith, A. D., and **Khobdeh, M. S.** 2015. “Let’s try it – Countering environmental complexity with complexity leadership to achieve organizational ambidexterity”, Southern Management Association Annual Meeting, St. Pete Beach, FL.
- White, G. O., He, W., Hemphill, T. A., Galang, R. M., **Khobdeh, M.\*** 2014. “Trends in Global Strategy Research from 2000 to 2010: Text Mining and Bibliometric Analyses”. Academy of Management Conference in Philadelphia, PA.
- White, G. O.\*, Hemphill, T. A., Rajwani, T., Guldiken, O. & **Sharifi Khobdeh, M.** 2014. “Political Ties and Regulator Vulnerabilities to Political Pressure: The Moderating Effects of Regulatory and Political Distance”. Academy of International Business Conference in Vancouver, Canada.
- **Sharifi Khobdeh, M.\*** 2010. “Spirituality in Workplace”. Human Resource Development Conference in Tehran, Iran.

#### Business and Other Experience:

- **Graduate Research Assistant**, Department of Management, Old Dominion University (Norfolk-Virginia-United States of America), 2013-2017
- **Project Management Specialist**, Kayson Engineering and Construction Company Project Management Office (Tehran-Iran), 2012 to 2013
- **Human Resource Specialist**, Kayson Engineering and Construction Company Central Office (Tehran-Iran), 2010 to 2012
- **Organizational Excellence Specialist**, Institute for Productivity and Human Resource Development (Tehran-Iran), 2007 to 2010
- **Advisor for MBA and EMBA applicants**, Parseh Institute of Higher Education (Tehran-Iran), 2007 to 2012