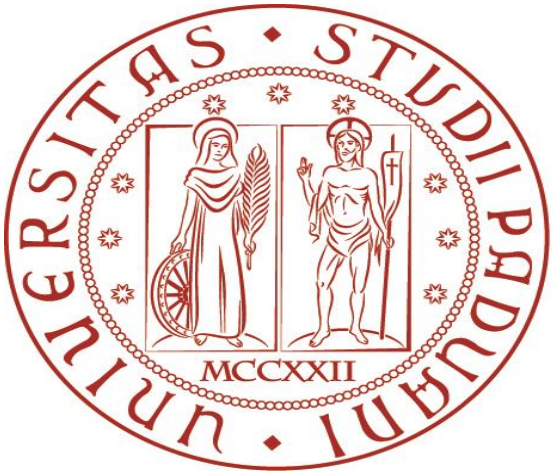

UNIVERSITÀ DEGLI STUDI DI PADOVA

SCUOLA DI DOTTORATO DI RRICERCA IN INGEGNERIA GESTIONALE ED ESTIMO
INDIRIZZO INGEGNERIA GESTIONALE
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Cross Country Entrepreneurial Development: Role of Cultural Practices and Macroeconomic Contingencies in Entrepreneurial Behaviour

Direttore della Scuola: Ch.mo Prof. Cipriano Forza
Coordinatore d'indirizzo: Ch.mo Prof. Cipriano Forza
Supervisore: Ch.mo Prof. Moreno Muffatto

Dottorando: Ali Raza

ABSTRACT

Introduction of this dissertation highlights that former studies have identified a significant impact of entrepreneurship on country's economic development. Entrepreneurial activity process deals with micro-level and macro-level characteristics (Davidsson and Wiklund, 2001), micro-level characteristics are human resources (e.g., Bhagavatula et al., 2010) and macro-level characteristics are institutions (e.g., Autio and Acs, 2010; Bowen and De Clercq, 2008). Shane (2009) argued that the innovative businesses with growth are important for countries economic development, not the general businesses. Aparicio et al., (2016) argued that Institutions are important factors to explain the entrepreneurial activities. North's (1990) divides institutions in two categories, formal institutions and informal institutions. This dissertation explains the characteristics behind the difference of entrepreneurial activity creation across countries by considering the entrepreneurial cognition and national level institutions and their interactions on entrepreneurial behaviour.

This study is forgrounded on a comprehensive and thorough literature review, encompassing the studies conducted during the last 26 years to know that how many studies are available which has explored the impact of formal and informal institutions on entrepreneurial behaviour. With this aim, I have conducted a rigorous search of published articles in journals included in Social Sciences Citation Index®. The main findings of this chapter show that 101 articles are strictly empirical to the topic. I observed that more than half, around 51% of the articles were published in last five years. I also put my preferences on "published articles by authors´ country of academic affiliation" and found USA as the leading country with 32% of studies. Around 80% articles used the Global Entrepreneurship Monitor dataset and just 13 studies used multi-level modeling for analyzing this relationship. All of the multi-level studies were available in last four

years, that identifies application of multi-level statistical technique is new to the field. Athough opportunities are available for future research, during my literature review I found some gaps, for example very few studies are available with an emphasis on quality of entrepreneurship, and the inconsistent treatment of levels of analysis.

The third chapter of this dissertation eloborates from a theoretical perspective and illustrate on the emerging point of view of social cognitive theory and institutional theory. I have built and tested a multilevel model on the outcome of innovative entrepreneurial entry. This study considers the relationship between entrepreneurial cognition and their likelihood to innovative entrepreneurial entry and particularly, how this relationship might be moderated by the macroeconomic context (government regulations and financial capital availability) formal institutions. Multilevel logistic regression analysis was appled to a sample of almost 190,015 individuals across 48 countries that spans on 8-years time period (2001-2008). I concluded that entrepreneurial cognition variables such as social capital, perceived opportunity and self-efficacy has positive relationship with innovative entrepreneurial entry and positively moderated by the government regulations and financial capital availability. These results support my *Hypothesis 1a to 3c*, and they have implications for researchers and practitioners in the field of innovative entrepreneurship.

The interrelationship between informal institutions cultural practices, entrepreneurial cognition, and innovative entrepreneurial entry has been discussed in the fourth chapter of this dissertation. While drawing attention on the institutional theory and social cognitive theory, the data was obtained from the GEM and the GLOBE study. I tested my *Hypothesis 4a to 7c* using multilevel methodology of a cross sectional panel dataset for 43 countries of 267,882 individuals over the

period of (2001-2008). I found a positive effect of entrepreneurial cognition variables such as social capital, perceived opportunity and self-efficacy on innovative entrepreneurial entry is moderated by the institutional collectivism, performance orientation and uncertainty avoidance. Although, the present results have identified that individual-level variables motivating innovative entrepreneurship that are systematically entangled with, and embedded in, both entrepreneurial cognition and cultural practices. This implies some implications for methodological development in cross cultural research of innovative entrepreneurship.

An additional process "robustness check" with opportunity based entrepreneurship was performed to establish whether the hypotheses were in the same line of other indicators related to quality of entrepreneurship. I have built and tested empirically my *Hypothesis 8a to 14c* with macroeconomic context and societal context. Using multilevel methodology for both (macroeconomic context and societal context), over eight-years (2001-2008) with same number of individual I found a positive relationship between social capital, perceived opportunity, self-efficacy and opportunity based entrepreneurship. This relationship was found to be positively moderated by the government regulations and financial capital availability. On the other hand, for informal institutions I found positive association between social capital, perceived opportunity, self-efficacy and opportunity based entrepreneurship, in addition positively moderated by the institutional collectivism, performance orientation and uncertainty avoidance. The outcomes form "robustness checks" followed the same trend and further confirmed the hypothesis tested in the previous chapters. This process made my study more validated and valuable for policy makers to implicate policies.

ABSTRACT (Italian Version)

L'introduzione di questa dissertazione mette in evidenza che gli ex studi hanno identificato un impatto significativo dell'imprenditorialità sullo sviluppo economico del paese. offerte imprenditoriali processo attività con micro-livello e macro-livello di caratteristiche (Davidsson e Wiklund, 2001), le caratteristiche di micro-livello sono le risorse umane (ad esempio, Bhagavatula et al., 2010) e le caratteristiche a livello macro sono istituzioni (ad esempio, Autio e Acs, 2010; Bowen e De Clercq, 2008). Shane (2009) ha sostenuto che le imprese innovative, con la crescita sono importanti per lo sviluppo economico dei paesi, non le imprese generali. Aparicio et al., (2016) ha sostenuto che le istituzioni sono fattori importanti per spiegare le attività imprenditoriali. Nord (1990) divide istituzioni in due categorie, le istituzioni formali e istituzioni informali. Questa tesi spiega le caratteristiche alla base della differenza della creazione dell'attività imprenditoriale in tutti i paesi, considerando le istituzioni cognizione e di livello nazionale, imprenditoriali e le loro interazioni sul comportamento imprenditoriale.

Questo studio è forgrounded su una revisione completa e approfondita della letteratura, che comprende gli studi condotti nel corso degli ultimi 26 anni per sapere che il numero di studi sono disponibili, che ha esplorato l'impatto delle istituzioni formali e informali sul comportamento imprenditoriale. A tal fine, ho condotto una ricerca rigorosa di articoli pubblicati su riviste inclusi in Social Sciences Citation Index. I principali risultati di questo capitolo mostrano che 101 gli articoli sono strettamente empirico al tema. Ho osservato che più della metà, circa il 51% degli articoli sono stati pubblicati in ultimi cinque anni. Ho anche messo le mie preferenze su "articoli pubblicati da authors' paese di affiliazione accademica" e ho trovato Stati Uniti come il paese leader con il 32% degli studi. Circa 80% articoli usati il set di dati Global Entrepreneurship

Monitor e solo 13 studi hanno utilizzato la modellazione multi-livello per analizzare questo rapporto. Tutti gli studi multi-livello erano disponibili in quattro anni, che identifica l'applicazione della tecnica statistica multi-livello è nuovo al campo. Benchè le opportunità sono disponibili per la ricerca futura, durante la mia revisione della letteratura che ho trovato alcune lacune, per esempio pochissimi studi sono disponibili con l'accento sulla qualità dello spirito imprenditoriale, e il trattamento incoerente dei livelli di analisi.

Il terzo capitolo di questa tesi eloborates da un punto di vista teorico e illustrare il punto emergente di vista della teoria sociale cognitiva e teoria istituzionale. Ho costruito e testato un modello multilivello sul risultato di entrata imprenditoriale innovativa. Questo studio considera il rapporto tra cognizione imprenditoriale e la loro probabilità di ingresso imprenditoriale innovativo e particolare, come questo rapporto potrebbe essere moderato dal contesto macroeconomico (regolamenti governativi e la disponibilità del capitale finanziario) istituzioni formali. analisi di regressione logistica multilivello è stato Appled ad un campione di quasi 190.015 individui in tutto 48 paesi, che abbraccia tutto su 8 anni di periodo di tempo (2001-2008). Ho concluso che le variabili cognitive imprenditoriali quali il capitale sociale, opportunità percepita e di auto-efficacia è rapporto positivo con ingresso imprenditoriale innovativo e moderato positivamente dai regolamenti governativi e disponibilità capitale finanziario. Questi risultati sostenere la mia ipotesi 1a a 3c, e hanno implicazioni per i ricercatori e professionisti nel campo della imprenditorialità innovativa.

L'interrelazione tra istituzioni informali pratiche culturali, la cognizione imprenditoriale, e l'ingresso imprenditoriale innovativo è stato discusso nel quarto capitolo di questa tesi. Mentre si disegna l'attenzione sulla teoria istituzionale e teoria sociale cognitiva, i dati sono stati ottenuti

dalla GEM e lo studio GLOBE. Ho provato la mia ipotesi 4a al 7c utilizzando la metodologia multilivello di una croce dataset panel sezione per i 43 paesi di 267,882 individui nel periodo di (2001-2008). Ho trovato un effetto positivo di variabili cognizione imprenditoriali quali il capitale sociale, opportunità percepita e auto-efficacia in entrata imprenditoriale innovativa è moderato dal collettivismo istituzionali, orientamento ai risultati e l'incertezza di evitamento. Anche se, i risultati attuali hanno identificato che le variabili a livello individuale motivanti imprenditorialità innovativa che vengono sistematicamente impigliato con, e incorporati in, sia la cognizione imprenditoriale e pratiche culturali. Ciò comporta alcune implicazioni per lo sviluppo metodologico in croce ricerca culturale di imprenditorialità innovativa.

Un ulteriore processo "controllo robustezza" con lo spirito imprenditoriale basato opportunità è stata eseguita per stabilire se le ipotesi fossero nella stessa linea di altri indicatori relativi alla qualità dello spirito imprenditoriale. Ho costruito e testato empiricamente la mia ipotesi 8a a 14c con il contesto macroeconomico e contesto sociale. Utilizzando una metodologia multilivello per entrambi (contesto macroeconomico e di contesto sociale), nel corso di otto anni (2001-2008) con lo stesso numero di individuo ho trovato una relazione positiva tra capitale sociale, opportunità percepita, auto-efficacia e l'imprenditorialità basata opportunità. Questa relazione è stata trovata per essere moderato positivamente dai regolamenti governativi e disponibilità capitale finanziario. D'altra parte, per le istituzioni informali che ho trovato un'associazione positiva tra capitale sociale, opportunità percepita, auto-efficacia e l'imprenditorialità basata opportunità, oltre moderato positivamente dal collettivismo istituzionali, orientamento ai risultati e l'incertezza di evitamento. La forma esiti "controlli di robustezza" hanno seguito la stessa tendenza e confermano ulteriormente l'ipotesi testato nei capitoli precedenti. Questo processo ha

reso il mio studio convalidati e di valore per i responsabili delle politiche di coinvolgere le politiche.

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CHAPTER 1

INTRODUCTION

1.1. Introduction

Entrepreneurship is a gradually recognized phenomenon (Smallbone and Welter, 2010). It creates new ventures (Gartner, 1988), entrepreneurs have a strong background in academic literature to construct economic prosperity (e.g., Kirzner, 1973; Leff, 1979). Entrepreneurial activity along with employment, innovation and environmental effects has been recognized to be a significant process for country's economic development (Schumpeter, 1934; Acs, Audretsch, 1989; Wennekers and Thurik, 1999; Baumol, 2002). The rate of entrepreneurial activities is not same in all countries; some countries are more entrepreneurial whereas some countries are less entrepreneurial (Freytag and Thurik, 2007). Reasons for this entrepreneurial variation among the countries are not straightforward (Hechavarria, 2015). Aparicio et al., (2016) argue that institutional characteristics are most important elements for explaining the entrepreneurial activities. The economic activities of a particular country cannot be examined without the formal and informal institutions context in which they occur (Baumol, 1990; Denzau and North, 1994; North, 1990, 2005; Williamson, 1975). Suitable institutional conditions can help nurturing the new business to grow by introducing the innovations into the market (Gonzalez-Pernia et al., 2015).

Entrepreneurial dynamics can be broadly differentiated from each other, depending upon on the level of economic development and institutional context. Autio (2007) found that the substantial differences exist in coordination of entrepreneurial activities across countries. Entrepreneurial activity process deals with micro-level and macro-level characteristics

(Davidsson and Wiklund, 2001), micro-level characteristics human resources (e.g., Bhagavatula et al., 2010; Davidsson and Honig, 2003) and macro-level characteristics are institutions (e.g., Aidis et al., 2008; Autio and Acs, 2010; Bowen and De Clercq, 2008; Terjesen and Hessels, 2009; Vaillant and Lafuente, 2007). According to this perspective, in all economic models, institutional characteristics enable the activity that assists as a main player, underlying country's economic prosperity and growth. Previous studied also mentioned that economic development mostly depends on the quality of entrepreneurship (Shane, 2009). Three main gaps have been investigated in this dissertation including (1) the effects of country-level institutions on quality of entrepreneurship (entrepreneurial behaviour) which is most important for countries economic development, (2) relationship between entrepreneurial cognition and entrepreneurial behaviour moderated by the macroeconomic context and (3) relationship between entrepreneurial cognition and entrepreneurial behaviour moderated by the societal context cultural practices.

The important aspect of general entrepreneurship and innovative entrepreneurship is the development of societies towards social and economic intentions that are commonly accepted (Audretsch, 2012). Economic development and business spirit contains a complex relationship (Minniti, 2008; Santarelli and Vivarelli, 2007) and empirical investigations demonstrateted that public policies can participate to economic growth with increasing innovation and establishment of new businesses (Kuratko et al., 2013). Innovative entrepreneurship support infrastructure, demonstrate policies that enhance new venture creation and innovation (Belso-Martinez et al., 2013; Bruneel et al., 2012; Dee et al., 2011). New businesses and innovations are essential need to improve employment conditions and economic development of a country (Drucker, 1998; Audretsch and Keilbach, 2004; Baltar and Coulon, 2014). Entrepreneurship and innovation, separately or collectively are important for economic growth. However, empirical investigations indicate that the effect of new businesses on countries economic development depends on the

excellence of new business creation (González-Pernía and Peña-Legazkue, 2015; Wong et al., 2005). Scott Shane, winner of the 2009 Global Award for Entrepreneurship Research, argued that it is the entry of innovative new businesses with growth would help the countries towards development and not just the general new businesses.

On one hand, innovative entrepreneurial entry has emerged as an important source of economic growth, encircling the behavior of individual towards the firm (Acs et al., 2012; Audretsch and Keilbach, 2008). On other hand, a number of studies found that the role of entrepreneurship depending upon knowledge is important to obtain higher economic growth (e.g. Acs et al., 2012; Audretsch, 2007; Audretsch and Keilbach, 2008). These studies mostly used the measures of high-tech entrepreneurship and opportunity based entrepreneurship, between others, to estimate the knowledge based entrepreneurship. One important conclusion originates from above mentioned studies regarding opportunity based entrepreneurship is an important element for growth. The idea of entrepreneurial opportunity originate at the initial stage of entrepreneurial contribution by Schumpeter (1934) Knight (1971) then later participation in the entrepreneurial opportunity concept by Shane and Venkataraman (2000) and Audretsch (2007). Opportunity-based entrepreneurship definition has been mostly discussed in the literature (Brown et al., 2001). There is a fact that all individuals of the society do not contain the same information about market opportunities to start a new business. In a society, opportunities regarding jobs and social security are the factors that enhance the opportunity cost of entrepreneurship for individuals in established economies (Bosma and Schutjens, 2011).

Individual's resources are linked strongly with entrepreneurial tendencies, though the individual contain high cognitive abilities to successfully recognize business opportunities (Schultz, 1959). Past studies explain entrepreneurial cognition as knowledge provisions that assist individuals to make decisions, assessments towards opportunity recognition, new venture

creation and growth (Mitchell et al., 2002). Social capital is an important element to distinguish business opportunities (De Carolis and Saparito, 2006). Self-efficacy is the individual belief on his abilities to perform specific actions to achieve goals (Bandura, 1997; Gist and Mitchell, 1992). Previous researches also showed that entrepreneurial cognition as a key element to enhance the rate of entrepreenurship in a country (Stenholm et al., 2013).

Many researchers have concentrated to understand the characteristics that can increase new venture creations and specifically, new creations based on the knowledge (Thornton et al., 2011). Aparicio et al., (2016) argues that the institutional characteristics are essential factors to elaborate entrepreneurial activity at individual-level and country-level. Several institutional typologies were established by the researchers (Aldrich and Fiol, 1994; North, 1990; Scott, 1995). But the most famous and well-established approach regarding institutions was developed by North's (1990), he divided institutions in two categories, formal institutions and informal institutions. According to the North's (1990), formal institutions are procedures, regulations and contracts while informal institutions are culture, social norms or values of a society. Countries economic activities are not possible to investigate without consideration of formal and informal institutions in which they occur (Baumol, 1990; Denzau and North, 1994; North, 1990, 1997, 2005; Williamson, 1975). It is generally accepted phenomena that institutions play a significant role in consideration of why particular countries' economy performs better than the others (Acemoglu et al., 2001; Hall and Jones, 1999). Walter and Block 2016 argued that institutions play a key role in diminishing public policies and encourage the increase of entrepreneurial activities within a country.

Culture of a country has an essential role for its entrepreneurship (Hayton et al., 2002). Also, culture has a most important role for the development of innovation (Gupta et al., 2004; Gomez-Haro et al., 2011). Empirical research has proved that wide differences exist in terms of

entrepreneurship between the countries (Kelley et al., 2011). Number of studies emphasised on the economic conditions of a country to understand the variation in level of entrepreneurship (Acs et al., 1994; Evans and Leighton, 1989; Elam and Terjesen, 2010; Sternberg and Wennekers, 2005). However, economic factors leave an important part unexplained (Hechavarría, 2015). In this regard many authors have identified in different disciplines, for an instance Baumol (1990) in economics, Aldrich (2009) in sociology, Stephen and Uhlaner (2010) in international business, all have claimed that the culture of a country is the most important element to enhance the quality of entrepreneurship and new business creation across countries. The behavior of individuals in terms of innovative entrepreneurship is important because in this way they produce new products and services that support national economy. But the role of national culture in helping to encourage the individual level entrepreneurial behavior is still not clear (Bowen and DeClerq, 2008; Stephen and Uhlaner, 2010).

Countries macroeconomic performance typically measured with growth rate and living standard (Casson and Wadeson, 2007), In this context, government regulations and resources availability (financial capital availability) are the key factors to measure macroeconomic context. Research has identified that the heterogeneity of societal circumstances, consequences and behaviours are linked with entrepreneurial activity (Davidsson, 2003). Levie and Autio (2008) argued that country's financial system is linked with its level of new businesses. More financial resources and quality of human resources can enhance the entrepreneurship (Millán et al., 2014). Pearce (2001) argues that "Governments are important to organizations, establishing and enforcing the rules under which organizations operate". All over the globe national, regional and local governments are keen to execute new activities to increase the success rate of new organizations and growth of existing organizations (Storey and Tether, 1998; OECD, 2003). In

this context the regulations and actions performed by the governments are important factors in the embeddedness of entrepreneurial activity.

1.2. Research Objective

The current study embraces the emerging point of view of social cognitive theory and institutional theory that knowledge structures of individuals are key mechanisms underlying the

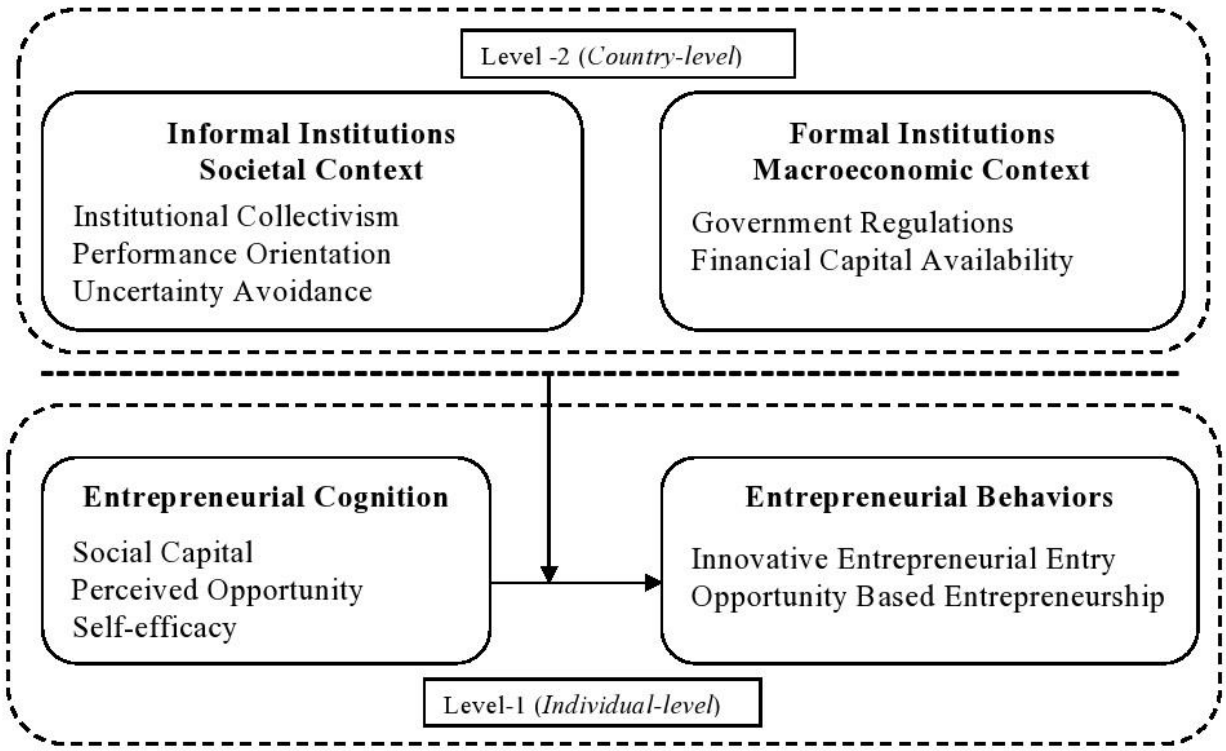

Fig. 1. Research Model

effects of institutions. Therefore, the purpose of this dissertation is to explore the cross-country variation in terms of country-level formal and informal institutions on individual-level entrepreneurial behavior (i.e. innovative entrepreneurial entry and opportunity based entrepreneurship) in the presence of entrepreneurial cognition (i.e. knowledge and skills, perceived opportunity and social capital). I have investigated the moderating role of countries formal institutions (i.e. government regulations and financial capital availability) and countries

informal institutions (i.e. institutional collectivism, performance orientation and uncertainty avoidance) and multilevel modeling has proved to be the most appropriate way to examine the relationship between country-level institutions and individual-level entrepreneurship.

1.3. Research Question

The first general research question is:

- *How macroeconomic context (formal institutions) may help to explain differences in individual's entrepreneurial behaviour across countries?*

The specific research questions related to my general research question are:

- *How government regulations play their role in the development entrepreneurial behaviour?*
- *How financial capital availability play their role in the development of entrepreneurial behaviour?*

The second general research question is:

- *How country-level societal context (informal institutions) cultural practices may help to explain differences in individual's entrepreneurial behaviour across countries?*

The specific research questions related to my general research question are:

- *How institutional collectivism plays its role in the development of entrepreneurial behaviour?*
- *How performance orientation plays its role in the development of entrepreneurial behaviour?*
- *How uncertainty avoidance plays its role in the development of entrepreneurial behaviour?*

1.4. The Research Process

1.4.1. Methodology

This dissertation contains a two level framework, (level 1) individual-level and (level 2) country-level variables. *Fig. 1* illustrates this frame work. My data comprise of a cross-sectional panel dataset, grouped by the countries. I attained individual-level and country-level data from different sources. Current model explores direct effect between individual-level variables and cross-level interactions effect between country-level formal and informal institutions based on the period of 2001-2008. To test my hypothesis, all individual-level data came from adult population survey (APS) administrated by the Global Entrepreneurship Monitor (Reynolds et al., 2005). Global Entrepreneurship Monitor is possibly the largest cross-national collaborative social science research project in the world in terms of methodology and scholarly impact. The project was initiated in late 1990s with ten participant countries to create harmonized data about new business activity and numerous correlations across countries. This project was started as joint research program between two world famous universities, Babson College (USA) and the London Business School (UK). GEM project expanded rapidly, and till 2015 more than 100 participant countries joined in its survey. GEM collets representative random samples every year from adult population survey administered by the professional survey research firms, between ages of 18 to 64 with the minimum sample size of 2,000 individuals per country. Mainly country-level data obtained from Globe Leadership and Organizational Behavior (GLOBE), Index of Economic Freedom (IEF), Political Risk Services (PRS). GEM is anchor for my data collection activities if GEM data is available for particular country in particular year then i gathered data from other data sources. This data supplemented with country-level data on formal and informal institutions, with several individual-level and country-level control variables.

In order to examine the effect of country-level institutions on individual-level behaviours, analytical techniques required that correctly deal with individual-level and group-level effects (Peterson et al., 2012). The study required multilevel technique for analysis (Hofmann et al., 2000). To estimate the influence of country-level variable (level 2) on individual-level entrepreneurship (level 1), i assumed the random-effect logistic regression model. I adopted a multi-step testing strategy to examine my hypothesis. First, i analyze "null model" for intra class correlation (ICC), which explains that how much of the variance in the dependent variables resided between countries. From all models, i perceived significant variances and country-level variables were certainly responsible for explaining the variance, thus necessitating the multi-level analysis.

Using a cross country research design will help me to investigate the country-level institutional differences associate with new venture creations.

1.4.2. Advantages of Multilevel design

During the last 3 decades, multilevel modeling engaged a significant place in research. Although Albright and Marinova (2010) describes a comprehensive review to estimates multi-level models using SPSS, Stata, SAS, and R. National culture (societal context) is a collective construct (Hofstede, 1991), also macroeconomic context measured at national level and entrepreneurial behavior is an individual construct (Autio et al., 2013). Multilevel modeling permitted me to do just that by investigating relations at different levels simultaneously and recognize the relative outcome of each. I used multilevel modeling using STATA 13 that enabled me to consider the individual-level entrepreneurial behaviours on country-level attributes (societal context and macroeconomic context). Multilevel modeling supports to evade both individualistic and ecological errors by authorizing the simultaneous reflection of collective-level and individual-

level variables in entrepreneurial behaviours. Therefore, multi-level modeling is the most appropriate way to analyze above mentioned model.

1.5. The structure of the study

Current dissertation divided into seven chapters. The *first* chapter contains the overall introduction of individual-level entrepreneurial behaviour (innovative entrepreneurial entry and opportunity based entrepreneurship), entrepreneurial cognition and country-level formal and informal institutions. It further discusses the purpose of the study as well as research questions which provides the direction to the dissertation. Also explain the research design, methodology and advantages of multi-level design. The chapter ends with the structure details of the entire dissertation.

The *second* chapter "From Informal Institutions to Formal Institutions in Entrepreneurial Behaviour" is based on literature review process of past 26 year's research between country-level institutions and entrepreneurship, illustrated in Fig. 2. This chapter discusses earlier contributions within the area of more than one hundred articles which are highly empirical with current dissertation. It starts from introduction then discusses conceptual frame work of research model, methodology for the literature review process and detailed Summary of country-level institutions on entrepreneurial behaviour in published articles. Furthermore, it highlighted some important aspects that were explained with different techniques. Finally research gap was identified from previous studies.

The *third* chapter "Entrepreneurial Cognition and Entrepreneurial Behaviour: Moderating Role of Macroeconomic Context" explain the research design between social capital, opportunity perception, self-efficacy, innovative entrepreneurial entry and moderated by the formal institutions such as government regulations and financial capital availability illustrated in Fig. 3.

The chapter begins with introduction and article related research gaps, theory development process and hypothesis building. Later, discuss the methodological section and described detailed information of all study variables in chapter 3. Last section describes the procedure of adopting the regression analysis, plotted the two-way interaction of the significant interaction terms and comprehensively explaining the results.

The *fourth* chapter "Entrepreneurial Cognition and Entrepreneurial Behaviour: Moderating Role of Societal Context" describes the research design between social capital, opportunity perception, self-efficacy, innovative entrepreneurial entry and moderated by the institutional collectivism, performance orientation and uncertainty avoidance as illustrated in Fig. 10. The chapter starts with the introduction and article related research gaps, choice of cultural practices and theoretical development as well as hypothesis building. Further, methodological selection of quantitative data from secondary sources was obtained and detailed information of all discussed variables in chapter 4 was presented. At the end of the chapter, the procedure of analyzing the data with accurate statistical techniques and plotted two-way interaction of all significant interaction terms and detailed explanation of results was presented.

The *fifth* chapter is the "robustness check" for opportunity based entrepreneurship with formal institutions macroeconomic context and informal institutions societal context. I have used multilevel methodology for cross sectional panel dataset collected over a period of eight-years with same number of interviews as reported earlier. The chapter starts with introduction and significance of performing robustness checks required for empirical studies. Second section represents the methodology. This chapter is divided in two phases, phase-1 shows the formal institutions relationship with individual-level variables and phase-2 shows the informal institutions relationship with individual-level variables. The *sixth* chapter summarizes the main

findings of the dissertation in terms of the discussion and conclusion, limitations and identification of possible future research areas allowing with the discussion on the implications for policy makers. The *seventh* and final chapter contains the complete dissertation bibliographical details.

CHAPTER 2

A 26 years' systematic literature review: Formal and informal institutions in entrepreneurial behaviour

2.1. Introduction

Entrepreneurship is one of the important mechanisms of economic growth in countries (Schumpeter, 1934; Ericson and Pakes, 1995; Hopenhayn, 1992; Klepper, 1996; Thurik and Wennekers, 2004; Stel et al., 2005; Wennekers and Thurik, 1999; Wennekers et al. 2005). Research has specified that economic activities of any country are not possible to examine without admiration of formal and informal institutions in which they occur (Baumol, 1990; Denzau and North, 1994; North, 1990, 1997, 2005; Williamson, 1975). Individual level characteristics such as human's resources have significant role in new venture creations (e.g., Bhagavatula et al., 2010; Davidsson and Honig, 2003) and also national level institutions play an important role to enhance entrepreneurship (e.g., Aidis et al., 2008; Autio and Acs, 2010; Bowen and De Clercq, 2008; Terjesen and Hessels, 2009; Vaillant and Lafuente, 2007). As a result, there is a highly attention is needed in country-level institutions for increasing new venture creations and the role of scholars to examine current phenomenon in more depth.

Although some literature review articles are available but they specifically considered only articles which used Global Entrepreneurship Monitor data (e.g. Amoros et al., 2013; Acs et al., 2009 and Alvarez et al., 2014), some literature review articles available on entrepreneurial intentions (e.g. Linan and Fayolle, 2015, Gundolf and Filser, 2013; Kraus et al., 2014; Xi et al., 2013) and also existing some other entrepreneurship based literature reviews but directions are different. However, no literature review is available that studied country-level institutions and entrepreneurial behaviour across countries. Using a cross country research design will help me to investigate the national level institutional differences linked with entrepreneurship. The objective

and participation of this chapter is to given an overview of the mainly "empirical literature" of the relationship between cross-country research that considers the effects of national level formal and informal institutions and entrepreneurial behaviors outcomes. Also identifying the published journal, authors name, years of publication, samples such as (number of countries, number of observations and number of years used in data analysis), statistical technique, theoretical background, entrepreneurship type and most importantly highlighted the main findings of each articles. Current study have different prospective and emphases on country-level institutional effect on entrepreneurship published articles not only GEM based articles.

The structure of current chapter as follows. Next section lays the foundation for the conceptual framework of the study and discussing the formal and informal institutional effects on entrepreneurial behaviour. Then describe the methodology adopted for this chapter. Next section defines the most important part of this chapter, presentation of the 26 years of findings "detailed summary of country-level institutions on entrepreneurial behaviour". The subsequent section deliberates my findings in terms of comparison. Finally represent some research gaps for this dissertation.

2.2. Conceptual Framework (institutions and entrepreneurial behaviour)

Alvarez et al., 2014 explain four extensive approaches of research in entrepreneurship. First one is the economic approach: in this approach scholars focuses on economic aspects of countries and claims that new business activity primarily linked with economic conditions of the country (Audretsch and Thurik, 2001; Parker, 2004; Wennekers et al., 2005). Second is the psychological approach, in this approach new venture creations determined by the psychological characteristics and individuals aspects (Carsrud and Johnson, 1989; Collins et al., 1964; McClelland, 1961; among others). Third approach demonstrate the organizational and resource-based view, in this approach scholars emphasis on organizational characteristics and specially focuses on the new

organization's resources and competences such as human, financial, technological characteristics and etc. (Greene and Brown, 1997; Alvarez and Busenitz, 2001; Ucbasaran et al., 2008; among others). Final approach represents institutional and sociological view, in which scholars emphasizes on environmental effects and claims that socio-cultural environment is a regulator in individuals decision making process regarding new venture creations (Aldrich and Zimmer, 1986; Berger, 1991; Busenitz et al., 2000; Manolova et al., 2008; Shapero and Sokol, 1982; Steyaert and Katz, 2004; De Clercq et al., 2013). Although, it is broadly acceptable phenomena that institutions have an important role in understanding of why countries' economies are not same in the globe and why some countries' economies are better executed from others (Acemoglu et al., 2001; Hall and Jones, 1999). A macro-level environment contains the both formal and informal institutions (North, 1990; Whitley, 1994, 1999).

2.2.1. Country-level Formal and Informal Institutions

Current study emphasizes on institutional approach. Several institutional typologies were established by the scholars (Aldrich and Fiol, 1994; North, 1990; Scott, 1995). The well-established and mostly used in literature is the institutional approach of North's (1990) divides institutions in two dimensions, formal institutions and informal institutions. Informal institutions can be explained as values, beliefs and norms that describe socially acceptable behavior. Informal institutions refer to customs, traditions, code of conduct, templates, ideologies and societal norms (Baumol, 1990; Denzau and North, 1994; North, 1990). Informal institutions are continuing systems of joint meaning and shared understanding that not classified into documents instructions and standards, replicate a socially constructed authenticity that outlines cohesion and coordination between individuals in a society (Scott, 2005). Culture is the most significant reflection in informal institutions of a society (North, 1990; Peng et al., 2008). Culture of a

society is long-lasting, durable with incremental variations happenings slowly (Brett et a., 1997; Reed et al., 1996).

Formal institutions refer to those, regulations, formally accepted rules and their supportive apparatuses (enforcement agencies, regulatory bodies, etc.), which have been executed to build the legal and economic systems of a country. Formal institutions create boundaries for entrepreneurship. Formal institutions associate with more flexibility in that they are produced by the human being (DiMaggio, 1988). Furthermore formal institutions are highly representative of formal systems and infrastructures in which includes financial infrastructure,

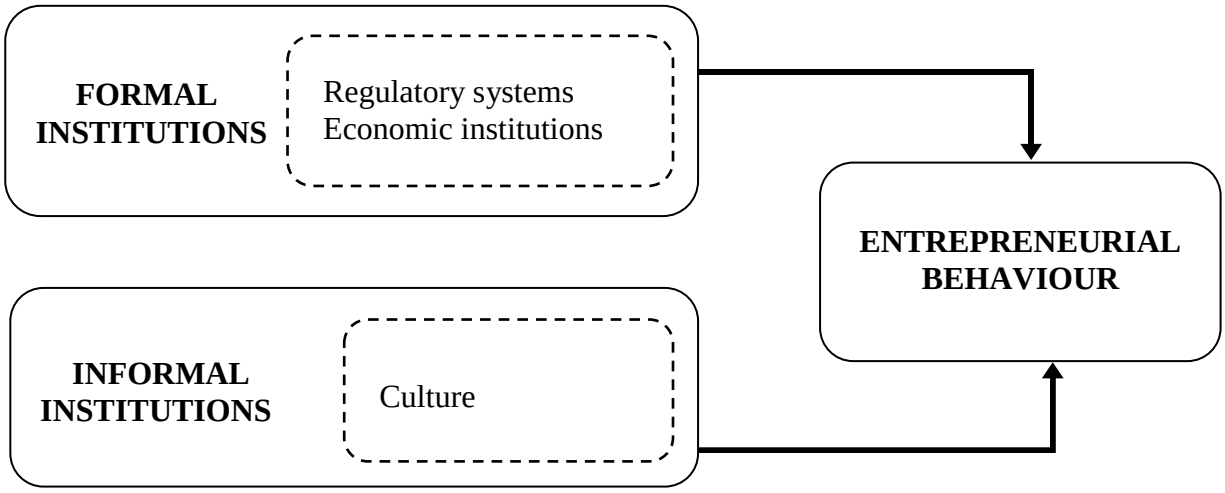

Fig. 2. Literature review model

regulation systems and the skilled development system, opportunities directly outlined by the formal institutions for specific types of economic activities (Bowen and De Clercq, 2008). While, Informal institutions change incrementally as culture are slow moving is transmitted from one generation to the next (Rohner, 1984), and against "formal rules may change overnight as a result of political or judicial decisions, informal constraints embodied in customs, traditions and codes of conduct are much more impervious to deliberative policies" (North, 1990). Both formal

and informal institutions can legitimize and delegitimize organizational behavior enhance and constrain the entrepreneurial spirit (Aidis et al., 2008; Veciana and Urbano, 2008; Welter, 2005).

Specifically concerning entrepreneurial behaviour and environmental factors of a county, i emphasize on formal and informal institution. National culture has an essential role in determining the informal institutions. Hayton et al., (2002) argue that culture of country is an essential element for entrepreneurship. Regarding formal institutions, i focus on that institutions directly affect the extent to which a societies member that can access the critical resources of regulatory system and economic conditions of a country. National economic systems shape the capabilities and incentives of financial intermediaries. New venture creation substantially needed externally financial support (Bowen and De Clercq, 2008; George and Prabhu, 2000), also includes personal funds (Szerb et al., 2007), bank facilities (Cetorelli and Strahan, 2006) and venture capital (Sapienza, 1992). National regulation systems, such as government enact policies that help the national economic development also promote and provide public goods and making laws to secure individuals property. National regulations systems launch and enforce policies and laws that administrate new venture creations. Regulatory institutions facilitate support order, reliability and constancy in social connections while penalizing nonconformity (P. B. Smith et al., 1998).

2.3. Methodology

For this chapter the literature review process is conceded on the basis of a number of stages considered to provide a systematic and explicit method for the review. To achieve my objective, i conduct a search followed by the process outlined by Tranfield et al. (2003); Pittaway et al. (2004); Denyer and Neely (2004). I start my search with social science citation index (SSCI) web of knowledge. From journal published articles i pick the studies by reviewing the main methodological concept of research work that theoretically and empirically encouraged country-

level institutions (regulations, economic and culture) on entrepreneurial behaviour. I identified keywords on the topic of entrepreneurial behaviour based on prior literature reviews within the area. I included just English-language peer-reviewed articles published over the period of 1st January 1991 to 31 March 2016. I continue my search with following keywords in abstract, title and text of the papers, "institutions and entrepreneurship," "regulations and entrepreneurship," "culture and entrepreneurship," "economic and entrepreneurship," "cross country and entrepreneurship," "entrepreneurial behaviour" and "entrepreneurial activity".

The data bases were used (e.g. Science Direct, EBSCO Host Business Source Complete, Sage Journals, Wiley-Blackwell Interscience, JSTOR, ISI Web of Science). I specifically searched from top entrepreneurship journals included in the journal citation report (e.g. Entrepreneurship Theory and Practice, Journal of Business Venturing, Journal of Small Business Management, International Small Business Journal, Small Business Economics, Strategic Entrepreneurship Journal, Entrepreneurship and Regional Development and etc...) also searched from top Management Journal with entrepreneurship as one focus (e.g., Academy of Management Journal, Journal of Business Research, Journal of International Business Studies, Journal of Management, Journal of Management Studies and etc…).

My criteria for picking the articles to be covered were: 1) included the articles that focus on country-level institutional characteristics (e.g., economic, regulation and culture); 2) dismissed some works that don't have empirically contribution; 3) current study focus on cross country entrepreneurial development thus, dismissed some works that only used "one country data" for analysis are not the part of my literature review. After the selection process 101 articles were strictly empirical to the selection criteria. I then proceeded with coding of the research topic and different methodologies used.

2.4. Results: research of country-level institutions and entrepreneurial behavior

This section highlights the key methodologies used by the researchers. To identify relevant empirical work on institutions and entrepreneurship i performed a thorough literature search over the period of 1st January 1991 to 31st March 2016. As i explained above for conceptual framework i selected the institutional approach. Formal institutions; regulation context the focus in this literature is mainly on the establishment and enforcement of laws and policies that govern business activities (e.g., property rights, trade policies, government intervention, fiscal freedom, government restrictions, corruption, regulatory burden, firma which bought license and etc…). Economic context emphasizes on the capital investment decisions of organizations and individuals by affecting both their access to capital and its value (e.g., total foreign debt, turnover, net reserves, money supply, trade balance, nominal GDP, unemployment, growth orientation, income level, trade balance and etc…). National culture considered as informal institutions.

This resulted in the credentials of 101 studies, which directly address the objective of current study. I summarize these articles in Table 1, and argue the key contributions in following terms with different codification used such as, 1st colum represents the journal name in which particular article presented; 2ndcolum showing the authors name; 3rd colum presenting the year of publication; 4th colum shows three crediantials such as how many countries data used for analysis in particular article, how many yaers data used for nalysis and *N* shows the number of observations used for analysis; 5th colum shows that which type of statistical technique used for empirical outcomes; 6th colum belongs with the theoretical groundings of the articles means which theory used to support the research model of article; 7th colum shows the type of entrepreneurship; 8th colum represents the formal and informal (regulations, economic and

Table 1. Appendix: Detailed Summary of country-level institutions on entrepreneurial behavior in published Papers

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
1.	SBE	Acs and Amoros	2008	Courtiers=55 N=207 2001-2006	PD	Stages of Economic Development	OVERALL, TEA_OPP, TEA_NEC, TEA_GEX, TEA_IO	---	---	X	Study indicates that the entrepreneurial dynamics in Latin American countries decreased during the year of 2001-2006 but the countries followed dissimilar paths associated with competitiveness. Achieving constant macro-economic and regulatory condition is key factor for future economic development.
2.	SBE	Acs, Desai and Klapper	2008	Courtiers=40 N=90 2003-2005	GEE		OVERALL	---	X	---	Found that in developed economies entrepreneur have superior ease and motivations to include the benefits of greater access to labor contracts and formal financing, although the tax and other drivers not directly linked with business activity.
3.	SBE	Acs, O_Gorman, Szerb and Terjesen	2007	Courtiers=2 N=10,841 2002-2004		Internalization Theory	OVERALL, TEA_OPP	---	---	X	Claim significant differences towards entrepreneurship between Hungary and Ireland in both the type of people's opportunity pursued and starting business. Economic development policies must emphasis on encouraging enterprise development, increasing human capital and improving the quality of foreign direct investment.
4.	SBE	Aidis, Estrin and Mickiewicz	2012	Courtiers=47 N=350,397 1998-2005	R	Institutional Theory	OVERALL	---	X	---	Found that freedom from corruption significantly related with entry into entrepreneurship. Size of government inversely linked with entry into entrepreneurship although entry weakly linked to the level of corruption.
5.	ARLDA	Alvarez and Urbano	2011	Courtiers=70 N=243 2004-2009	PD	Institutional Theory	OVERALL	---	X	---	Argue that Informal institutions, control of corruption, political stability and role models are linked with entrepreneurial activity. Latin American countries the expected results of formal institutions, time for starting a new business and procedure, and entrepreneurial skills and business don't have significant effect on entry into entrepreneurship.
6.	JBV	Anokhin and Schulze.	2009	Courtiers=20 N=10,320 2000-2002	MR	Political Economics, Strategic Management.	OVERALL	---	X	---	The connection among entrepreneurship and corruption is not clear but the institutional quality of state and corruption paly an essential part in accounting for differences in entrepreneurship rate and level of innovation across countries.
7.	TFSC	Aparicio, Urbano and Audretsch	2016	Courtiers=43 N=253 2004–2012	3SLS	Growth Theory	TEA_OPP	---	X	---	Informal institutions have more effect on opportunity entrepreneurship rather than formal institutions. Study variables such as private coverage to obtain credit, control of corruption and confidence on individual skills encourage optimistic effect of opportunity entrepreneurship on countries economic growth and specifically found as a homogeneous group in Latin American countries.
8.	EE	Arenius and Ehrstedt	2008	Courtiers=35 N=35 2005	TTST, ANOVA	Evolutionary Theories of Entrepreneurship	OVERALL	X	---	---	Study found significant difference across countries exists as regards the percentage of individuals active in different stages of the entrepreneurial start-up process. Gender and age are factors that are related to high 'conception' ratios.
9.	SEJ	Autio and Acs	2010	Courtiers=53 N=33,279 2000-2008	PD	Real Options Theory	TEA_GEX	---	X	---	Strength of intellectual property regime negatively moderates the relationship between individual's education and entrepreneurship growth aspiration. Furthermore, positively moderate the relationship between individual's household income and entrepreneurship growth aspiration.
10.	APJM	Autio and Fu	2015	Courtiers=18 N=74/67 2001-2010	MR	Institutional Theory	Formal and Informal	---	X	---	Results found that quality of institutions to exercise a considerable impact on formal and informal entrepreneurship. One standard-deviation increase in the quality of political and economic institutions could dual the rates of formal entrepreneurship and halve the rate of informal entrepreneurship.
11.	JIBS	Autio, Pathak and Wennberg	2013	Courtiers=42 N=234,376/ 23,065	MLR	Entrepreneurship Theory	OVERALL, TEA_GEX	X	---	---	Institutional collectivism negatively linked with entry into entrepreneurship, but linked with growth aspiration was positive. Uncertainty avoidance negatively related with entry into entrepreneurship

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
				2005-2008							but not with growth aspiration. Performance orientation positively associated with entry into entrepreneurship.
12.	IJEBR	Avnimelech, Zelekha and Sharabi	2014	Courtiers=176 N=176 2008	OLSR	Neoclassical Model	OVERALL	---	X	---	Countries have high level of corruption generally face lower level of productive entrepreneurship. Furthermore, results suggest that negative impact is highly significant in developed economies rather than emerging economies. Explores the negative impact of country's corruption depending upon the specific economic characteristics.
13.	ETP	Baughn, Chua and Neupert	2006	Courtiers=38 N=38 2000-2008	MR	Institutional Theory	OVERALL, TEA_MAL, TEA_FEM	X	---	---	Males are less responsive comparatively to female to the level of normative support. Specific normative support for female entrepreneurial entry a crucial determinant of the women proportion of a county's level of new firms.
14.	PC	Bjornskov and Foss	2008	Courtiers=29 N=29 2001	OLSR	Entrepreneurship and Innovation, Alertness and Discovery;	OVERALL, TEA_NEC, TEA_OPP	---	X	---	Explain cross-country differences in the level of entrepreneurship by differences in economic policy and institutional design. Sound money positively related with entrepreneurship although size of government negatively linked with entrepreneurship.
15.	SEJ	Bjornskov and Foss	2013	Courtiers=25 N=140 1980-2005	OLSR	Endogenous Growth Theory	OVERALL	---	X	X	Strategic entrepreneurship have an most important role in this process by exploring for, combining, trying out, etc., new resource mixtures towards profits under uncertainty. Institutions that provide support to economic freedom permit such investigation to take place at less transaction costs, positively encouraging total factor productivity.
16.	SSRN	Block and Walter	2012	Courtiers=34 N=3,489 2010	HLR	Uncertainty and Self-Actualization	OVERALL	X	---	---	Cross-level of analysis found that a country's levels of power distance, uncertainty avoidance, long-term orientation and individualism influence the preferred path to entrepreneurial activity.
17.	ETP	Block, Thurik, Zwan and Walter	2012	Courtiers=33 N=26,168 2009-2010	HMLR	Human Capital	OVERALL	---	---	X	At individual level risk attitude, human capital and inventiveness affect the preference for new venture creation against taking over an existing venture. National level the culture-inherent level of risk tolerance, administrative difficulties for starting a new venture and the economies level of innovation outcome are found to describe the between-country difference in the preferred approach of entry.
18.	ARS	Bosma and Schutjens	2011	Courtiers=17 N=127 2001-2006	MUR	Regional Economics and Institutions	OVERALL	---	X	X	Different components of entrepreneurship attitudes are described by different determinants. In turn, these components support to describe regional differences in entrepreneurial activity. Urban regions and regions with high levels of nearby start-up examples show high rates of early-stage entrepreneurial activity.
19.	JIBS	Bowen and De Clercq	2008	Courtiers=40 N=40 2002-2004	GLR	Institutional Theory, Allocation of Entrepreneurial Talent	TEA_GEX	---	X	X	The allocation of entrepreneurial effort to high-growth aspiration is positively related to a country's financial and educational activities targeted at entrepreneurship, and negatively to a country's level of corruption.
20.	FIR	Casero, Aunion, Escobedo and Mogollon	2015	2000-2009 2000-2011	CA	Economic Theory	OVERALL. TEA_OPP, TEA_NEC	---	X	---	The variables "Size of Government: Expenditures, Taxes and Enterprises" and " Government Size" contain a positive correlation with both opportunity and necessity entrepreneurship indices for the economies based on innovation and efficacy, thus taxes on income and less government expenditure enhance the entrepreneurship rate in countries.
21.	MD	Casero, Gonzalez and Escobedo	2013	Courtiers=83 N=83 2006-2007	MR	Institutional Theory	OVERALL	---	X	---	Emerging economies the size of business sector, health and primary education are essential variable, although for transition countries they stack the integrity of the legal system and completing contracts and in

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
											developed countries credit and size of government are available to the private sector.
22.	IEMJ	Chowdhury, Audretsch and Belitski	2015	Courtiers=48 N=155 2005-2011	MR	Regulatory Capture Theory And Institutional Theory	NE	---	X	---	Results claim that the regulations effect on international nascent entrepreneurship vary depends on the types of regulation. Interestingly findings were that corruption plays a dual role for nascent international entrepreneurship. Furthermore corporate tax shows no significance for IE when corruption is low.
23.	ETP	Cullen, Johnson and Parboteeah	2014	Courtiers=42 N=279 2001-2010	CSA	Institutional Anomie Theory	TEA_OPP	X	---	X	Investigate a unique combination of institutional variables and culture and interaction of both variables as predictor of opportunity entrepreneurship rates at national level and originate support for more hypothesis showing that special institutional contexts increase and mitigate the cultural drivers effect of opportunity entrepreneurship.
24.	IBR	Danis, De Clercq and Petricevic.	2011	Courtiers=30 N= 30 2002-2004	GLR	Social Network Theory, Institutional Theory	OVERALL	---	X	---	In emerging countries social capital are more essential for new business activity rather than developed countries. Also in emerging countries the connection of association activity and new business activity is stronger for economies with higher normative and regulatory institutional burdens, whereas these moderating effect are not available in emerging economies.
25.	JBV	Dau and Cuervo-Cazurra	2014	Courtiers=51 N= 259 2002–2009	GLS	Institutional Economic Theory	OVERALL	---	X	X	Economic liberalization contains positive effect on formal and informal entrepreneurship although levels of governance have positive effect on formal entrepreneurship against negative effect on informal entrepreneurship.
26.	SBE	De Clercq, Hessels and Stel	2008	Courtiers=34 N=80 2002-2005	MR	Knowledge Spillover	OVERALL, TEA_IO	---	---	X	Result shows that export oriented entrepreneurship is influenced by international trade and foreign direct investment as a catalyst for new venture creation inside the country.
27.	SBE	De Clercq, Lim and Oh.	2014	Courtiers=42 N=42 2003-2007	HOL SR	Institutional Theory	OVERALL, TEA_NEC, TEA_OPP	X	---	X	Main result is that the positive effects of resource munificence of proximate institutions on early-stage entrepreneurial activity should be attenuated in countries with a more hierarchical and conservative culture.
28.	ETP	De Clercq, Lim and Oh.	2013	Courtiers=32 N=181,450 2003-2007	MLR	Institutional Theory	OVERALL	X	---	X	Dissimilar types of individual's capital enhance the new business creation, also found that education system and financial system formal institutions are more concerned to entrepreneurship, and against higher level of trust and culture informal institutions are less hierarchical and conservative.
29.	IBR	De Clercq, Danis and Dakhli.	2010	Courtiers=14 N=14 2002-2004	GLR	Social Network Theory, Institutional Theory	OVERALL	---	X	---	Found positive relationship between country's associational activity and new venture creation. The connection is stronger for more normative and regulatory institutional burdens and less cognitive institutional burdens.
30.	IBR	De Clercq, Meuleman and Wright.	2012	Courtiers=26 N=26 2003-2007	GLR	Institutional Theory	OVERALL	X	X	---	Found that micro angel investment increase to the extent that economies determine (1) superior availability of opportunities for new business (2) more defensive legal systems (3) high embeddedness of associates in interrelationships. Embeddedness and legal protection can substitute for each other, however the impact of one becomes suppressed at higher levels of the other.
31.	SBE	Du and Vertinsky	2011	Courtiers=31 N=9,561 2001-2004	PD	Legal Origin Theory	OVERALL	---	X	---	The concentration of ownership of initiatives varies significantly in between countries. Results claim the positive link between ownership concentration of start-ups and the quality of legal system.
32.	EJDR	Elam and Terjesen	2010	Courtiers=11 N=25,265 2001	MLR	Sociological Theories of Institutions	NE	---	---	X	Results indicate that gendered institutions such as female business leadership, gender wage inequality and public expenditures on child care influence the decision to start a venture indirectly through perceptions and gender.

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
33.	RDE	Estrin and Mickiewicz	2012	Courtiers=47 N=246,288 1998-2005	PR	Institutional Theory	OVERALL	---	X	---	The size of shadow economy and entry into entrepreneurship with simple correlation coefficient recommend positive relationship and impact of shadow economy on entry into entrepreneurship is recommend negative relationship. Finally the countries with stronger property rights impact of shadow economy are weaker.
34.	SBE	Estrin and Mickiewicz	2011	Courtiers=55 N=483,204 2001-2006	PR	Institutional Theory	OVERALL, TEA_MAL, TEA_FEM	---	X	---	When state sector are more women are less likely to start their business. Restrictions for women on freedom of movement away from home decrease the probability to participate in employment expectation entrepreneurship.
35.	JBV	Estrin, Korosteleva and Mickiewicz	2013	Courtiers=42 N=8,160 2001-2006	MLR	Entrepreneurship And Institutional Theory	TEA_GEX	---	X	---	Results indicate negative relationship of higher level of corruption, strong government activity and weaker property rights on entrepreneurs aspirations to increase employment. Institutions and growth aspiring entrepreneurs relationship is complex; simultaneously they got benefit from smaller government and strong government, but they are constrained by corruption.
36.	ETP	Estrin, Mickiewicz and Stephan	2013	Courtiers=47 N=114,341 2009	MLR	Social Capital Theory	TEA, NE, BAE, SE, ESE	---	X	---	Found that formal institutions such as strong property rights and low government activism facilitate to the social entrepreneurship and commercial entrepreneurship, although the other impacts of these types of entrepreneurship differently.
37.	ERD	Farzanegan	2014	Courtiers=65 N=395 2004-2011	PDA	Growth Theory	OVERALL	---	X	---	Results show a negative and statistically significant association between oil rents dependency and entrepreneurship indicator. Furthermore, government effectiveness and other extents of good governance contain a significant moderation effect on entrepreneurship–oil rents nexus.
38.	BRQ	Fuentelsaz, González, Maícas and Montero	2015	Courtiers=63 N=189 2005-2012	MR	Institutional Theory	OVERALL, TEA_OPP, TEA_NEC	---	X	---	Examined the formal institutions on the different types of entrepreneurship and found that improvement of these institutions benefits for opportunity entrepreneurship and necessity entrepreneurship is smashed.
39.	SBE	Garcıa	2014	Courtiers=20 N=90 1999-2010	MR	Eclectic Framework Entrepreneurship Determinants,Encompassing	ESBOR	X	---	---	This study investigates the supply and demand side factors, actual and equilibrium rate of entrepreneurial activity, institutions and culture. Results suggest that tertiary education, self-employment and city size contains a positive and significant effect on numbers of new registered business.
40.	ETP	Gohmann	2012	Courtiers=18 N= 32,540 2001-2004	LM	Rational Choice Theorists	OVERALL	---	X	---	Occupational choice model wherever institutions affect switching costs notifies the empirical model. Institutions such as economic freedom increase, preferences for self-employment enhance for both groups, but the effect is higher for those who are presently self-employed.
41.	JSBM	Goltz, Buche and Pathak	2015	Courtiers=53 N=170,460 2002-2008	MLR	Sociological Theory	TEA_FEM	---	X	---	Positive relationship found for studying variables with female entrepreneurship, and the association among political empowerment. Entrepreneurial activity is moderated by rule of law, more effective in countries have higher level of rule of law with higher levels of women's political power.
42.	ERD	Gonzalez-Pernia, Jung and Pena	2015	Courtiers=45 N=248,824 2006–2011	MLR	Knowledge Spillover Theory	IE	---	---	X	Results indicate the different context found in emerging economies produces a restricted link between knowledge spillovers, innovation and entrepreneurship in contrast with the conservative connection studied in the KSTE literature.
43.	SAES	Hartog, Stel and Storey	2010	Courtiers=20 N=88 1972-2007	SUR	Choice-Based Framework	OVERALL	X	X	X	The aspects that influence pre-start, early-stage and established enterprises are different often quite suddenly. Results confirm that earlier work suggesting, taxes, social security entitlements and employment protection

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
											legislation are negatively associated with entrepreneurship. However, novel findings are that countries have better rule of law are lees involved in entrepreneurial activities.
44.	IEMJ	Hechavarría	2015	Courtiers=53 2009	MVR	Institutional Theory	OVERALL, SE	X	---	---	The traditional societal values positively influence commercial entrepreneurship prevalence rates, but negatively impact social entrepreneurship rates. Furthermore, self-expression societal values positively impact social entrepreneurship prevalence rates.
45.	SBE	Hessels and Stel	2011	Courtiers=34 N=80 2002-2008	OLS R	Growth Theories	OVERALL, TEA_IO	---	---	X	Top of a general positive relation between economic growth and entrepreneurship, there is an additional positive effect in high income countries of export orientation early stage entrepreneurship
46.	SBE	Hessels, Gelderen and Thurik	2008	Courtiers=36 N=63 2005-2006	MR	Institutional Theory	TEA_GEX, TEA_IO, JGO	---	---	X	Countries contain high entrepreneurs motivated by wealth accumulation have higher job growth and international orientation entrepreneurship. Social security is linked with less value of ambitious entrepreneurship. Enhance wealth motive mediate the relationship between economic growth and entrepreneurial aspirations.
47.	SBE	Ho and Wong	2007	Courtiers=37 N=37 2002	MR	Resource-Dependence Theory	OVERALL, TEA_OPP, TEA_NEC, TEA_GEX	---	---	X	Informal entrepreneurship statistically has significant influence on entrepreneurial prosperity. Regulation costs of business were found to deter opportunity based entrepreneurship but there is no impact on necessity based entrepreneurship.
48.	OS	Kim and Li	2014	Courtiers=30 N= 183,552 2002-2008	MLR	Legal Systems And Social Trust	OVERALL, TEA_NEC, TEA_OPP, TEA_GEX	---	X	---	This study develops a substitute theory for why institutional conditions not as straightforward as in developing countries. Found that generalized trust in foreigners applies positive moderating effects on the straight connection among entrepreneurship and legal protections.
49.	SBE	Koellinger	2008	Courtiers=30 N=9,549 2002-2004	LM	Opportunity Recognition	OVERALL	---	---	X	Entrepreneurial innovativeness is contingent both on environmental factors and individual factors. Results show that high level of self-confidence, unemployment and high education attainment are significantly associated with entrepreneurial innovativeness. Developed economies entrepreneurs are significantly more likely to involve in innovative startups.
50.	EL	Koellinger and Minniti	2009	Courtiers=16 N=64 2002-2005	PD		OVERALL, TEA_OPP, TEA_NEC, TEA_NP	---	---	X	More unemployment advantages crowd out nascent entrepreneurship, regardless of motivation or degree of innovative orientation.
51.	EMFT	Korosteleva and Mickiewicz	2011	Courtiers=54 N=17,582 2001-2006	OLS R	Financial Globalization And Modern Entrepreneurship Theory	OVERALL	---	---	X	Financial liberalization enhances the total financial size of the individual start-up entrepreneurial project with the increased use of external and of own funds. Furthermore, the capacity of start-up finance responds positively to international capital inflows, as represented by loans from nonresident banks and remittances, and negatively to the volume of offshore deposits.
52.	JBV	Kwon and Arenius	2010	Courtiers=36 N=36/289, 308 2001-2003	PM, 2SLS	Social Capital Theory	OVERALL	X	X	X	This study shows that the individual-level attributes significantly influenced opportunity perception and weak tie investment. Peoples share their joint personal attributes, irrespective of their national context. After controlling for individual- and country-level attributes, countries social capital enhanced opportunity perception and weak tie investment.
53.	SBE	Levie and Autio	2008	Courtiers=48 N=224 2000-2006	PD	Opportunity Recognition, Creative Destruction,	OVERALL, TEA_GEX	---	X	X	Countries with high-income, opportunity perception fully mediate the relationship entrepreneurial training and education in the country and also its rate of new business activity.

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
54.	JMS	Levie and Autio	2011	Courtiers=54 N=173 2004-2008	MR	Employment Choice, Signalling and Entrepreneurial Entry Theories	OVERALL	---	X	---	Found lower regulative burden linked with higher rate and relative occurrence of strategic entrepreneurial entry. This relationship is moderated by the rule of law, such that regulation significantly effect on strategic entrepreneurial entry just in that case when strong rule of law.
55.	JBV/ 1992	Mcgrath, Macmillan and Scheinberg	1992	Courtiers=8 N=1217/1208	DA	Organizational Theory	OVERALL	X	---	---	Found that the stepwise discriminant SAS "DISCRIM" procedure generated accurate classification for entrepreneurs 73.96% and non-entrepreneurs 67.68%, found constant variations between two groups. Findings support the all initial hypothesis in this article.
56.	ETP	McMullen, Bagby and Palich	2008	Courtiers=37 N=37 2002	MR	Institutional Theory	OVERALL, TEA_OPP, TEA_NEC	---	X	---	The difference depends upon the motivation; fiscal freedom, labour freedom and monetary freedom are positively associated with necessity entrepreneurship. Furthermore, property rights and labour freedom positively linked with opportunity entrepreneurship.
57.	SBE	Minniti and Nardone	2007	Courtiers=37 N=59,304 2002	BT	Psychology and Sociology	OVERALL	---	---	X	Specifically, women are less likely to be participating in new business than men in the world. Results shows that the connection between demographic characteristics and starting a business not depend on gender if one control for spurious effects.
58.	IEMJ	Misra, Memili, Welsh and Sarkar	2014	Courtiers=15 N=60 2003-2006	OLSR	Institutional Theory	OVERALL	---	X	---	This study claims the significant relationship between institutional factors and venture startup time such as startup procedure, taxation and lending interest rates and GDP per capital as non-institutional factor. Also claims the differences in the factors between developing and developed countries.
59.	JBV	Mueller and Thomas	2000	Courtiers=15 N=1790 1996	LR		OVERALL	X	---	---	In this study results found in individualistic cultures an increased likelihood of an internal locus of control orientation. Found support for the hypothesis that an entrepreneurial orientation, defined as internal locus of control collective with innovativeness, is more likely in individualistic, low uncertainty avoidance cultures than in collectivistic, high uncertainty avoidance cultures.
60.	JCE	Muravyev, Talavera and Schäfer	2009	Courtiers=34 N=14,108 2005	OLSR	The Theory of Discrimination	TEA_MAL, TEA_FEM	---	---	X	Male-managed firms are more likely to acquire bank loan as compared to female-managed firms. Also found that female entrepreneur charged the higher interest rates after loan approvals.
61.	ERD	Murdock	2012	Courtiers=19 N=95 2001-2005	OLSR	Institutional Theory	OVERALL	---	X	X	In this study results indicate that business regulation negatively impact the entrepreneurship, the location of policy does not demonstration any measurable impact. Furthermore, needed more helpful institutions in the exertion to develop entrepreneurial activity and generate entrepreneurial economies and recognize the economic benefits.
62.	SBE	Nissan, Castano and Carrasco	2012	Courtiers=38 2006	PLSR	Determinants of Non-Profit Activity	OVERALL, TEA_OPP, TEA_TOT	---	X	X	Results facilitate evidence about the strength of environmental factors in which includes trust, social care public expenditures and economic development in non-profit activity. The model does not approve the presence of a positive association between entrepreneurial activity and non-profit activity.
63.	JBF	Nofsinger and Wang	2011	Courtiers=27 N=1869 2003	TR	Corporate Finance Theory	OVERALL	---	X	X	In initial startups funding from informal investors are common. They tend to be concerned to the type of products in new firm. Relatively informal investors are likely to have a social connection with entrepreneurs and consequently have information regarding that person's character and skill, which reduces entrepreneurial experience less important.
64.	ETP	Noorderhaven, Thurik, Wennekers and	2004	Courtiers=15 N=48 1978-2000	OLSR	Psychological Theories of Occupational	OVERALL	---	---	X	Found that, a significant and negative influence of per capita income, disappointment at the society's level contain a positive and significant impact on self-employment levels. Furthermore, disappointment with life

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
		Stel				Choice					and disappointment with the way democracy works are found to influence self-employment.
65.	PC	Nystrom	2008	Courtiers=23 N=362 1972–2002	ML		OVERALL	---	X	---	This study examines the relationship between institutions and entrepreneurship measured by self-employment. Results found that small government sector, improved legal system and property rights security, also low regulation of credit, business and labour incline to enhance entrepreneurial activity.
66.	JPEN	Ovaska and Sobel	2005	Courtiers=11 N=56 200-2005	MR	Convergence Theory	OVERALL	---	X	X	Explore the rate of entrepreneurship in these post-socialist economies and effort to uncover the institutions and policies that seem to be the highly correlated with a country's success or failure in promoting entrepreneurship.
67.	IJEBR	Pathak, Goltz and Buche	2013	Courtiers=53 N=185,639 2001-2008	MLR	Gender Stratification Theory	TEA_FEM	---	---	X	Results indicate that gendered institutions moderate the effect of individual level variables on female entry into entrepreneurship, although suggesting that in research and theory, individual level variables affecting female entry into entrepreneurship should be considered within the bigger cultural context.
68.	IJEM	Pathak, Laplume and Xavier-Oliveira	2016	Courtiers=18 N=10,280 2002-2008	MLR	Institutional Theory	TEA_NP	X	---	---	This study examines the relationship between informal institutions and technological entrepreneurship. The shadow economy size contains a U-shaped association with positive relationship with ethnic diversity and negative relationship with ethnic polarization, although there is no latter significance.
69.	JBNES	Pathak, Xavier-Oliveira and Laplume	2015	Courtiers=12 N=31,890 2001-2008	MLR	Theory of Planned Behaviour	OVERALL	---	X	---	Results shows that fear of failure, self-efficacy and opportunity recognition may be more essential elements of entrepreneurial intention in low corrupt framework, whereas links with other entrepreneurs become more related in framework where corruption is endemic.
70.	JTT	Pathak, Xavier-Oliveira and Laplume	2015 b	Courtiers=20 N=10,431 2002–2008	MLR	Knowledge Spillover Theory	TEA_NP	---	---	X	entrepreneurs in emerging economies, results suggest that levels of foreign direct investment negatively effects the use of latest technology, while the moderation effects of informal economy suggest that as its size increases the negative effects IPR on the use of latest technology by entrepreneurs strengthens, and the negative effects of FDI on the use of latest technology strengthens.
71.	JBR	Pathak, Xavier-Oliveira and Laplume.	2013 b	Courtiers=20 N=10,320 2002–2008	MLR	Knowledge Spillover Theory	TEA_NP	---	X	---	High intellectual property rights protection with high foreign direct investment per capital reduces the individual's entry into technology entrepreneurship, while low restrictions to adoption of technology enhance this relationship.
72.	RJEF	Pete, Nagy, Matis, Gyorfy, Benyovszki And Petru	2011	Courtiers=19 N=2,973 2008	LR		OVERALL	---	X	X	Early-stage entrepreneur who utilizes fresh technologies is influenced positively and significantly by the availability of venture capital within the country. Furthermore, this probability negatively influenced by gender, age, economic freedom, inflation rate and the status of early stage entrepreneur.
73.	IEMJ	Petrakis	2014	Courtiers=41 N=41 1995-2005	LSM	Growth Theory	TEA_OPP	X	X	---	Opportunity based entrepreneurship determination where the cultural variables play a main role. Found that the configuration of opportunity based entrepreneurship, the effect of cultural background is additionally serious than that factors of the Solow-Romer. The transitional characteristics and institutions are morally endogenous formations.
74.	SBE	Pinillos and Reyes	2011	Courtiers=52 N=52 1999-2007	MR	Individualism-Collectivism	OVERALL	X	---	X	Study found that the high level of cultural individualism do not essentially imply higher level of entrepreneurial activity (negative relationship is found for low-medium developed economies).

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
75.	JPEN	Powell and Rodet	2012	Courtiers=21 N=21 2008,2005,2009	MR		OVERALL	X	X	---	Results found that the economic freedom and social approval, specifically autonomy from big government is linked with high rate of entrepreneurial activity in a cross section.
76.	CJAS	Puumalainen, Sjogren, Syrja and Barraket	2015	Courtiers=49 N=49 2009	MR	Institutional Theory	OVERALL, ESE, SE, ESBOR, EASE	X	X	---	Results show the negative effect of the level of development embraces for entrepreneurship in general but no effect on social entrepreneurship. Power distance is negatively linked to all types of entrepreneurship and secular values are positively linked to enhance entrepreneurship. Self-expressive values are positively linked with established social entrepreneurship.
77.	JPE	Rin, Giacomo and Sembenelli	2010	Courtiers=17 N=4,805 1997-2004	MR	Cullen and Gordon's Model	OVERALL	---	X	---	Average tax rates and study how the taxation of corporate income affects entrepreneurship entry rates at the country-industry level. Found a significant negative impact of corporate income taxation on entry rates. The effect is concave and suggests that tax reductions affect entry rates only below a certain threshold tax level.
78.	EE	Schøtt and Jensen	2008	Courtiers=60 N=60 2003-2007	MR	Institutional Theory	OVERALL, TEA_OPP	---	X	X	Argue that developing countries are prone to implement policies that (1) are based on experiences in developed countries which have not proven to transfer fittingly to developing economies, (2) are only partly implemented and are not internally consistent as a result of a lack of resources to do so, and (3) are more beneficial on paper than on actual activity.
79.	JBR	Spencer and Gomez	2004	Courtiers=23 An average of 4.7 reviewers submitted	MR		OVERALL	---	---	X	Normative institutions not associated with more advanced form of entrepreneurship but associated with most basic form of entrepreneurship. Cognitive institutions describe the prevalence of small companies and the number of new registered companies in stock exchange of the country. Regulatory institutions linked with fresh listings on the countries stock exchange.
80.	JIBS	Steensma, Marino and Weaver	2000	Courtiers=7 N=484 1995-1998	HR		OVERALL	X	---	---	Entrepreneurs from female societies place higher emphasis on partner commonality in terms of objectives and values to ensure cooperative success, whereas those from individualistic societies emphasize contractual safeguards.
81.	SBE	Stel, Carree and Thurik	2005	Courtiers=36 N=36 2002	MR	Stages of Economic Development	OVERALL	---	---	X	Early stage entrepreneurship is associated with economic growth, however specifically for those countries that have economic development at most advanced stages.
82.	SBE	Stel, Storey and Thurik	2007	Courtiers=39 N=112 2002-2005	OLSR	Eclectic Framework of Entrepreneurship	OVERALL, TEA_OPP, TEA_NEC	---	X	---	Minimum capital requirement needed to start a business lowers entrepreneurship rates across countries, as do labour market regulations. However the administrative considerations of starting a business – such as the time, the cost, or the number of procedures required – are unrelated to the formation rate of either nascent or young businesses.
83.	JBV	Stenholm, Acs and Wuebker	2013	Courtiers=63 N=63 2007-2009	SEM	Institutional Theory	OVERALL	---	X	---	Findings claim that differences in institutional activities are related with variance in the type and rate of entrepreneurship across countries. For the development of innovative, high-growth new ventures, the regulative environment not so much matter.
84.	JIBS	Stephan and Uhlaner	2010	Courtiers=40 N=40 200-2005	HR	Institutional Theory	OVERALL	X	---	---	Findings provide strong support for a social capital/socially supportive culture and supply-side variable explanation of entrepreneurship rate. Performance based culture predicts demand-side variables, such as opportunity existence and the quality of formal institutions to support entrepreneurship.

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
85.	SBE	Stephen, Urbano and Hemmen	2009	Courtiers=23 N=61 2002-2005	PD	Regulations and Entrepreneurship	TEA_OPP	---	X	X	Find that higher enforcement formalism mitigates the negative influence used by rigid working time regulations on the number of entrepreneurs. Higher enforcement formalism mitigates the negative impact of rigid working time regulation on the number of opportunity-driven entrepreneurs.
86.	APH	Szabo and Herman	2014	Courtiers=23 N=23 2007-2013	RA	Institutional Theory	OVERALL, TEA_OPP, TEA_NEC	---	X	---	In this study authors claim that, wide-spectrum of recorded entrepreneurial activities can be observed in transition economies. However, the consequences are not reflected in the predictable economic growth.
87.	EJDR	Terjesen and Amoros	2010	Courtiers=66 N=264 2001-2008	PD	Institutional Theory	OVERALL, TEA_FEM, TEA_MAL, TEA_OPP, TEA_NEC	---	---	X	Female entrepreneurs in Latin American countries have comparatively higher rate of entrepreneurship, although not needed of high quality. When Latin American countries attain more competitiveness, several female entrepreneurs resort to other activities.
88.	APJM	Terjesen and Hessels	2009	Courtiers=51 N=83 2006-2007	HR	Capitalism Theory	TEA_IO	---	X	---	Countries contain high quality institutions in Asia are more likely to have higher proportions of young export oriented firms. In general, countries contain larger proportions of export-oriented entrepreneurship tend to have adaptable industrial relationships, confrontational labor-employer relations and high quality vocational training.
89.	EE	Terjesen and Szerb	2008	Courtiers=35 N=25,384 2003-2004	OLSR	Transaction Costs Theory	TEA_GEX	---	---	X	Numerous individual-level, firm-level and context-level factors are essential in explanation the jobs are expected from entrepreneurs. Furthermore, start-up and established firm growth expectations are higher in the emerging countries, the fastest growing young firms are mainly found in developed countries.
90.	SBE	Tominc and Rebernik	2007	Courtiers=3 N=603 2002	CST	Growth Theory	TEA_GEX, MCT	---	X	---	Results indicate that higher degree of alertness to unexploited cultural support and perceived opportunities for inspiration of entrepreneurship may be the reason of high growth aspiration of early stage entrepreneurial activity, although found, self-efficacy with respect to entrepreneurial knowledge, skills and experience was not to be critical.
91.	ES	Troilo	2011	Courtiers=40 N=538, 205 2000–2005 1995–2005 2004-2005	WCPR	Institutional Theory	TEA_GEX	---	X	---	Results suggest that property rights are more important for profound market expansion and rule of law is more important for high job growth. Although legal system negatively associated with entrepreneurial activity merging market expansion and high job growth.
92.	JEC	Uhlaner and Thurik	2007	Courtiers=27 N=27 2002	MR	Culture and Postmaterialism	OVERALL	X	---	X	This study used a set of social, economic and demographic elements is included to examine the independent role of postmaterialism performed in predicting the level of entrepreneurship. Results authorize the significance of postmaterialism in expecting the total entrepreneurship and furthermore, rate of new business formation.
93.	ETP	Valdez and Richardson	2013	Courtiers=52 N=35, 42, 40 2005, 2006, 2007	MR	Institutional Theory	OVERALL, TEA_OPP, TEA_NEC	X	X	---	Study claims that a society's normative, regulative and cultural-cognitive institutions are linked with entrepreneurship. Cultural-cognitive and normative institutions descriptive power in explaining entrepreneurship is more than regulative institutions or GDP per capital. Special attention is provided to opportunity entrepreneurship and necessity entrepreneurship due to their connection to economic development.
94.	ERD	Valliere and Peterson	2009	Courtiers=44 N=44 2004-2005	HR	Endogenous Growth Theory	TEA_OPP, TEA_NEC, TEA_GEX	---	---	X	A significant portion of economic growth rate can be attributed to entrepreneur's high-expectation exploit national investment in regulatory freedom and knowledge creation within developed countries. This type of

	Jrnl	Authors	Year	Sample	Analysis type	Theoretical background	Type	Informal Institutions	Formal Institutions		Summary
								Culture	*Regulatory institutions*	*Economic institutions*	
											effect is missing in developing economies, suggesting a threshold for entrepreneurs to increase access to the formal economy.
95.	ERD	Verheul, Stel and Thurik	2006	Courtiers=29 N=29 2002	MR	Labor Economists and Gender Theory	OVERALL, TEA_FEM, TEA_MAL	---	X	X	Male and female entrepreneurship rates are influenced with the same factors in the same direction. Some factors contain different impact on male and female entrepreneurship. Furthermore, female entrepreneur are highly active in the informal sector, specifically in less developed countries.
96.	SAES	Verheul, Thurik, Hessels and Zwan	2010	Courtiers=27 N=20,674 2007	MNLR	Goal Setting Theory	OVERALL, TEA_OPP, TEA_NEC	---	---	X	Entrepreneurship education, risk tolerance, living in metropolitan area, self-employed parents and perception of absence of financial provision are important factors in determining involvement with entrepreneurial activities and failure for opportunity driven entrepreneurship, but in necessity entrepreneurship they are not important.
97.	JBV	Walter and Block	2016	Courtiers=32 N=11,230 2004-2010	HGLM	Institutional Theory	OVERALL	---	X	X	Study suggests that entrepreneurial education has a solid association with subsequent entrepreneurial activity in seemingly entrepreneurship-hostile institutional environments.
98.	ERD	Wennberg, Pathak and Autio	2013	Courtiers=42 N= 324,566 2001-2008	MLR	Intention-Based Theories and Cultural Theory	OVERALL	X	---	---	Claims the positive effect of self-efficacy on entrepreneurial entry is by the cultural practices performance orientation and institutional collectivism. Found negative effect for fear of failure on entrepreneurial entry moderated by the cultural practices uncertainty avoidance and institutional collectivism.
99.	SBE	Wennekers, Stel, Thurik and Reynolds	2005	Courtiers=36 N=36 2002	MR	Stages of Economic Development	TEA_OPP, TEA_NEC	---	---	X	Nascent entrepreneurship is associated with economic development process and takes the form of a U-shape. Results argue that natural rate of entrepreneurship is dependent on the economic development level.
100.	JEE	Wennekers, Thurik, Stel and Noorderhaven	2007	Courtiers=21 N=63 1976, 1990, 2004	PD	Theory of Economic Development	OVERALL	X	---	X	Positive correlation is no longer originated, signifying that a rewarding pull of entrepreneurship in countries have low uncertainty avoidance may have increased momentum in recent years. Countries with low uncertainty avoidance have substantially weaker relationship between GDP per capita and the level of business ownership.
101.	SBE	Wong, Ho and Autio	2005	Courtiers=37 N=37 2002	MR	Growth Theories	OVERALL, TEA_OPP, TEA_NEC, TEA_GEX	---	---	X	This study author contrasts four main types of entrepreneurial activities measured by GEM. Found that only high growth potential types of entrepreneurship associated with economic growth, next to the positive effect of innovation on economic growth.

Note: The column of *Jrnl* represents the code used against the journal name in which articles published. Complete table is available in the end of dissertation with the name of *Journal published articles.*
The column of *sample* shows three important aspects which include (1) countries which mean countries used for analysis in particular study (2) N, means numbers of observations used in particular study (3) last one is the years which shows that how many year's data used for analysis in particular article..
The column of *analysis type* represents the statistical techniques used for analysis. Code used against the each technique and complete information available in the end of dissertation with the name of *statistical techniques distribution.*

culture) institutions used in particular article represented with entrepreneurship ; and last column explains the main findings of each articles.

Above mentioned literature shows that all empirical work is related to country-level institutions and entrepreneurial behaviour. Table 2 indicates the results, published articles with 5 years intervals on cross country entrepreneurial development with country-level institutions. There was only 1 article published in the period of 1991-1995, only 2 articles were available between 1996-2000, 6 articles published during 2001-2005, highly increased was found during 2006-2010 in

Table 2. Published articles in 5 year intervals

5 Years intervals	Articles	
	No	%
1991 – 1995	1	1%
1996 – 2000	2	2%
2001 – 2005	6	6%
2006 – 2010	36	36%
2011 – 2015	52	51%
2016 to 31 March	4	4%
Total	101	100

which 36 articles published, the maximum number of articles published between 2011 to 2015 that was 52 articles.

There are numerous reasons for this variation but most rudimentary issue is the accessibility of data: successfully gathering multi-level quantitative empirics required that acquired data should be capable that permitted for adequate variation at required levels. These types of data have only very recently been made offered. Databases of the Government were not comparable and in several countries specifically data was not gathered systemically on entrepreneurship. Thus recently accessible data sources permitted to scholars to enhance for expressive cross country entrepreneurial comparison have been nonexistent: Global Entrepreneurship Monitor (GEM) dataset was the first that make possible to such comparisons in the 1999. From the day GEM available, it is more possibly that the GEM is leading cross-

national collective social science research project in the globe, in both terms of methodology and scholarly impact.

Table 3. Data Bases used in Published Articles

Cross national Data base	Articles	
	No	%
Global Entrepreneurship Monitor	81	80
Flash Eurobarometer survey	6	6
Others	14	14
Total	101	100

Global Entrepreneurship Monitor research project was started in 1999 to generate harmonized data in terms of new business activities and several correlations across countries. The GEM developed as joint research project among two well-known universities, the London Business School (UK) and Babson College (USA) initiated collecting national data on entrepreneurship and entrepreneurship related topics for 10 countries. The database has rapidly expanded over the years to encompass more than 100 countries in its surveys from all around the world. GEM emphasizes on entrepreneurship related behaviour and attitudes of individuals with adult population survey (APS) and how national context impacts the entrepreneurial activities with national expert survey (NES). GEM gathered representative random samples each year from APS managed by the specialized survey research firms, between ages of 18 to 64 with the minimum sample size per country 2,000 individuals. GEM facilitate for cross national variation on the country-level entrepreneurial activity, determines the characteristics that consider for country-level variations in the level of entrepreneurial activity and deliver support to policies that may be effective for increasing entrepreneurial activities in countries. These data are notably rich, reliable, and valid (Reynolds et al., 2005), survey item was gathered through different survey techniques to avoid common method bias (Bosma and Levie, 2010).

Table 4. Countries and Published Articles

Countries	Authors				Participation		Countries	Authors				Participation	
	1st	2nd	3rd	4th	No	%		1st	2nd	3rd	4th	No	%
Australia				2	2	0.79%	Italy		2	1		3	1.19%
Belgium	1	1			2	0.79%	Kuwait			1		1	0.40%
Canada	7	6	2		15	5.93%	Netherland	15	13	7	2	37	14.62%
Chile		1			1	0.40%	New Zealand		1			1	0.40%
China	2	1			3	1.19%	Romania	2	2	1	1	6	2.37%
Denmark	4	3			7	2.77%	Singapore	2	2			4	1.58%
Finland	3	3	2		8	3.16%	Slovenia	1	1			2	0.79%
France	1	1			2	0.79%	Spain	7	8	5	2	22	8.70%
Germany	5	3	3	2	13	5.14%	Sweden	2	1	1	1	5	1.98%
Greece	1				1	0.40%	UK	13	11	7		31	12.25%
Hungary		1	1		2	0.79%	USA	34	27	17	2	80	31.62%
Ireland		1			1	0.40%	Uruguay		1			1	0.40%
Israel	1	1	1		3	1.19%	Total	101	91	49	12	253	100

Participation, Authors involvement in published articles from different countries and single article contains multiple authors.

Another cross national data source Flash Eurobarometer survey provides information similar to that reported by GEM. Flash Eurobarometer survey also collects data on entrepreneurship related activities across developed, Eastern European, and transitional economies, starting with 2000. GEM offers a variety of characteristics to study entrepreneurship while Flash Eurobarmeter survey offer less set of characteristics also samples size for each participating country is often smaller as compared to GEM database.

During my literature review process i observed that most of the articles used Global Entrepreneurship Monitor database for analyzing the relationship between country level institutions and entrepreneurial behavior. After the accomplishment of literature review process i was able to identify that which data bases have mostly used for publication. Table 3 provides the evidence that most of the 80% articles used GEM database for publications, only 6% articles published with Flash Eurobarometer survey and 14% articles published with different data bases in which authors used their own questionnaire for data collection activities, World Bank Group

Table 5. Statistical technique used in articles

Statistical Technique	Author and year of publication	Article	
		No	%
Multiple regression model	Aidis et al. (2012), Anokhin and Schulze (2009), Aparicio et al. (2016), Autio and Fu (2015), Avnimelech et al (2014), Baughn et al. (2006), Bjornskov and Foss (2008), Bjornskov and Foss (2013), Block and Walter (2016), Block et al. (2012), Bowen and De Clercq (2008), Casero et al. (2013), Chowdhury et al. (2015), Cullen et al. (2014), Dau and Cuervo-Cazurra (2014), De Clercq et al. (2008), De Clercq et al. (2014), Elam and Terjesen (2010), Fuentelsaz et al. (2015), Garcıa et al. (2014), Hessels and Stel (2011), Hessels et al. (2008), Ho and Wong (2007), Korosteleva and Mickiewicz (2011), Levie and Autio (2008), McMullen et al. (2008), Misra et al. (2014), Muravyev et al. (2009), Murdock (2012), Noorderhaven et al. (2004), Nystrom (2008), Ovaska and Sobel (2005), Pete et al. (2011), Petrakis (2014), Pinillos and Reyes (2011), Powell and Rodet (2012), Puumalainen et al. (2015), Rin et al (2010), Schøtt and Jensen (2008), Spencer and Gomez (2004), Steensma et al. (2000), Stel et al. (2005), Stel et al. (2007), Stephan and Uhlaner (2010), Terjesen and Hessels (2009), Terjesen and Szerb (2008), Uhlaner and Thurik (2007), Valdez and Richardson (2013), Valliere and Peterson (2009), Verheul et al. (2006), Wong et al. (2005)	52	51%
Logit, probit, tobit model	Danis et al. (2011), De Clercq et al. (2010), De Clercq et al. (2012), Estrin and Mickiewicz (2011), Estrin and Mickiewicz (2011), Gohmann (2012), Koellinger (2008), Kwon and Arenius (2010), Mueller and Thomas (2000),Nofsinger and Wang (2011), Verheul et al. (2010), Walter and Block (2016)	12	12%
Multilevel model	Autio et al. (2013), De Clercq et al. (2013), Estrin et al. (2013a), Estrin et al. (2013b), Goltz et al. (2015), Gonzalez-Pernia et al. (2015), Kim and Li (2014), Pathak et al. (2013), Pathak et al. (2016), Pathak et al. (2015), Pathak et al. (2015b), Pathak et al. (2013b), Wennberg et al. (2013)	13	13%
Panel data	Acs and Amoros (2008), Alvarez and Urbano (2011), Autio and Acs (2010), Du and Vertinsky (2011), Koellinger and Minniti (2009), Levie and Autio (2011), Stephen et al (2009), Terjesen and Amoros (2010), Wennekers et al (2007)	9	9%
Others	Acs et al (2008), Acs et al. (2007), Arenius and Ehrstedt (2008), Bosma and Schutjens (2011), Casero et al. (2015), Farzanegan (2014), Hartog et al (2010), Hechavarría (2015), Mcgrath et al. (1992), Minniti and Nardone (2007), Nissan et al (2012), Stenholm et al. (2013), Szabo and Herman (2014), Tominc and Rebernik (2007), Troilo (2011)	15	15%
Total		101	100%

Entrepreneurship Survey data and etc.

To approximate the contributions of countries team's members, i ordered items according to the countries from which author's contribution. Members of 25 countries participated in analyzing the relationship between country-level institutions and entrepreneurial behaviour from which USA is the country participated with more items (31.62 %) followed by The Netherland (14.62 %), UK (12.25 %), Spain (8.70 %) and Canada (5.93 %). As seen in Table 4 several authors participated with consistent effort from USA, Canada and European countries with great numbers. GEM project also collect data from Latin American and Asian countries, only two countries members participated Chile (0.40 %) and Uruguay (0.40 %) also the participation from Asian countries is very low comparatively other countries participated in GEM project.

Many statistical techniques used for analysis, Table 5 shows the most common techniques used in above mentioned articles. Most of the articles used multiple linear regression analysis (51 %), followed by the other techniques which (15 %) are not commonly used, multilevel analysis which is quite new and specifically used for more than one level of frame work variables (13 %), logit, probit, tobit model used for (12 %) and panel data (9 %).

2.4.1. Gap found from literature

Countries institutions are the most important elements for new business activities. In my literature review i emphasized to know that how many articles available which have explored the effect of formal and informal institutions on entrepreneurial behaviour. Though, as new findings appear, new and different questions arise that required attention. Some articles considered, current dissertation formal and informal institutional factors (e.g. Autio et al., 2013; Wennberg et al., 2013; Aidis et al., 2012; Estrin and Mickiewicz, 2012; De Clercq et al., 2013) but they are all emphasizing on general entrepreneurship phenomena no one emphasizing on quality of entrepreneurship (innovative entrepreneurial entry, opportunity based entrepreneurship). After

that focused with more attention on all multi-level studies which are quite relevant to dissertation are explained below.

Autio et al., (2013) found the direct effects of national cultural practices on entrepreneurial behaviours by individuals such as entrepreneurial entry and post-entry into growth aspirations. De Clercq et al., (2013) considers the relationship between people's access to resources and new business activity, how this relationship might be moderated by formal institutions (financial system, education system) and informal institutions (trust, culture). Goltz et al., (2015) examine the association of women's political power and a country's rule of law with women's entry into entrepreneurship and moderated by rule of law. Gonzalez-Pernia et al., (2015) investigate relationships in emerging economies, the direct effect between country level foreign direct investment and individual level innovation driven entrepreneurial entry is moderated by the country level research and development investment. Kim and Li (2014) examines generalized trust in strangers exerts positive moderating effects on the direct relationship between legal protections and entrepreneurial entry in emerging economies.

Pathak et al., (2013) using a sociological model of gender stratification and investigating the effects of gendered institutions on women's entry, examined the direct and cross level moderation effects of gendered institutions on the probability of women entrepreneurship. Pathak et al., (2016) investigate the role of country level informal institutions and technology based entrepreneurship in emerging markets. Pathak et al., (2015a) examine the moderation effect of national level corruption and attributes of entrepreneurs at the individual level, on the early stage entrepreneurs. Pathak et al., (2015b) investigates the contextual influences of national level institutions such as the size of a country's informal economy, inward foreign direct investment and intellectual property rights on the use of latest available technologies by early stage entrepreneurs in emerging economies. Pathak et al., (2013b) examines how intellectual property

rights, inflow of foreign direct investment and barriers to technological adoption affect the individuals' entry into technology based entrepreneurship in emerging economies. Wennberg et al., (2013) investigate the effects of individual level variables on total early stage entrepreneurship are contingent on national cultural practices. These are all studies which used multilevel approach to examine relationship between national institutions and entrepreneurial behaviour.

During the review of empirical studies i observed three main gaps existing in this dissertation such as (1) explore the effects of country-level institutions on quality of entrepreneurship (entrepreneurial behaviour) which is most important for countries economic development, (2) relationship between entrepreneurial cognition and entrepreneurial behaviour moderated by the macroeconomic context (3) relationship between entrepreneurial cognition and entrepreneurial behaviour moderated by the societal context cultural practices. According to the Hofstede (1991) culture is a collective construct and entrepreneurship is an individual-level construct (Autio et al., 2013). Wenberg et al., (2013) argue that to examine the country-level variables with individual-level variable multilevel approach is the most appropriate way. As i was expected just few articles are available that used multilevel modeling to analyze the relationship between country-level institutions and entrepreneurial behaviour. All 13 articles which used multilevel modeling published in last 4 years which means multilevel modeling is quite new technique in entrepreneurship.

However, i observed all the article published between 1st January 1991 to 31 March 2016 but did not come across any article that had applied multilevel modeling when examining the relationship between individual-level entrepreneurial cognition and individual-level entrepreneurial behaviour (innovative entrepreneurial entry and opportunity based entrepreneurship) moderated by the country-level cultural context (institutional collectivism,

performance orientation and uncertainty avoidance) and macroeconomic context (government regulations and financial capital availability).

CHAPTER 3

ENTREPRENEURIAL COGNITION AND ENTREPRENEURIAL BEHAVIOUR: MODERATING ROLE OF MACROECONOMIC CONTEXT

3.1. Introduction

Grilo and Thurik (2005) argue that entrepreneurship is the heart of innovation, competitiveness, economic and productivity growth. Innovation is the driving force of economic growth (Fagerberg et al., 2011). New businesses and innovations are essential need to improve employment conditions and economic development (Reynolds et al., 1995; Drucker 1998; Audretsch and Keilbach, 2004; Baltar and Coulon, 2014). However, as past studies specify that the effect of new businesses on countries economic development depends on the excellence of new business creation (González-Pernía and Peña-Legazkue, 2015; Wong et al., 2005). In this regard, it's happen due to the innovation new business with growth not new business in general, which facilitate the economies in terms of development (Shane, 2009; González-Pernía et al., 2015). Empirical evidence identified that the entrepreneurs are individuals, contains capability to opportunity recognition and consequently require resources in terms of starting a new business (Miller, 1983; García and García, 2006; Venkataraman, 1997). New businesses creations influenced by micro-level characteristics which includes individuals resources (e.g., Bhagavatula et al., 2010; Davidsson and Honig, 2003) and country-level institutions (e.g., Aidis et al., 2008; Autio and Acs, 2010; Bowen and De Clercq, 2008; Terjesen and Hessels, 2009; Vaillant and Lafuente, 2007).

Holmes Jr et al., (2013) argue that some formal institutions are most important for actors such as economic, political and regulations related institutions. Formal institutions are the product of human agency (DiMaggio, 1988). These institutions initiate as solutions to problems

inside the countries. Specifically, institutional approach proposes that human behavior is influenced by the institutional environment (North, 1990). Individual's imitate to these rules and standards, they are replicated in following time periods (Powell, 1991), and societies distinguishes and admits these rules as formal institutions (Witt and Redding, 2009). Previous few researchers have investigated the elements that conditions new businesses activity from institutional perspective; specially analyze the importance of regulations (Calcagno and Sobel, 2014; McMullen et al., 2008; Stephen et al., 2009), found the business entry regulation associated with higher industry concentration (Klapper et al., 2006; Fisman and Allende, 2010) and condensed entry of new business (Ciccone and Papaioannou, 2007; Bjørnskov and Foss, 2008; Dreher and Gassebner, 2013). Economic conditions of a country and its impact on new business creation studied by several authors (e.g., Levie and Autio, 2008; Bowen and De clercq, 2008; George and Prabhu, 2000). A number of studies consider the regulations and economic institutions with entrepreneurship that are the evidence the topic is still young and required further concentrations.

Gap existing here (1) explore the effect of individual-level entrepreneurial cognition on innovative entrepreneurial entry which is most important for countries economic development instead of general businesses; (2), relationship between individual-level entrepreneurial cognition and innovative entrepreneurial entry moderated by the macroeconomic context (government regulations and financial capital availability). Some previous studies used countries institutions with countries rate of entrepreneurship (e.g., Bjørnskov and Foss, 2008, 2013; Dreher and Gassebner, 2013; Stephen et al., 2009; Bowen and De clercq, 2008) ignore the fact that entrepreneurship is an individual level behaviour. These approaches present challenges, these challenges create confusions, these confusion arise due to unpredictable action of levels of analysis and unsuitable regression approach. Multilevel variables investigation at single level yield an incomplete understanding for new business creation process (Hitt et al., 2007) must be

required multilevel analysis (Shepherd, 2011). Autio et al., (2013) argues that multilevel approach is the most appropriate way to analyze the country level variables with individual-level variables. Thus, the present study theoretically explains and empirically investigates the relationship between individual-level entrepreneurial cognition and innovative entrepreneurial entry moderated by the country-level formal institutions (macroeconomic context) such as government regulations and financial capital availability.

From a theoretical perspective, this study embraces the emerging point of view of social cognitive theory and institutional theory. In response, this article seeks to contribute the international entrepreneurship research (e.g., De Clercq et al., 2013; Pathak et al., 2016, Wenberg et al., 2013) by examining that how countries institutions may be involved in unlocking individual-level resources to start a new innovative business. I first explain how my collective thought of individual-level entrepreneurial cognition, innovative entrepreneurial entry and country-level macroeconomic context fits and encompasses existing entrepreneurship literature. Then i summarize the direct effect of individual-level entrepreneurial cognition and innovative entrepreneurial entry and how country-level macroeconomic context moderate the individual-level relationships. I examine my hypotheses by applying mixed-effect multilevel logistic regression to a multisource data set of almost 200,000 individuals spanning 8 years (2001–2008), GEM is anchor for my data collection activities, individual-level data obtained from the Global Entrepreneurship Monitor's Adult Population Survey (APS), country-level data form Index of Economic Freedom (IEF) and Political Risk Services (PRS).

3.2. Theory and hypothesis development

The current study emphasizes on social cognitive theory and institutional theory that knowledge structures of individuals are key mechanisms underlying the effects of institutions. Social cognitive theory suggest that observational learning results in "knowledge structures representing

the rules and strategies of effective action" that "serve as cognitive guides for the construction of complex modes of behavior" (Bandura, 1997). Mostly social cognitive theory has been used for areas of human functioning such as career choice, health and organizational behavior. Social cognitive theory proposes that self-efficacy controls individual's behavior which are dependent on consideration of the trade-off between essential struggle and motivations (He and Freeman, 2010; Bandura, 1986). Self-efficacy will affect individual's behavior and also influencing those beliefs and self-assurance to handle the difficulties in knowledge sharing activities. In entrepreneurship literature recent studies are illuminating in this manner, the field is moving considering individuals as a relatively homogeneous set of actors to a set of typologies: individuals contains capabilities, intentions and cognitions that are all designed by the institutions and have impact on economic development (Veciana and Urbano, 2008). Social cognitive theory is an important theoretical perspective for examining behaviors and motivations of the individuals (He and Freeman, 2010).

From institutional theory point of view, Institutional theory highlights that institutions affect common organizational values and behaviour (Huang and Sternquist, 2007). Individual not act in isolation from societal settings and spreads individuals' behaviour, therefore shared by the interdependent political, economic and social networks. Institutional environment are complex, polycentric and multidimensional and also several institutions are interdependent (e.g., North, 1990; Ostrom, 2005; Scott, 1995). These insights linked to incentives and boundaries in the business environment surrounding are attributable to informal and formal institutions (North, 1990; Veciana and Urbano, 2008). In institutional environment needed new opportunities generated by the knowledge spillovers for increasing entrepreneurship (Audretsch and Keilbach, 2007) and for increasing entrepreneurship required capital are very important.

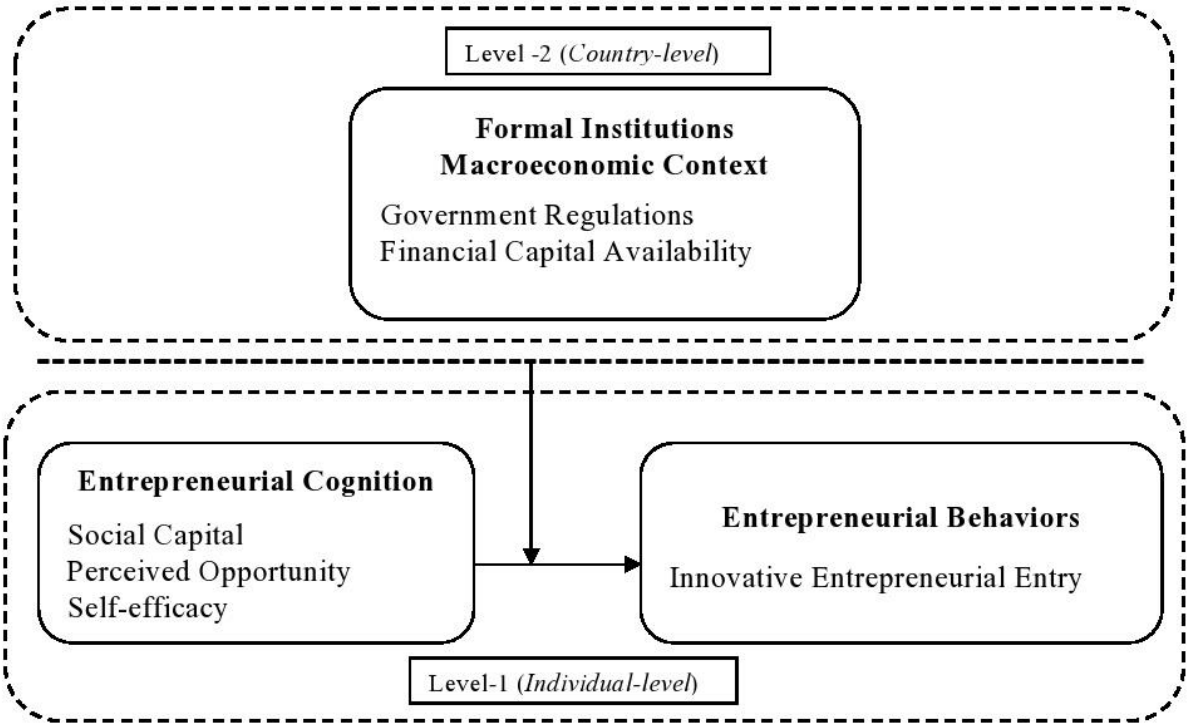

Fig. 3. Theoretical model

Social cognitive theory required a huge contribution of human behaviour in the environment that learned from other agents (Bandura, 1986). Institutional theory highlights that institutions affect common organizational values and behaviour (Huang and Sternquist, 2007). Scholars emphasizing on social cognition observed that institutions enhance through social contact by which individuals and firms groups. Social cognitive theory and institutional theory, as connected to individual's capabilities such as entrepreneurial cognition (self-efficacy, perceived opportunity, social capital) and organizational environment (govt. regulations, financial capital availability), highlight the growth of value based relationships in organizational sharing culture and enhance individual's capabilities. Thus institutional theory and social cognitive theory supports each other and describe the institutional convergence and divergence.

3.2.1. Entrepreneurial cognition and innovative entrepreneurial entry

As innovation occupied a special part in countries economic development, Innovation processes required high quality coordination and information (Teece, 1992). Innovation processes can involve the implementation of fresh and diverse combinations of different resources in organizations (Drucker, 1998). Cognition is the knowledge structures that individuals execute on information domain to stretch its meaning (Lyles and Schwenk, 1992). Entrepreneurial cognition have been explained as, knowledge structure that individuals utilize for decision making, judgments and assessments that involved in opportunity evaluation process, new business creation and growth (Mitchell et al., 2002).

Individual's behavior towards innovative business is most important, as it facilitates to new products and services development and improved ways to perform things. Individual's innovation behavior positively contributes to individual's effectiveness (e.g., Janssen and Huang, 2008). Social capital is the network of relationships and resources placed in these networks. Networks of social capital are key facilitators in process of establishment (Chetty and Campbell-Hunt, 2003). In social network, information is circulated in social relations (Brown and Duguid, 2000). Previous studies created conflicting results while investigating relationship between social capital and innovation, found positive associations (e.g. Coleman, 1988; Knack and Keefer, 1997; Onyx and Bullen, 2000) and negative associations (e.g. Dasgupta, 2000; Chou et al., 2006) or both (Fukuyama, 1999). Putnam (2000) claimed that, if a person has strong social network will achieve better in a well-connected society comparatively a person poorly connected one. De Clercq et al., (2013) found a positive relationship between social capital and new business activity.

Empirical studies found that the entrepreneurial process starts with individual execution and opportunity identification towards new business creation (Ardichvili et al., 2003; Shane and Venkataraman, 2000). However, new business creation is an essential phenomenon and

opportunity identification is observed as vital to entrepreneurship (e.g., Busenitz et al., 2003; Short et al., 2009). Opportunity identification main conceptualization assumes that entrepreneurs either create exploration or discover without a cautious search (e.g., Alvarez and Barney, 2007; Lumpkin et al., 2004). Previous studies claim that opportunity recognition demonstrate an attitude in accordance to the theory of planed behavior (Fishbein and Ajzen, 2010), motivate entrepreneurial intention and in result entrepreneurship (Bosma and Schutjens, 2011).

Self-efficacy is the individual's belief in their own capabilities to perform a specific behavior and effectively execute certain activities to achieve goals (Bandura, 1997; Gist and Mitchell, 1992). Bandura (1977) argues that, self-efficacy delivers a prescriptive procedure and formulation for effective actions. Individual's knowledge and skills are directly linked with entrepreneurial activities and can be potent facilitator in enhancing the likelihood of new business creation (De Clercq and Arenius, 2006). Entrepreneur contains high self-efficacy is more likely to contribute the effective potential outcomes that accumulate from a new business creation and following those goals forcefully. Individuals have high self-efficacy, more possibilities to initiate innovation decisions and strategies in the organization (Tabak and Barr, 1999). Cho et al., (2009) argues that, this is understood self-efficacy of individuals will support their effective behavior in innovation process. Autio et al., (2013) found a positive relationship between self-efficacy and entrepreneurial activity. Furthermore, Stenholm et al., (2013) found that entrepreneurial cognition have positive relationship with the rate of entrepreneurial activity. According to the discussed literature i expect positive relationship between social capital, perceived opportunity, self-efficacy and innovative entrepreneurial entry. Above literature leads to the following hypothesis

Hypothesis 1a: There is a positive relationship between social capital and the likelihood of innovative entrepreneurial entry.

Hypothesis 1b: There is a positive relationship between perceived opportunity and the likelihood of innovative entrepreneurial entry.

Hypothesis 1c: There is a positive relationship between self-efficacy and the likelihood of innovative entrepreneurial entry.

3.2.2. Cross-level moderating effect of macroeconomic context

3.2.2.1. Relationship between entrepreneurial cognition, government regulations and innovative entrepreneurial entry

Regulations are an important responsibility of the government, in which rules and laws involves that control the activities of nationwide and foreign organizations functioning within a country. Regulatory institutions are particularly associated to the level of entrepreneurial activity (McMullen et al,. 2008). Level of entrepreneurship can be affected with different policies (Storey, 1994). In entrepreneurship related regulations such as government laws, policies and regulations that facilitate the new venture creation process, reduce the risk for individuals are keen for new business activity and provide assistance to entrepreneurs to attain required resources (Busenitz et al., 2000). Current world is more capable than always to afford the constraints, regulations and obstinacies that populations frequently demand. However, regulations are most important to countries development and growth (Deakins et al., 2016). Scholars paying a special attention to explore more acquired elements like entrepreneurial cognition (e.g., Stenholm et al., 2013), which contains mental models, self-regulatory skills and intuition as essential element in entrepreneurship (Baron, 2004; Busenitz and Barney, 1997).

Social capital is a private and isolatable asset, but occurs from the people's network of social associations (Portes, 1995). Empirical research found mixed outcomes between social capital and governance characteristics. Della porta (2000) propose that more government

influence capability reduces social capital such as measured by trust. While on the other side, Christoforou (2011) suggest positive relationship between government influence capability and social capital. More social capital provides support to governments are highly inclined to influence regulatory policy (Galinato et al., 2013). Regulation is a factor that not restricts but enable or promote opportunities to increase entrepreneurship (Hart et al., 2008). They also provide entrepreneurial opportunities recognition environment that linked with regulations (Hart et al., 2008; Tabone and Baldacchino, 2003). Self-efficacy as the belief of individual's to his own capability to achieve the tasks. How to handle with regulations is not often distinguished in the task generated list when explaining the entrepreneurial skills; yet it imposes on sets of skills such as innovation, marketing, risks taking, financial and management control (Chen et al., 1998; Pyysiainen et al., 2006). Regulations have more influence on the effects of attitudes towards risk, social network, business skills and working status (Ardagna and Lusardi, 2008). Entrepreneurial cognition formation depends on the characteristic of government establishments where the associations operate.

Regulations can facilitate the development of entrepreneurship that handles the activities of the firms operating with in a country. Government contains the different kinds of programs to facilitate entrepreneurship (Gnyawali and Fogel, 1994). Government intervention can increase and decrees the entrepreneurial intention (Dana, 1987). Strong legal structure enhances the effectiveness in businesses and decreases transaction costs, also provides support to individuals to earn revenue form their business (Whitley, 1999). Mayer-Schonberger (2010) explained that regulations support to the entrepreneurship at least three ways such as (1) regulations of the society facilitate entrepreneurs to protect their innovative product through property rights (2) regulations decrease the entrepreneur's risk of noncompliance (3) regulation provide opportunities to the entrepreneurs to enter already available market or create new markets. Entrepreneurship literature shows that the countries laws, regulations and innovation rewards

directly impact the achievement of entrepreneurial activities (Baumol et al., 2009). Empirical research found that legal provisions facilitate to entrepreneurial activity inside the countries, such as intellectual property rights (McMullen et al., 2008), start-up regulations (Stel et al., 2007) and bankruptcy regulations (Lee et al., 2011). Conversely, in countries with government regulations, these barriers are stronger. This facilitate to innovative entrepreneurship also for individuals with strong entrepreneurial cognition, which in turn enhance the relationship between individuals entrepreneurial cognition and innovative entrepreneurial entry. According to the above discussed literature and logic i propose the following hypothesis:

Hypothesis 2a: Government regulations positively moderate the positive relationship between social capital and innovative entrepreneurial entry.

Hypothesis 2b: Government regulations positively moderate the positive relationship between perceived opportunity and innovative entrepreneurial entry.

Hypothesis 2c: Government regulations positively moderate the positive relationship between self-efficacy and innovative entrepreneurial entry.

3.2.2.2. Relationship between entrepreneurial cognition, financial capital availability and innovative entrepreneurial entry

Financial system of a country inspires the rate of economic growth. Financial capital availability is the degree to which influence the individuals and organizations capital investment decisions by affecting their way to accomplish the capital and its value (Holmes et al., 2012). The financial system of a country is an essential element of its level of new venture creation (Levie and Autio, 2008). Abundant financial resources and excellent human resources access increase entrepreneurship performance (Millán et al., 2014) and decision formation (De Clercq et al.,

2013). Entrepreneurial cognition creates the nature of authenticity and cognitive context through which individuals construe information (Stenholm et al., 2013).

Primary links from social networks grow into strategic network and business concentrated networks, which permits organizations to innovate and to flourish by their contacts to other firms (Johannisson, 2000). Mosey and Wright (2007) suggest that entrepreneurs with prior business experience have wider social network and highly effective in evolving network ties to attain management knowledge and finance equity. Beck et al., (2007) proposes that development in financial sector enhance individual's economic opportunity and avoid the adverse effect connected with efforts to level outcomes. Belief of entrepreneurs regarding their knowledge and skill they have are more likely to encourage opportunity exploitation and recognition (Kirzner, 1973; Shane, 2000). Empirical research demonstrated that the experience and knowledge have important role in allowing organizations to effectively implement and accept the changes in technology (Bartel and Lichtenberg, 1987). Financial capital facilitates entrepreneurship to attain resources to expand and launch new business, financial capital conditions varies from one country to another (Bygrave et al., 2003). I prolonged above arguments that the financial capital availability oriented towards innovative entrepreneurship can influence entrepreneurial cognition for the conclusion to new venture creation.

Drucker (1998) suggests that innovation in entrepreneurship is the heart of entrepreneurial activities. Entrepreneurship innovation inspires other entrepreneurs to continue their motivation towards business (De Cleyn and Braet, 2012; Zortea-Johnston et al., 2012). Entrepreneurial activities encourage innovation and innovation encourages economic growth (Galindo and Méndez-Picazo, 2013). Thus, innovative firms acquire more profit that will help to motivate entrepreneurs to familiarize new innovations, to enhance firm's motivation and positively impact on economic growth and employment. This facilitate to innovative entrepreneurship also for individuals with strong entrepreneurial cognition, which in turn

enhance the relationship between individuals entrepreneurial cognition and innovative entrepreneurial entry. Therefore, i propose a positive moderating effect on the financial capital availability conditions of a country and lead the following hypothesis:

Hypothesis 3a: Financial capital availability positively moderates the positive relationship between social capital and innovative entrepreneurial entry.

Hypothesis 3b: Financial capital availability positively moderates the positive relationship between perceived opportunity and innovative entrepreneurial entry.

Hypothesis 3c: Financial capital availability positively moderates the positive relationship between self-efficacy and innovative entrepreneurial entry.

3.3. Methodology

3.3.1. Sample and Procedure

Current study contains a two level framework, (level 1) individual-level and (level 2) country-level variables. Fig. 3 illustrates this frame work. My data comprise of a cross-sectional panel dataset, grouped by the countries. I attained individual level and country level data from different sources. Current model explores direct effect between individual-level variables and cross-level direct effects along with interactions effect between country-level formal institutions (macroeconomic context) and individual-level innovative entrepreneurial entry based on data for 48 countries during the period of 2001-2008. To test my hypothesis, all individual level data came from adult population survey administrated by the Global Entrepreneurship Monitor (Reynolds et al., 2005). The project was started in late 1990s to create harmonized data regarding new business activity and numerous correlations across countries, developed as joint research project between two universities, the London Business School (UK) and Babson College (USA).

To access, country-level macroeconomic context with respect to government regulations and financial capital availability data came from different, commonly accepted sources, including the Index of Economic Freedom (IEF; Gwartney et al., 1996) and Political Risk Services (PRS). Global Entrepreneurship Monitor data supplemented with country-level data on two formal institutions – government regulation, financial capital availability – with four country-level and four individual-level control variables, this operationalization provides me 190,015 observations for 48 countries. Four country-level control variables, from which two cultural dimensions were obtained from Hofstede's Cultural Dimensions (1980) study and remaining two were from Failed States Index (FSI).

3.3.2. Measures

3.3.2.1. Individual-level variables (level 1)

My dependent variable is an innovative entrepreneurial entry; i use two questions from the Global Entrepreneurship Monitor (GEM) adult population survey to access the innovative entrepreneurial entry of those who succeed as innovative entrepreneur. These questions are (1) the newness level of product or services presented by the entrepreneurs, (2) the number of competitors providing similar product or service in the marketplace. On the bases of these questions i measure innovative entrepreneurial entry such as the offering product or services by the individuals are new or not familiar to many customers and not available in the market by the other competitors, entrepreneurs considered as innovative entrepreneurial entry. More specifically, my dependent variable observation is coded 1 (one) if the individual succeeded as a nascent entrepreneur or new entrepreneur and offering a new product or service to entire available customers or some customers in a market where there are rare or no competitors offers the same product or service or 0 (zero) otherwise.

Entrepreneurial cognition is an important and less emphasized factor. Individual's inspirations and perceptions are important predictors for entrepreneurial entry (Krueger and Carsrud 1993). Entrepreneurial cognitions are distinct to be "the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth" (Mitchell et al., 2002). In this study, i used know an entrepreneur

Table 6. Sample Descriptives

Country	*N*	Entry=1	Entry=0	% Entry	GR	FCA
Argentina	1173	85	1088	7.25%	55.07	81.92
Australia	880	42	838	4.77%	80.31	312.7
Austria	638	9	629	1.41%	76.37	225.59
Belgium	2093	29	2064	1.39%	78.86	341.07
Brazil	5220	59	5161	1.13%	60.4	313.21
Canada	694	22	672	3.17%	78.76	441.47
Chile	4245	305	3940	7.18%	77.37	50.24
China	3808	107	3701	2.81%	49.36	1202.73
Colombia	4359	330	4029	7.57%	62.17	54.9
Czech Republic	1163	26	1137	2.24%	74.99	52.89
Denmark	7815	141	7674	1.80%	79.53	166.22
Dominican Republic	2319	98	2221	4.23%	57	10.45
Ecuador	794	30	764	3.78%	58.09	15.69
Egypt	1179	26	1153	2.21%	59.56	47.93
Finland	2402	66	2336	2.75%	81.49	117.47
France	3042	28	3014	0.92%	68.29	1326.88
Germany	2884	58	2826	2.01%	78.25	1641.18
Greece	2778	77	2701	2.77%	63.07	159.25
Hungary	2211	17	2194	0.77%	73.1	57.02
India	2395	52	2343	2.17%	52.29	355.3
Indonesia	1239	70	1169	5.65%	51.7	109.51
Iran	1633	31	1602	1.90%	40.79	93.53
Ireland	2807	110	2697	3.92%	86.35	403.8
Israel	1643	43	1600	2.62%	70.7	60.57
Italy	1197	22	1175	1.84%	67.28	987.93
Jamaica	3447	154	3293	4.47%	71.93	4.06
Japan	2392	36	2356	1.51%	73.63	2095.25
Malaysia	847	51	796	6.02%	59.83	58.45
Mexico	4383	124	4259	2.83%	67.65	254.55
Netherlands	3088	101	2987	3.27%	82.23	592.37

Norway	1544	65	1479	4.21%	71.9	221.45
Peru	4080	612	3468	15.00%	65.01	34.14
Philippines	1451	35	1416	2.41%	56.47	39.32
Portugal	618	18	600	2.91%	71.11	138.81
Romania	1833	13	1820	0.71%	65.14	67.88
Russia	1451	11	1440	0.76%	51.71	480.02
Singapore	1987	38	1949	1.91%	85.63	102.83
South Africa	2728	96	2632	3.52%	64.67	84.66
Spain	46464	1030	45434	2.22%	73.58	793.79
Sweden	2840	28	2812	0.99%	77.29	242.69
Switzerland	1481	24	1457	1.62%	78.93	378.32
Thailand	5168	190	4978	3.68%	61.07	71.19
Turkey	3149	70	3079	2.22%	62.85	183.85
UK	32026	857	31169	2.68%	84.55	2474.37
United Arab Emirates	1285	54	1231	4.20%	58.24	96.47
United States	3566	175	3391	4.91%	82.9	5098.86
Uruguay	2166	160	2006	7.39%	66.92	8.1
Venezuela	1410	42	1368	2.98%	46.42	59.71

N: total amount of individual for whom data was available for a given country from 2001 to 2008.
IEE=1 respondents involved in innovative entrepreneurial entry for a given country, IEE=0 respondents are not involved in innovative entrepreneurial entry for a given country and % entry represents the respondents per country who are identified as innovative entrepreneur.
Source: GEM (2001 - 2008).
GR= government regulations, average score over the all available years for each country from 2001to 2008.
Source: Index of Economic Freedom
FCA= financial capital availability, average score over the all available years for each country from 2001to 2008.
Source: Political Risk Services.

(social capital), perceived opportunity and self-efficacy as entrepreneurial cognition which is recently used in past study (e.g. Stenholm et al., 2013).

Know an entrepreneur, (Social Capital) this binary variable is based on the 'yes' and 'no' (0 = No, 1 = Yes) replied to the following question: "Do you personally know someone who started a business in the past two years". Empirical research found that 'know an entrepreneur' is a strong predictor of entrepreneurial activity. *Perceived Opportunity,* since the likelihood of entrepreneurial activity has been linked with the availability of opportunities in the environment (Shane and Venkataraman, 2000). This binary variable is based on 'yes' and 'no' (0 = No, 1 = Yes) replied to the following question: "in the next six months there would be good opportunities for starting a business in the area where you live". *Self-efficacy,* Entrepreneurship research has

shown that individual's perception of their ability to identify opportunities and their self-efficacy towards entrepreneurial activity are positively linked to enhancing the entrepreneurial activities (Arenius and Minniti, 2005). Entrepreneurial self-efficacy indicates whether the respondents thought that he or she possessed the knowledge, skills and experience is required to start a new business (0 = No, 1 = Yes) (Rauch and Frese, 2007).

3.3.2.2. Country-level predictor variables (Level 2)

I derive country-level data for two variables on the "government regulation" from (IEF) Index of Economic Freedom (Gwartney et al., 1996), and "financial capital availability" from Political Risk Services (PRS).

Government regulations establish and apply policies and laws that control business activities in a country. Government regulations were measured in particular against seven factors that are also employed by Holmes Jr. et al., (2012). In which includes trade freedom, fiscal freedom, contract and property rights, financial freedom, regulatory burden, investment freedom and monetary freedom. These factors imitate many ways government exercise over firms. Each variable of the Index of Economic freedom is graded on a scale 0 to 100 (score 80 or above = free, score between 70-79.9 = mostly free, score between 60-69.9 = moderately free, score between 50-59.9 = mostly unfree and scores below 50 = repressed). Countries rated 'free' or 'mostly free' that are two times high the average in all other countries and four times high than the 'repressed' countries.

Financial capital availability of a country inspires the rate of economic growth. The financial system of a country is an essential element of its level of new venture creation (Levie and Autio 2008). Financial capital availability was measured using data from Political Risk Services (PRS) in particular six factors that are also employed by Holmes et al., (2012). Money

supply, capital investments, total foreign debt, nominal GDP, budget balance and net reserves are included in financial capital availability.

3.3.2.3. Individual-level controls

To isolate the effect of my individual-level predictor, several control variables at individual-level were encompassed in my model. I also included two demographic variables, one of them is *age* because the opportunity cost of entrepreneurial activity increase with age (Levesque and Minniti, 2006), and high age individuals are less likely to engage in entrepreneurship. *Gender* has strong influence on innovative entrepreneurial entry. Women tend to exhibit lower rates of entrepreneurial behavior than men, the respondents' gender with (1 =male and 2 = female). *Household income* with three step income tier scale (1 = lower middle, 2 = middle, 3 = upper middle). *Education* has been associated with entrepreneurial activity (Vinogradov and Kolvereid, 2007). Education classified in five categories (0 = none, 1 = secondary, 2 = post-secondary, 3 = graduate and 4 = graduate experience).

3.3.2.4. Country-level controls

At the country-level i control for four variables: two cultural dimensions were obtained from Hofstede's Cultural Dimensions (1980) study and remaining two was from Failed States Index (FSI) assertiveness and in-group collectivism which have an influence on innovative entrepreneurial entry. *Individualism* can be defined as a "preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families". The *Uncertainty Avoidance* dimension expresses the "degree to which the members of a society feel uncomfortable with uncertainty and ambiguity". I use *Demographic Pressure* is the pressure on the population such as disease and natural disasters make it difficult for the government to protect its civilians or demonstrate a lack of capacity or will. *Group Grievance* can be explains as when tension and violence exists between groups, the state's ability to provide

security is undermined and fear and further violence may ensure. The formal institutions of macroeconomic context and country level control variables were z-standardized because they were obtained from different data sources so scores of each variable contains different interpretation from others.

3.3.2.5. Cross level interaction terms

Six interactions terms were computed to test proposed moderation effects. These are the interactions between government regulations and entrepreneurial cognition variables, or financial capital availability and entrepreneurial cognition variables. To produce interaction terms, z-scores of both country-level predictors were multiplied with individual-level perceptual variable. Two main reasons for using z-scores for predictors and interaction terms, (1) country-level predictors used from different sources, comparison relying upon their raw measures are not meaningful. Z-scores provides the measures with standard reference point (mean=0 and standard deviation=1) such that comparison will be meaningful; (2) more chances of multi-collinearity, z-scores reduce the chances.

3.3.2.6. Research Design and Estimation method

My dataset is a cross sectional panel dataset grouped by the countries, gathering observation at two levels, country-level and individual level. The objective of current research was to examine the (1) direct effect between individual-level entrepreneurial cognition variables and innovative entrepreneurial entry, (2) direct effect of country-level formal institutions on innovative entrepreneurial entry and (3) the interaction effects by the two country-level – government regulations, financial capital availability moderate the effect of individual-level entrepreneurial cognition variables and innovative entrepreneurial entry (Figure 1). The study required multilevel technique for analysis (Hofmann et al., 2000). To estimate the influence of country-

level variable (level 2) on individual-level innovative entrepreneurial entry (level 1), i assumed the random-effect logistic regression model.

I adopted a four step testing strategy to examine my hypothesis. In first step (Column 2 of Table 9), i analyze that how much variance lies in innovative entrepreneurial entry across countries by considering no predictor no control in my random-effect logistic regression model. This model was called "null model", i perceived significant variances and country-level variables were certainly responsible for explaining the variance, thus necessitating the multi-level analysis. Second step, i added all individual-level controls and predictor to test individual-level direct effect (Column 3 of Table 9). Then as the third step, i added the both predictors and four country-level controls in my model (Column 4 of Table 9). Finally, i observed the influence of cross-level moderation effect by the macroeconomic context between individual-level entrepreneurial cognition and innovative entrepreneurial entry, to test interaction effects.

3.4. Results

In table 7, i present the mean, standard deviation and other sample descriptives for all study variables. Table 8 shows the correlations matrix. Table 9 represents the associations on individual's likelihood of innovative entrepreneurial entry. To check multi-collinearity, i computed the variance inflation factor for all study variables and interaction terms in my model. The VIF are below the cut-off value of 10, thus multi-collinearity is not an issue for my analysis (Neter et al., 1996).

Table 9 represents the multi-level estimates. The random-effect logistic regression model is reported estimates for the fixed individual-level part (estimates of coefficients) and random country-level part (variance estimates) along with model fit statistics. To check intra class correlation (ICC), i estimate a multi-level logistic regression "null model" without any predictor or control variable. The variance components of random intercept decrease from 0.43 in the

null model (Column 2 of Table 9) to 0.23 (Column 4 of Table 9), shows that individual-level and country-level variables elaborate up to 47% (((0.43 – 0.23) / 0.43) * 100) of the country-level

Table 7. Descriptive statistics

	N	Min	Max	Mean	SD
Individual-level variables					
Innovative entrepreneurial entry	190,015	.00	1.00	.03	.17
Age	190,015	18	64	40.58	12.49
Gender	190,015	1	2	1.50	.50
Education	190,015	0	4	2.32	1.12
Household income	190,015	1	3	1.84	.79
Social Capital	190,015	0	1	.42	.49
Perceived Opportunity	190,015	0	1	.40	.49
Self-efficacy	190,015	0	1	.54	.49
Country-level variables					
Demographic pressure	48	1.6	9	4.55	1.77
Group Grievance	48	1	9	5.13	1.69
Individualism	48	8	91	54.59	23.94
Uncertainty Avoidance	48	8	100	63.60	25.26
Government regulations	48	285.50	605.70	506.56	70.93
Financial capital availability	48	23.95	31819.92	5351.06	6236.20

variance. As well as, can be seen (Column 2 of Table 9), ICC shows that up to (10.75%) of the variance in innovative entrepreneurial entry resided between countries. Above findings suggesting a significant proportion of innovative entrepreneurial entry by country-level variables, warranting a multi-level analysis that accommodate macroeconomic context to explain innovative entrepreneurial entry.

3.4.1. Entrepreneurial cognition with innovative entrepreneurial entry

Column 4 of Table 9 present the influence of individual-level entrepreneurial cognition on innovative entrepreneurial entry reported as odd ratios. Individual's with high social capital are on average around two times (OR = 1.75, $p < 0.000$) more likely to enter into innovative entrepreneurship than individuals with low social capital. This finding support to my individual-level hypothesis (hypothesis 1a) in that social capital is positively related to innovative

Table 8. Correlation matrix of innovative entrepreneurial entry

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Individual-level variables														
1. Innovative entrepreneurial entry	1													
2. Age	-.037**	1												
3. Gender	-.030**	.012**	1											
4. Education	.036**	-.084**	-.017**	1										
5. Household income	.030**	-.024**	-.085**	.207**	1									
6. Social Capital	.091**	-.135**	-.108**	.093**	.126**	1								
7. Perceived Opportunity	.098**	-.066**	-.073**	.051**	.053**	.214**	1							
8. Self-efficacy	.126**	-.029**	-.139**	.065**	.094**	.247**	.212**	1						
Country-level variables														
9. Demographic pressure	.034**	-.173**	-.018**	-.180**	.001	.085**	.048**	.064**	1					
10. Group Grievance	.008**	-.102**	-.017**	-.124**	-.063**	.027**	-.027**	.029**	.614**	1				
11. Individualism	-.050**	.154**	.029**	.174**	-.071**	-.100**	-.031**	-.071**	-.641**	-.481**	1			
12. Uncertainty Avoidance	.012**	-.045**	-.031**	-.053**	.076**	.013**	-.088**	.011**	.117**	.324**	-.464**	1		
13. Govt. regulations	-.019**	.159**	.036**	.168**	-.056**	-.108**	-.036**	-.062**	-.807**	-.571**	.760**	-.345**	1	
14. Financial capital availability	-.017**	.125**	.027**	.121**	-.086**	-.092**	-.069**	-.033**	-.347**	-.150**	.677**	-.342**	.540**	1

Correlation matrix is based on 190,015 observations

Table 9. Effects on individual-level innovative entrepreneurial entry (ORs for Colum 3, 4 beta-coefficients for Colum's 5–10)

	1	2	3	4	5	6	7
Fixed part estimates							
Individual-level							
Age			0.98***(0.00)	0.98***(0.00)	-0.01***(0.00)	-0.01***(0.00)	-0.01***(0.00)
Gender			0.88***(0.02)	0.88***(0.02)	-0.12***(0.03)	-0.12***(0.03)	-0.12***(0.03)
Education			1.41***(0.02)	1.41***(0.02)	0.14***(0.01)	0.13***(0.01)	0.14***(0.01)
Household income			1.08***(0.02)	1.07***(0.02)	0.07***(0.02)	0.07***(0.02)	0.07***(0.02)
Social capital	**H1a**		1.75***(0.06)	**1.75***(0.05)**	0.58***(0.03)	0.56***(0.03)	0.56***(0.03)
Perceived opportunity	**H1b**		1.97***(0.06)	**1.97***(0.06)**	0.67***(0.03)	0.70***(0.03)	0.68***(0.03)
Self-efficacy	**H1c**		4.88***(0.22)	**4.88***(0.22)**	1.58***(0.04)	1.59***(0.04)	1.64***(0.05)
Country-level							
Demographic pressure				1.12*(0.07)	0.13*(0.06)	0.13*(0.06)	0.12*(0.06)
Group Grievance				0.92(0.05)	-0.07(0.06)	-0.07(0.06)	-0.08(0.06)
Individualism				0.99(0.08)	-0.01(0.08)	-0.01(0.08)	-0.01(0.08)
Uncertainty Avoidance				.72**(0.07)	-0.33**(0.10)	-0.34**(0.10)	-0.34**(0.10)
Govt. regulations				1.25**(0.10)	0.14(0.08)	0.15(0.08)	-0.03(0.09)
Financial capital availability				1.18*(0.08)	0.17*(0.07)	0.17*(0.07)	0.16*(0.07)
Interaction effects (cross level)							
Social capital * Govt. regulations	**H2a**				**0.13***(0.03)**		
Perceived opportunity * Govt. regulations	**H2b**					**0.13***(0.03)**	
Self-efficacy * Govt. regulations	**H2c**						**0.29***(0.04)**
Random part estimates							
Variance of intercept		0.43(0.09)	0.29(.06)	0.23(0.05)	0.23(0.05)	0.23(0.05)	0.23(0.05)
Intra-class correlation (ICC)		10.76	7.34	5.85	5.85	5.85	5.85
Model fit statistics							
Number of observation		190,015	190,015	190,015	190,015	190,015	190,015
Number of group (countries)		48	48	48	48	48	48
Degree of freedom (number of variables)		0	7	13	14	14	14
Chi-square		-	3261.19	3284.23	3308.07	3303.50	3263.92
Probability > chi-square		-	***	***	***	***	***
Log likelihood		-25,092	-22,903	-22,891	-22,880	-22,879	-22,862
Likelihood ratio (LR) test for goodness of fit		***	***	***	***	***	***

Table 9 - *continued*

	1	8	9	10
Fixed part estimates				
Individual-level				
Age		-0.01***(0.00)	-0.01***(0.00)	-0.01***(0.00)
Gender		-0.12***(0.03)	-0.12***(0.03)	-0.12***(0.03)
Education		0.14***(0.01)	0.14***(0.01)	0.14***(0.01)
Household income		0.07***(0.02)	0.07***(0.02)	0.07***(0.02)
Social capital		0.56***(0.03)	0.56***(0.03)	0.56***(0.03)
Perceived opportunity		0.68***(0.03)	0.68***(0.03)	0.68***(0.03)
Self-efficacy		1.58***(0.04)	1.58***(0.04)	1.60***(0.0)
Country-level				
Demographic pressure		0.12*(0.06)	0.12*(0.06)	0.12*(0.06)
Group Grievance		-0.08(0.06)	-0.08(0.06)	-0.08(0.06)
Individualism		-0.00(0.07)	-0.00(0.08)	-0.00(0.08)
Uncertainty Avoidance		-0.34**(0.10)	-0.34**(0.10)	-0.34**(0.10)
Govt. regulations		0.22*(0.08)	0.22*(0.08)	0.23*(0.08)
Financial capital availability		0.16(0.07)	0.11(0.07)	-0.05(0.08)
Interaction effects (cross level)				
Social capital * Financial capital availability	**H3a**	**0.07**(0.03)**		
Perceived opportunity * Financial capital availability	**H3b**		**0.09**(0.03)**	
Self-efficacy * Financial capital availability	**H3c**			**0.24***(0.05)**
Random part estimates				
Variance of intercept		0.23(0.05)	0.23(0.05)	0.23(0.05)
Intra-class correlation (ICC)		5.85	5.85	5.85
Model fit statistics				
Number of observation		190,015	190,015	190,015
Number of group (countries)		48	48	48
Degree of freedom (number of variables)		14	14	14
Chi-square		3294.52	3294.76	3260.53
Probability > chi-square		***	***	***
Log likelihood		-22,887	-22,886	-22,877
Likelihood ratio (LR) test for goodness of fit		***	***	***

Notes: Standard errors are in parentheses. Bold values indicate variables testing the hypotheses. *** p < 0.001, **p < 0.01, *p < 0.05. All tests of significances two-tailed. ORs above 1 represent a positive relationship, ORs below 1 represent a negative relationship, ORs in columns 3, 4 all represent a positive relationship; columns 5–10 report beta coefficients because its needed to plot the interactions.

Chi-square and probability evaluations are not feasible from a chi-square, null model contain no variables in it, and reason numbers are not reported in Column 2. Statistically significant likelihood ratio suggests that the group-level (country in my case) variable cannot be ignored as un-important, thus necessitating multi-level analyses.

entrepreneurial entry. Individual's contain more opportunity perception are on average two times (OR = 1.97, p < 0.000) more likely to become innovative entrepreneur rather than those individuals with low perceived opportunity. This finding provision to my individual-level hypothesis (hypothesis 1b) in that perceived opportunity is positively related to innovative entrepreneurial entry. Individual's with more self-efficacy are on average around five times (OR = 4.88, p < 0.000) more likely to involve in innovative entrepreneurship comparatively those individuals have low self-efficacy. This finding support to my individual-level hypothesis (hypothesis 1c) in that self-efficacy is positively related to innovative entrepreneurial entry.

3.4.2. Macroeconomic context with innovative entrepreneurial entry

Column 4 of Table 9, also shows the association between government regulations, financial capital availability and innovative entrepreneurial entry. Although, I did not hypothesize these associations but summarize these effects in order. The odd ratios indicates that an increase of one-unit standard deviation in government regulations was linked positively by 25% increase the probability with innovative entrepreneurial entry (odd ratios =1.25 - 1, $p < 0.000$). Furthermore, the odd ratios shows that an increase of one standard deviation in financial capital availability was linked positively by 18% increase the probability with innovative entrepreneurship (odd ratios = 1.18 - 1, $p < 0.000$). These findings support the direct relationship between macroeconomic context and innovative entrepreneurial entry.

3.4.2.1. Moderation effect

To investigate hypothesis H2a – H3c, i introduce the cross-level moderation effect between country-level macroeconomic context and individual-level entrepreneurial cognition, country-level government regulations and individual-level social capital, perceived opportunity and self-efficacy as well as country-level financial capital availability and individual-level social capital, perceived opportunity and self-efficacy Column 5-10 in Table 9. Models are not tainted by

multi-collinearity. The estimates in Column 5-10 were reported in beta-coefficient instead of odd ratios, odd ratios would not meaningful for interpretation of one unit standard deviation change in interaction terms. All six interaction terms were statistic significant ($p < 0.000$); i therefor plotted the unstandardized solution for the two-way interaction between a continuous variable and a dummy-coded dichotomous moderator.

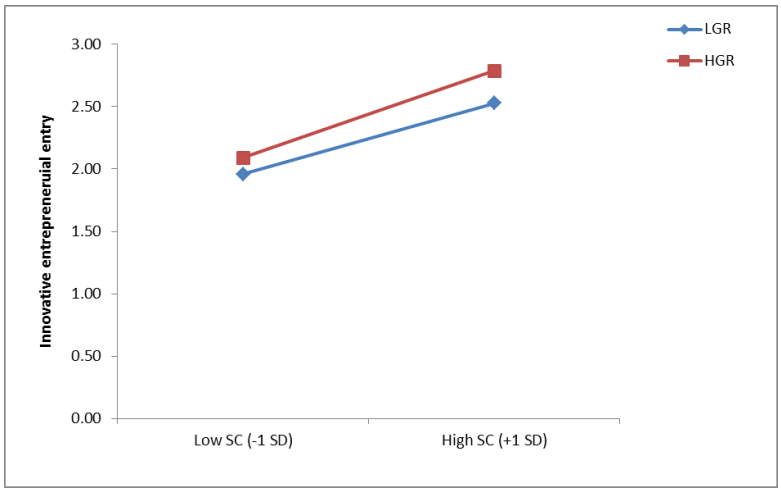

Figure 4: *Interaction between country-level government regulations and individual-level social capital*

Figure 4 plots the interaction between high and low level of government regulation and social capital, which is observed in Column 5 of Table 9 as significant at $p < 0.001$. By associating the termination point of lines, i found positive effect of individual-level social capital on innovative entrepreneurial entry is more pronounced in countries with higher government regulations. By discussing about Fig.4 i found the difference between higher and lower level of social capital to a 57% increase in likelihood of innovative entrepreneurial entry in countries with lower government regulations and 70% increase in countries where government regulations are higher. This difference shows that 13% individuals are more likely to engage in innovative entrepreneurial entry to countries where government regulations are higher. Therefore, the

results suggest that the innovative entrepreneurial entry thrives with high social capital and high government regulation countries. This affirms my hypothesis H2a.

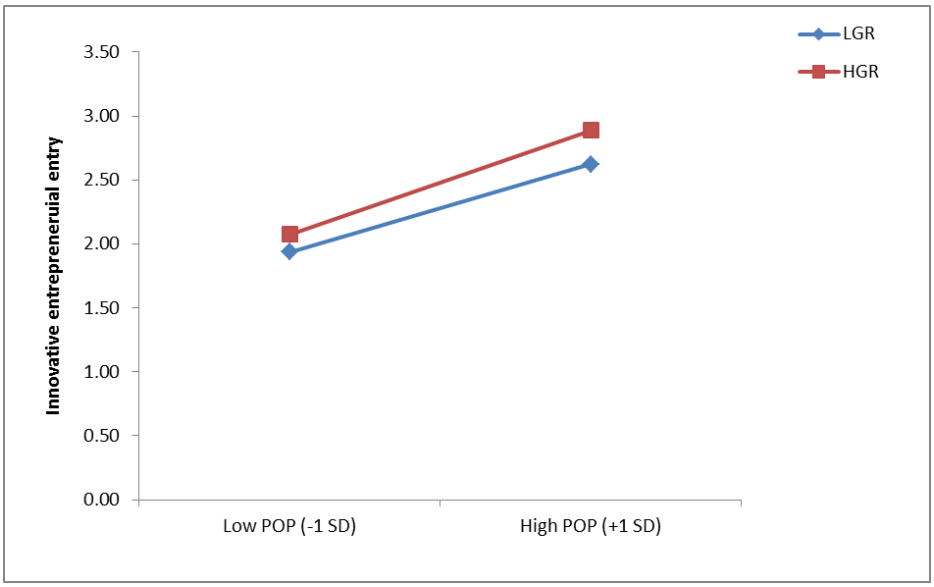

Figure 5: *Interaction between country-level government regulations and individual-level perceived opportunity*

Figure 5 plots the interaction between high and low level of government regulations and perceived opportunity, which is observed in Column 6 of Table 9 as significant at $p < 0.001$. By comparing the ending point of lines, i found positive effect of individual-level perceived opportunity on innovative entrepreneurial entry is more pronounced in countries with high government regulations. Figure 5 show the differences among higher and lower amounts of perceived opportunity to a 68% increase in innovative entrepreneurial entry where government regulations are lower and 81% increase in countries with more government regulations, which show that 13% individuals are more likely to engage in innovative entrepreneurial entry where government regulations are higher. Therefore, the results suggest that the innovative entrepreneurial entry succeeds with high opportunity perception and high government regulation economies. This affirms my hypothesis H2b.

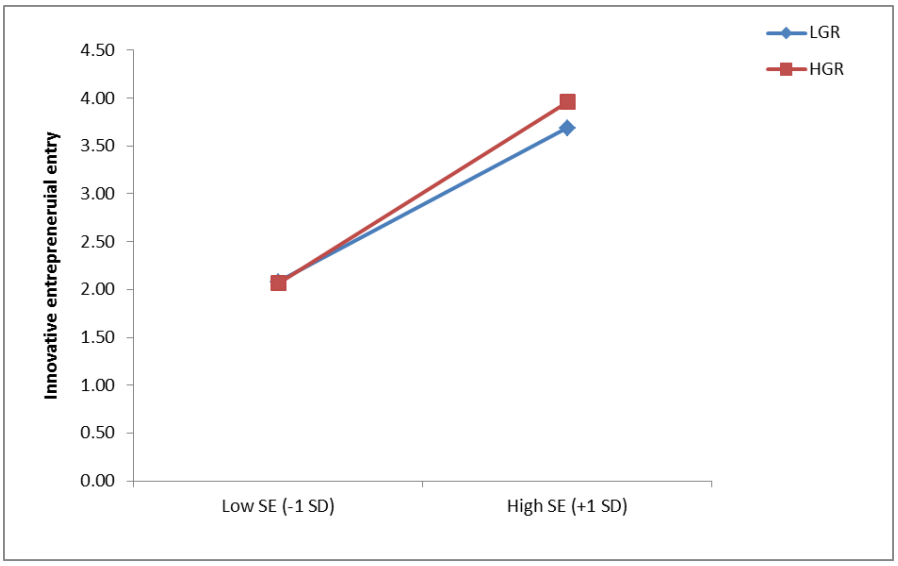

Figure 6: *Interaction between country-level government regulations and individual-level self-efficacy*

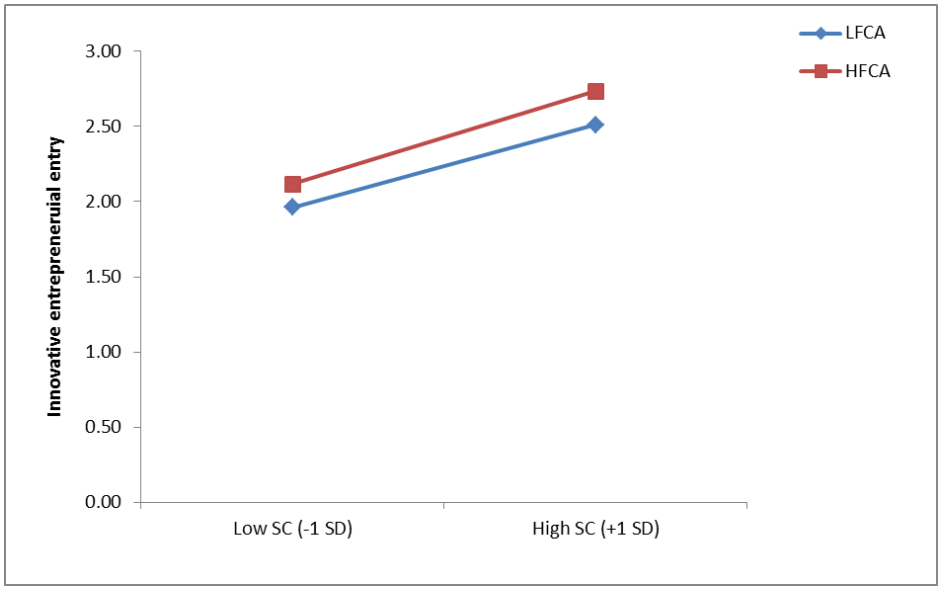

Figure 7: *Interaction between country-level financial capital availability and individual-level social capital*

Figure 6 plots the interaction between high and low level of government regulations and self-efficacy, which is showed in Column 7 of Table 9 as significant at $p < 0.001$. I observed by

discussing the ending points of lines, positive effect of individual-level self-efficacy on innovative entrepreneurial entry is more noticeable in countries where government regulations are high. Figure 6 show the differences among high and low level of self-efficacy and government regulations to a 1.61 found in countries with low government regulation and 1.89 in countries with high government regulation, which represent that 28% increase in individuals likely to engage in innovative entrepreneurial entry in countries with high government regulations comparatively low government regulation countries. Therefore I proposed on the bases of highly supportive results, innovative entrepreneurial entry succeeds with high self-efficacy and countries with high government regulations. This affirms my hypothesis H2c.

Figure 7 plots the interaction between high and low level of financial capital availability and social capital, which is observed in Column 8 of Table 9 as significant at $p < 0.001$. By relating the finishing point of lines, i found positive effect of individual-level social capital on innovative entrepreneurial entry is more pronounced in countries with higher financial capital availability. Figure 7 shows the differences among high and low level of social capital to a 55% increase in innovative entrepreneurial entry where countries have low financial capital availability and increase in countries with high financial capital availability is 61%, which show that 6% individuals are more likely to adopt innovative entrepreneurial entry to countries where financial capital availability are higher. Therefore, the results argue that the innovative entrepreneurial entry thrives with high social capital and high financial capital availability countries. This affirms my hypothesis H3a.

Figure 8 plots the interaction between high and low level of financial capital availability and perceived opportunity, which is observed in Column 9 of Table 9 as significant at $p < 0.001$. By comparing the ending point of lines, i found positive effect of individual-level perceived opportunity on innovative entrepreneurial entry is more pronounced in countries where financial

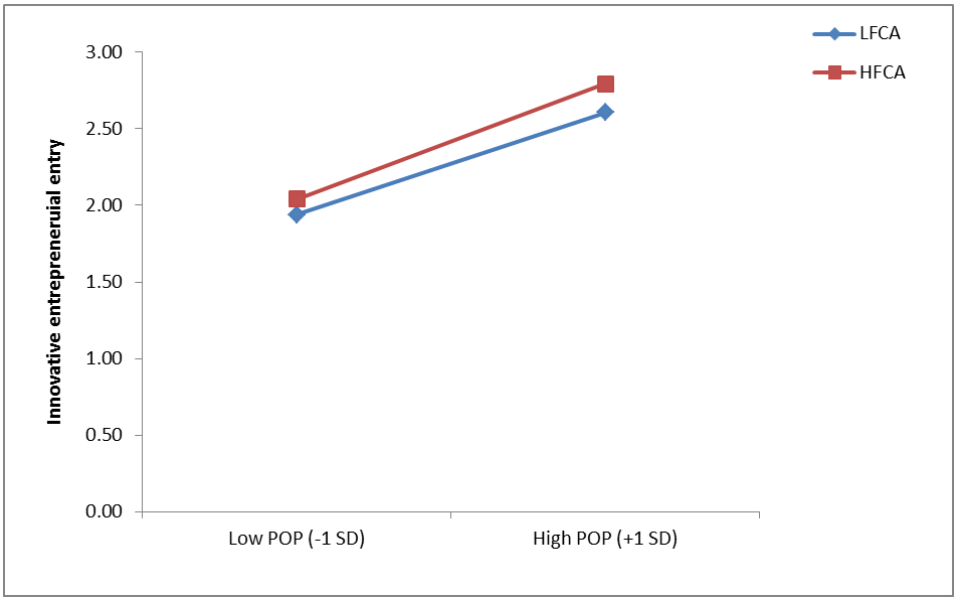

Figure 8: *Interaction between country-level* financial capital availability *and individual-level perceived opportunity*

capital availability are high. Figure 8 explains that the variation in higher and lower level of opportunity perception to a 67% increase in innovative entrepreneurial entry where financial capital availability are lower and 76% increase in countries contain higher financial capital availability, which show that 9% individuals are more likely to enter in innovative entrepreneurial entry where financial capital availability are higher in countries. Therefore, the results suggest that the innovative entrepreneurial entry succeeds with high opportunity perception and high financial capital availability economies. This affirms my hypothesis H3b.

Figure 9 plots the interaction between high and low level of financial capital availability and self-efficacy, which is showed in Column 10 of Table 9 as significant at $p < 0.001$. By comparing the ending points of lines, positive effect of individual-level self-efficacy on innovative entrepreneurial entry is more noticeable in countries where financial capital availability is high. Figure 9 represent the differences between higher, lower amount of self-efficacy and financial capital availability, found 1.57 in countries with lower financial

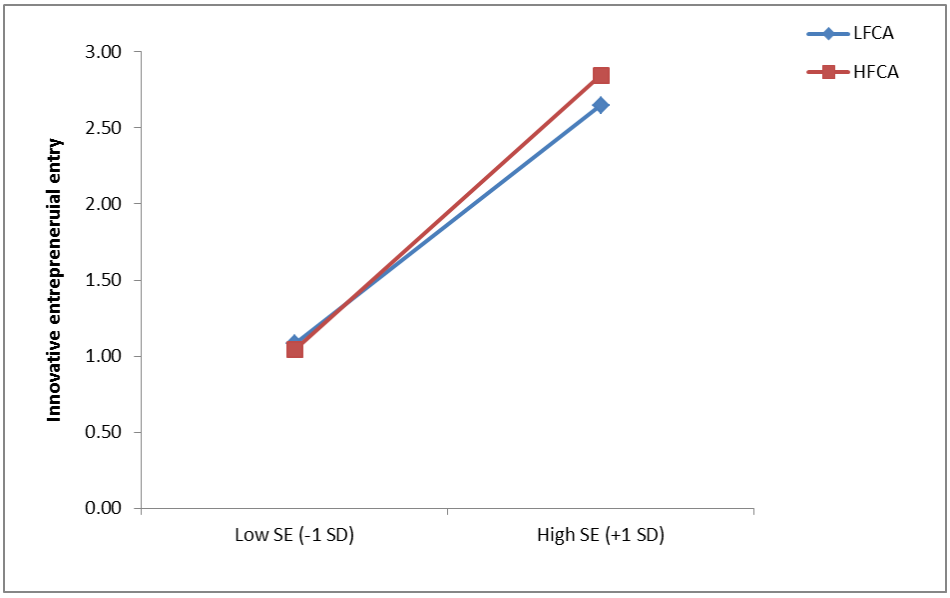

Figure 9: *Interaction between country-level financial capital availability and individual-level self-efficacy*

capital availability and 1.81 in countries, which shows that 24% increase in individuals likelihood to innovative entrepreneurial entry in countries with high financial capital availability. Therefore I proposed on the bases of results, innovative entrepreneurial entry succeeds with high self-efficacy and countries with high financial capital availability. This affirms my hypothesis H3c.

CHAPTER 4

ENTREPRENEURIAL COGNITION AND ENTREPRENEURIAL BEHAVIOUR: MODERATING ROLE OF SOCIETAL CONTEXT

4.1. Introduction

Other than endowment of natural assets organized by a country, national cultures of a country are unique and primary source of differentiation. Therefore it's not surprising, since 1930 scholars sought to explain worldwide differences in entrepreneurial activities in terms of cultural characteristics (e.g., Weber, 1930; McClelland, 1961). Research has proved that extensive country differences in entrepreneurial activity (Kelley et al., 2011). Some countries are more entrepreneurial whereas others are less entrepreneurial (Freytag and Thurik, 2007). Reasons for entrepreneurial variations in countries are not means straightforward (Hechavarría, 2015). Number of studies emphasis on economic conditions of country to understand the variation in level of entrepreneurship (Acs et al., 1994; Evans and Leighton, 1989; Elam and Terjesen, 2010; Sternberg and Wennekers, 2005) but economic factors leave an important part unexplained (Hechavarría, 2015). Hayton et al., (2002) argue that culture of a country commonly seen as a central element of entrepreneurial activity. Furthermore, in previous studies national culture also seen as an important element in other disciplines such as, economics (Greif, 2001), sociology (Aldrich, 2009) and international business (Stephen and Uhlaner, 2010) to enhance the quality of entrepreneurship and increase entrepreneurial entry across countries.

Entrepreneurship and economic development has been studied broadly. However, entrepreneurial activity recognized as a driver of innovation and countries development (e.g, Wennekers and Thurik, 1999; Audretsch and Thurik, 2001; Audretsch et al., 2006). Grilo and Thurik (2005) argue that the entrepreneurship is the engine of innovation, competitiveness, job

creation, productivity and economic growth. Moreover, empirical research claim that the entrepreneurial activity effect countries economic growth that highly associated with the quality of entrepreneurship (González-Pernía and Peña-Legazkue, 2015; Wong et al., 2005). Countries economic development depends on the creation of innovation businesses with potential growth, not general new businesses (Shane, 2009; González-Pernía et al., 2015). Individual's behaviour towards innovative business is most important, as it facilitates to new products and services development and improved ways to perform things. Hayton et al., (2002) argue that the relationship between culture and entrepreneurship is still required further consideration. Empirical research on how countries culture help to influences the individual-level entrepreneurial behaviour still conflicting (Bowen and DeClerq, 2008; Stephen and Uhlaner, 2010). The important reason of misperception, few researchers used multi-level statistical methods to analyze the relationship between culture and entrepreneurial behaviour. These limitations of past research leave an important gap that the current study seeks to fill. Culture is a collective construct (Hofstede, 1991) and entrepreneurial activity is an individual level construct (Wenberg et al., 2013). Therefor i argue that multilevel technique is the most appropriate way to examine the relationship between national culture and individual-level entrepreneurship. Some important gaps exist in present research (1) the relationship between individual-level entrepreneurial cognition and innovative entrepreneurial entry (2) and moderated by country-level cultural practices.

Gap existing here (1) explore the effect of individual-level entrepreneurial cognition on innovative entrepreneurial entry; (2) relationship between individual-level entrepreneurial cognition and innovative entrepreneurial entry moderated by the societal context. This study also contributes in entrepreneurship literature at-least three ways, first very few studies are available that have applied the multi-level technique to examine the multilevel frame work with appropriate regression analysis. Second, although, many studies investigated national culture

with national rates of entrepreneurship; ignore the most important fact that entrepreneurship is individual-level behaviours (e.g Bowen and De Clercq, 2008; Stephen and Uhlaner, 2010). On the other hand some studies used the effect of individuals' cultural perceptions with individual-level entrepreneurial behaviour, ignore the fact that culture is a national level construct (e.g Mueller and Thomas, 2001; Steensma et al., 2000). Third, mostly previous studies used culture as an independent variable when examining relationship between culture and entrepreneurial activities (Autio et al., 2013; Pinillos and Reyes, 2011; Shane et al., 1995; Wennekers et al., 2007; Hayton et al., 2002; Freytag and Thurik, 2007; Stephan and Uhlander, 2010). Only recently, these studies have started to conceptualize the culture as a moderator variable (Tung et al., 2007; Zhao et al., 2012; Wennberg et al., 2013). This study in line with recent cross country research with multilevel analysis that consider different types of institutions to explain entrepreneurship (Wenberg et al., 2013; Pathak et al., 2015, 2016; De Clercq et al., 2013).

For theoretically explaining these contributions i use social cognitive theory and institutional theory and for empirical examination i obtained cross national level data from Global Entrepreneurship Monitor (GEM) and (GLOBE) Global Leadership and Organizational Behavior study for all participant countries from 2001 to 2008. I test my hypothesis by applying multi-level random effect logistic regression to cross sectional panel dataset grouped by the countries of around 270,000 individuals from 43 countries over the period of 2001–2008. Cross-level moderation models disclose that many individual-level effects posited in entrepreneurship are liable on national culture that analyze at higher levels of analysis, analyzing the under-explored inspirations of national cultural context on individual-level entrepreneurship. I found that the positive effect of entrepreneurial cognition and innovative entrepreneurial entry is highly pronounced in national cultural landscape that support institutional collectivism, uncertainty avoidance and has higher performance orientation.

The next section describes the theory and hypothesis i employ to guide my empirical work. Next i describe my methodology and data, before outlining the results. The final section describes the results.

4.2. Research framework and hypothesis development

Culture is robust, long-lasting, and relatively constant, with incremental changes happening slowly (Brett et al., 1997; McGrath et al., 1992). Culture has influence on economic activities through individual-centric, social and combined mechanism (Guiso et al., 2006; Oyserman and Lee, 2008). Individual-centric process deals with cognition, individual's belief, motivation, needs and values (Autio et al., 2013). Considerable indication proofs that the culture of a society supporting certain personal characteristics, personal behaviors and penalizing others (Thomas

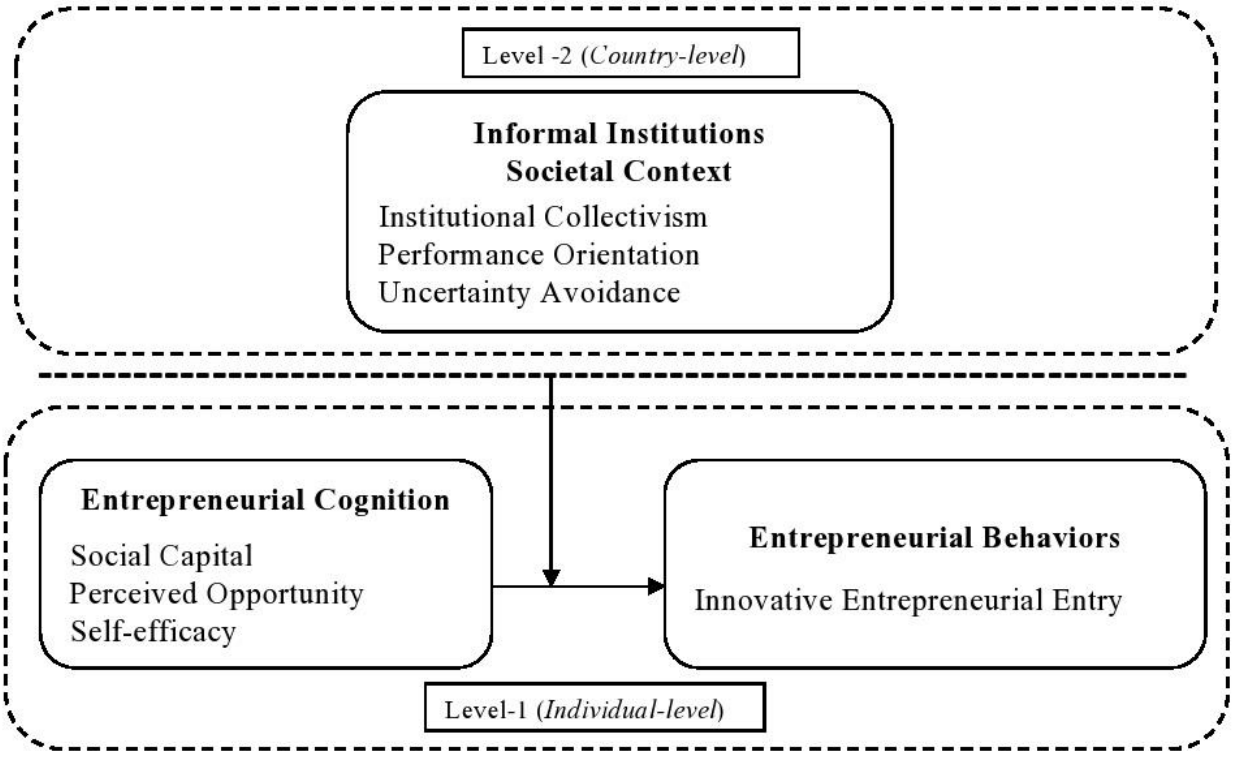

Fig. 10. Research model

and Mueller., 2000) and also have an essential part in determining entrepreneurial activities (Zahra et al., 1999). Institutional theory claims that a country's institutions affect the nature of

the economic interactions that take place within its borders (North, 1990). A country's institution based on two components such as formal and informal institutions, formal institutions are regulations, contracts and informal institutions are culture, values and norms of behavior (North, 1990; Whitley, 1994). Institutional theory also claims that the countries institutions affect the common organizational values and behaviours (Huang and Sternquist, 2007).

Albert Bandura (1977; 1986) provides a splendid theoretical framework in social cognitive theory to understand the effects of individual's behaviors are commonly resolute by interaction with both significant factors environmental and behavioral (Wood and Bandura, 1989). The social cognitive theory mostly used for human functioning areas such as career choice, health and organizational behavior. Self-efficacy beliefs control human behavior through cognitive, affective, motivational and decisional process. They have impact on individuals whether they think in self-enhancing; how well individuals motivate themselves and how much they persist in facing difficulties. Hitt et al., (2007) explained that the basic purposes of social cognitive theory are also linked with multilevel perspectives. This perspective proposes that in order to completely understand composite organizational processes, it is important to inspect variables at different level of analysis (e.g individual-level, country-level and environmental). In the present study i assume this perspective by investigating the joint effect of individual-level variables (entrepreneurial cognition and innovative entrepreneurial entry) and country-level variables (societal context cultural practices).

Scholars emphasizing on social cognition observed that institutions enhance through social contact by which individuals and firms groups enhance cognition, processes and practices that explain their field (Dacin et al., 2010). Because of extended conception of human agency, social cognitive theory and a multilevel perspective is well suited to elucidate human personal development and variation in diverse cultural milieus. Therefore, i use both theories because institutional theory supports the organizational values and behaviors such as informal institutions

(societal context) and social cognitive theory supports the human functioning (entrepreneurial cognition and entrepreneurship).

4.2.1. Entrepreneurial cognition and innovative entrepreneurial entry

I put my preferences on quality of entrepreneurship such as innovative entrepreneurial entry instead of general entrepreneurship. I follow the Schumpeterian view (1934), in which entrepreneurs' important contribution to economic development with the support of innovation. Mitchell et al., (2000) define entrepreneurial cognition as the "knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth". New opportunity creation may be legitimized with the help of entrepreneurship related individual's perceptions of required skills and knowledge for new venture creation (Busenitz et al., 2000). Entrepreneurial cognition creates the nature of authenticity and cognitive context through which individuals construe information (Stenholm et al., 2013). Entrepreneurial cognition imitate the individuals related cognitive framework of their ability and nature of reality (expected performance level) and individuals self-efficacy to become participated positively in entrepreneurial activity (Bandura., 1982; Krueger et al., 2000).

The behaviours of entrepreneurial individuals are crucial towards innovative business because they create new products, services and developed new plans to perform things. Social capital has been studied at multiple level including the organizational level, societal level and individual level (Burt, 1992). Social capital supports to explaining the individual's success as individuals can exploit contracts, connections and resources that they contain for personal gain (Adler and Kwon, 2002). A number of studies are available that considers the individual-level social capital to increase entrepreneurship in countries (e.g., Hoang and Antoncic, 2003; Ruef, 2010). Some studies investigating the relationship among social capital and innovation, these studies claimed the conflicting outcome such as positive outcomes (e.g. Coleman, 1988; Knack

and Keefer, 1997; Onyx and Bullen, 2000) and negative outcomes (e.g. Dasgupta, 2000; Chou et al., 2006). Koller (1988) argues that around half of the entrepreneurs recognize the ideas for their ventures through individuals in their social network. Social capital and social links have been proved as essential determinants of identifying and exploitation of entrepreneurial opportunities (De Carolis and Saparito, 2006; Stenholm et al., 2013). Putnam (2000) claimed that, the person containing strong social association will attain better in a well-connected society comparatively a person poorly connected one to the social network. I expect appositive association between individual-level social capital and innovative entrepreneurial entry.

Opportunity recognition is an important element in the field of entrepreneurship research (Gaglio and Katz, 2001; Zortea-Johnston et al., 2012; Urbano and Turro, 2013). Entrepreneurial activity is recognized by its important role in creation, recognition and discovery of opportunities (Shane and Venkataraman, 2000). An important point, why not all individuals determine opportunities at same level (Kirzner, 1997; Shane, 2000; Shane and Venkataraman, 2000), previous research explained that entrepreneurial opportunities exist but member of different societies have different beliefs regarding the value of resources (Kirzner, 1997). Empirical research proved that opportunity perception can generate entrepreneurial intentions which outcome is entrepreneurship (Krueger et al., 2000). Some studies explain that opportunity recognition show an attitude that directly motivate the entrepreneurial intentions to increase entrepreneurship (Bosma and Schutjens, 2011). Past research examining the essential role that entrepreneurs cognitive frameworks perform in their ability to get information from individuals past experience converted to knowledge that supports them to identify and exploit entrepreneurial opportunities (Corbett, 2005, 2007). Based on above discussion expect a positive association in direct relationship at individual-level.

Self-efficacy of the entrepreneur mentions to the strength of individual's confidence that individuals will capable or not, effectively performing the duties and tasks of an entrepreneur

(Chen et al., 1998). Self-efficacy in innovative environment means (inspired self-efficacy) pushing individuals with more power and momentum with high self-reliance increase the persistence level and determine when they face encountering condition in new product development (Tierney and Farmer, 2002). External knowledge acquisition is an essential ingredient for product innovation beyond the emphasis among the connection of external and internal knowledge and its impacts on firm capabilities to new product development (Cassiman and Veugelers, 2006). Autio et al., (2013) found a positive relationship between individual's self-efficacy and early stage entrepreneurial activity. Those individuals have high level of self-efficacy are likely to have more believes in their own capability to produce innovative products. Consequently, in individual's perspective when they have entrepreneurial cognition so innovative entrepreneurship is an attractive career option. These aspects lead me to suggest that the positive relationship between entrepreneurial cognition variables such as social capital, perceived opportunity, self-efficacy and innovative entrepreneurial entry. Therefor i hypothesize

Hypothesis 4a: There is a positive relationship between social capital and the likelihood of innovative entrepreneurial entry.

Hypothesis 4b: There is a positive relationship between perceived opportunity and the likelihood of innovative entrepreneurial entry.

Hypothesis 4c: There is a positive relationship between self-efficacy and the likelihood of innovative entrepreneurial entry.

4.2.2. Relationship between entrepreneurial cognition, Institutional collectivism and innovative entrepreneurial entry

The effect of culture on entrepreneurship has been studied quite widely. Empirical research argues that every society has their own cultural values so different societies have different types of entrepreneurship (Nakata and Sivakumar, 1996; Lee and Peterson, 2000; Begley and Tan,

2001). Smith et al., (1992) argue that Individualism/collectivism is the cultural dimension that is extensively studied. Previous studies used Hofstede's individualism dimension and shows that high individualism societies increase the level of entrepreneurship (Taras et al., 2010). Another recent article used the Hofstede's individualism examined with a number of countries and found negative association in less developed countries for rate of entrepreneurial activity (Pinillos and Reyes, 2011). Institutional collectivism defined by the GLOBE as "the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action". This concept distinctions individual goal with group loyalty, whether the economic structure highlights collective or individual goals, values of being or not being recognized by the group, group cohesion versus of self-interest values.

Entrepreneurial cognition reflects issues like as individuals experience regarding to new start-up, knowledge about good opportunity recognition, perceived capability to accumulate required resources, and self-confidence regarding manage and succeed a business (Busenitz et al., 2000; Reynolds et al., 2005). North (1990) and Scott (2002) argue that informal institutions use their effects with the individual's consideration of the cultural legitimacy and social desirability of entrepreneurial activity as a career choice (Ajzen, 1991; Cassar, 2007). Institutional theorist stimulates individuals and organizational decision making process (Bruton et al., 2010). Social capital taking a sociological view of individual's action and recognized them as actors who are shaped by cultural and society's environment. Xiao and Tsui (2007) argue that network closure construct social capital instead of structural holes in collectivistic cultures. Empirical research on social capital found positive association with innovation (Hofstede, 1991; Knack and Keefer, 1997). More social capital is not only vital for the effective functioning of societies, but it also has a positive impact on innovation in knowledge based economy. Cultural characteristics of a society affect the rate of entrepreneurial activity (Hayton et al., 2002).

Tiessen (1997) claimed that collectivism increase the entrepreneurial activities in countries by leveraging exterior ties.

Kirzner (1973) recommended that entrepreneurs influenced and obtained particular knowledge and can use this knowledge to develop or exploit opportunities. The fact that no every member of society has the same information about market opportunities choose to start up. Perceived opportunity also forces the individuals to make initiative as entrepreneurship career. To recognize an opportunity it is important that the individulas have particular knowledge and information related with an opportunity (Shane, 2000). Culture gains scholars consideration because the limitations of these factors enforce on entrepreneurs, but also it has an important role to increase the business opportunities (Aldrich and Fiol, 1994). Entrepreneurial activity is for innovative individuals who are rewarded individually (Hayton et al., 2002), contains capability of risk taking behaviors regarding their market and innovation (Shane et al., 1995) and successful individuals have ability to originate fresh and unique ideas (Bhawuk and Udas, 1996). Conceptually, this type of collectivism might observe as a type of patriotism which may adoptive innovation when it inspires society-wide struggles in technology.

Individuals contain high self-efficacy and trust that they have more skills and capabilities to control the challenges, these challenges are essential in exploratory innovation instead of other managers (Yamaguchi et al., 2005). In social cognitive theory, self-efficacy denotes to the ease or trouble of executing a behaviour for worked relevant performance, and the self-reliance in individuals' ability to execute the behaviour (Cho et al., 2009). Team work supports to improve the quality and decrease the number of errors (Flynn et al., 1994). Institutional collectivism reflects the degree in which societal institutional practices and organizational practices force and reward shared distribution of resources. Wenberg et al., (2103) found that low institutional collectivism societies with higher individualistic self-efficacy increase entrepreneurial activity. Individuals with stronger self-efficacy about their competences of handling challenging

innovative tasks are probably to attain good innovative performance. I expect that low institutional collectivism societies, high entrepreneurial cognition such as social capital, perceived opportunity and self-efficacy will be more likely to innovative entrepreneurial entry. I hypothesize the following

Hypothesis 5a: In societies characterized by a low level of institutional collectivism, social capital will be more potent facilitator for innovative entrepreneurial entry.

Hypothesis 5b: In societies characterized by a low level of institutional collectivism, perceived opportunity will be more potent facilitator for innovative entrepreneurial entry.

Hypothesis 5c: In societies characterized by a low level of institutional collectivism, self-efficacy will be more potent facilitator for innovative entrepreneurial entry.

4.2.3. Relationship between entrepreneurial cognition, performance orientation and innovative entrepreneurial entry

Performance orientation is "reflects the extent to which a community encourages and rewards innovation, high standards, excellence, and performance improvement". This cultural dimension denotes the extent to which a group or society values performance improvement. This performance is evaluated by computing the degree of encouragement and rewards that collectively gives to individuals who provide better performance and seek excellence. GLOBE performance orientation cultural dimension is grounded on McClelland's idea of achieving societies. Empirical research indicates that 'know an entrepreneur is a reliable predictor for those individuals who are looking entrepreneurship as a career, though past studies have not examined any cultural differences (Arenius and Kovalainen, 2006; De Clercq and Arenius, 2006). The knowledge exchange processes highly dependent on trust (Hayton, 2005) it's key factor for social capital development (Granovetter, 1983). In such cultures, social networks and activities become highly instrumental because emphasizing on task accomplishment rather than social

integration. Individuals are likely to invest in new business creation to enhance their wealth; individuals may also see their venture as a way of inspiring, incentivizing and rewarding innovative product and services in which individuals are interested (Shefrin, 2002). I expect that in societies high performance orientation, an individuals have strong social capital will be more likely to invest in a new innovation based venture than in a nation where low level of performance orientation.

Entrepreneurial cognition is important throughout the process: Opportunities are perceived, if they not endorsed, as are the serious antecedents of perceived opportunity. Some promising models of entrepreneurship focused on cognitive process and described the importance of opportunity, cognitive infrastructure (Alvarez and Busenitz, 2001). The important aspect of performance orientation is underscored by the concept that organizations and societies manage and improve employee performance. Schumpeter (1965) argues that the importance of opportunity in entrepreneurial process as individuals defines entrepreneurs as "individuals who exploit market opportunity through technical and/or organizational innovation". Cultures, the costs are more of pursing a dissimilar and entrepreneurial opportunity that is exterior of group norms (Chakrabarty, 2009). Performance oriented culture probably inspire materialistic aim and competition to achieve such aim (Passas, 2000). Those individuals contain high level of a learning goal orientation interpret more progressive project as valuable opportunities to increase their capability and, therefore more likely to follow these types of projects. High performance orientation could inspire the local individuals to get innovation and to influence better outcome. Those nations where societies encourage individuals for performance improvement, i expect that individuals will understand in new business as the way of satisfying to those individuals who efforts to improve their product and service innovation.

Individuals selecting the entrepreneurial activity as career option established a high bar for themselves (Cassar, 2007). Self-efficacy is dependent on people's self-reliance; capabilities

and strong belief on individual's ability to conduct innovative development are to result in great level of innovative performance (e.g. Bandura, 1986). Empirical studies suggest that people contain great self-efficacy tend to gain better performance (Gist and Mitchell, 1992). Innovativeness is considered a most important element in global competitiveness (Porter and Stern, 2001) not just for organizations but also for economies. Wennberg et al., (2013) examined that performance orientation moderated the positive effect of an individual self-efficacy on the decision to start a new business. Therefore, I expect that in nations where the people have strong self-efficacy and there is a high level of performance orientation, individuals will have a positive attitude towards innovative entrepreneurial entry. The effect of entrepreneurial cognition variables such as social capital, perceived opportunity and self-efficacy should be particularly strong in societies with high performance orientation those societies contain more likely for innovative entrepreneurship. Therefore I hypothesize the following:

Hypothesis 6a: In societies characterized by a high level of performance orientation, social capital will be more potent facilitator for innovative entrepreneurial entry.

Hypothesis 6b: In societies characterized by a high level of performance orientation, perceived opportunity will be more potent facilitator for innovative entrepreneurial entry.

Hypothesis 6c: In societies characterized by a high level of performance orientation, self-efficacy will be more potent facilitator for innovative entrepreneurial entry.

4.2.4. Relationship between entrepreneurial cognition, uncertainty avoidance and innovative entrepreneurial entry

It's a general perception that cultural play an important role to explain differences instead economic variables (Noorderhaven et al., 2004). The dimension uncertainty avoidance is also very important in national culture. This dimension measured by the Hofstede and GLOBE studies. In Hofstede's study uncertainty avoidance is "the event to which the members of a

culture feel threatened by uncertain or unknown situations" (Hofstede, 1991). GLOBE study explain this dimension, "the extent to which a society, organization, or group relies on social norms, rules, and procedures to alleviate the unpredictability of future events" (House et al., 2004). Uncertainty avoidance less studied in the field of entrepreneurship rather than collectivism (Tiessen, 1997). Uncertainty avoidance explains the condition in which peoples are nervous by situations which peoples perceive as unstructured, uncertain, or unpredictable. Culture is considered by high uncertainty avoidance when individuals fell threatened by indeterminate and unidentified conditions.

Cultures incline to evade uncertainty by depending on social norms, rituals, and organizational practices to improve the unpredictability regarding coming events (House et al., 2002). Some researchers argue that innovations are linked with some certain changes and uncertainty, culture with high uncertainty avoidance is highly resistant to innovations (Shane, 1993; Waarts and van Everdingen, 2005). Two studies in previous research initiate a negative support among the relationship of uncertainty avoidance and entrepreneurial entry (Muller and Thomas, 2000; Shane, 1995). Widespread social capital within a nation can consequently support entrepreneurship (Kwon and Arenius, 2010; Stephan and Uhlaner, 2010). Audretsch (2007) found that uncertainty have an important role in entrepreneurial economy because physical capital is more certain than knowledge capital. Stronger social capital is not just essential for effectiveness functioning of societies, but social capital also have an positive impact on innovation in the knowledge economy. Those economies where social norms dependent on bureaucratic practices, peoples will see starting a new business is not safe and uncertain.

Past studies support this argument that entrepreneurial activity can flourish in conditions that most turbulent and opportunities available in market and uncertainty regarding upcoming period may encourage young generation to participate in entrepreneurial activities (Iakovleva et al., 2011). In societies perceived opportunities are obviously related at the societal level, but

perceptions are restricted to be connected to regulations and economic development at national level. In terms of what inspires of entrepreneurs to found a new business, findings specify a desire for individuality and an opportunity to create a gap as the primary reasons. Moreover, strong uncertainty avoidance for societies is intolerant of ambiguity, risk and trust on rules to handle with unknown conditions (Hofstede, 1980). Risk taking inclines to be highly pronounced in cultures that's low in term of uncertainty avoidance, whereas no differences among cultures in terms of innovativeness.

Uncertainty is mostly related for start-up entrepreneurs because at the beginning they cannot distinguish the complete range of expected outcomes (Bhide, 1994). Uncertainty avoidance practices in societies enhance the possible legitimacy cost of entrepreneurship. Self-efficacy in innovation provides more power or momentum with high self-efficacy beliefs increase the persistence level and managing employees efforts will determine when encountering tough situations in the new product development (Tierney and Farmer, 2002). Social cognitive theory provides prominence to the idea of self-efficacy, which is explained as individual's belief in his or her ability to achieve a particular task (Bandura, 1997). The individualism, power distance and uncertainty avoidance defined variation in innovation rate of countries (Shane, 1993). People of high uncertainty avoidance societies seek to reduce the probability on unpredictable upcoming events that could negatively affect the process of society and remedy the achievement of such adverse effects. Wennberg et al., (2013) have examined the effect of self-efficacy on the choice of entrepreneurial entry and found that uncertainty avoidance moderated the negative effect of self-efficacy on the choice to starting new business. Therefore, I expect that in societies characterized by a lower level of uncertainty avoidance, an individual have strong social capital, perceived opportunity self-efficacy those economies individuals will be more likely to starting a new innovative business. Based on above discussion i hypothesize the following:

Hypothesis 7a: In societies characterized by a low level of uncertainty avoidance, social capital will be more potent facilitator for innovative entrepreneurial entry.

Hypothesis 7b: In societies characterized by a low level of uncertainty avoidance, perceived opportunity will be more potent facilitator for innovative entrepreneurial entry.

Hypothesis 7c: In societies characterized by a low level of uncertainty avoidance, self-efficacy will be more potent facilitator for innovative entrepreneurial entry.

4.3. Methodology

4.3.1. Sample and Data Collection

I used multiple data sources to construct my database. Cross sectional panel dataset used in this study. This study depends on a two level framework such as (1) individual-level and (2) country-level. My proposed dependent variables, independent variables and individual-level control variables are gathered from (APS) Global Entrepreneurship Monitor from 2001 to 2008. The GEM is a worldwide project, they are looking to perceive whether and to which extent of entrepreneurship varies across borders; which kind of activities makes a country more entrepreneurial; and how these activities effect the economic growth. GEM project developed as joint research project between two universities, the London Business School (UK) and Babson College (USA) in 1999 with ten countries. Every year each participating country collects random samples of the adult population survey controlled by the professional survey research firms, at-least 2000 randomly selected individuals between the ages of 18 to 64 years.

To test my hypothesis all individual level data come from GEM and national level cultural variables obtained from GLOBE Global Leadership and Organizational Behavior study (House et al., 2004). I used four control variables at individual level from GEM and although four control variables at national level, from which two cultural dimensions were obtained from GLOBE study and remaining two was obtained from political risk services. After combining all

data sources from 2001 to 2008, 43 countries and 267,882 interviews were available at individual level.

4.3.2. Measures

4.3.2.1. Individual-level variables (level 1)

My dependent variable is an innovative entrepreneurial entry to measure that, i use two questions from APS Global Entrepreneurship Monitor dataset. These questions are (1) the newness level of product or services presented by the entrepreneurs, (2) the number of competitors providing similar product or service in the marketplace. Based on above questions measured innovative entry of individuals businesses such as the product and services are offered by the individuals are relatively new, not familiar with more customers and not provided in competition place by the other competitors, deliberated as innovative entrepreneurial entry. I combined two questions and coded my dependent variable between 0 and 1. Those individuals succeeded as a nascent entrepreneur or new entrepreneur and providing new product and services to all customers or some customers in a competition place where there are rare or no competitors offers the same product or service is equal to 1 (one) and those individuals not meet above criteria considered as 0 (zero).

Entrepreneurial cognition is an important element of individuals. Individual's inspirations and perceptions are important predictors for entrepreneurial entry (Krueger and Carsrud, 1993). Entrepreneurial cognitions are distinct to be "the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth" (Mitchell et al., 2002). In this study, i used social capital (know an entrepreneur), perceived opportunity and self-efficacy as entrepreneurial cognition which is used in the current past study (Stenholm et al., 2013).

Know an entrepreneur, is a binary variable and based on the 'yes' and 'no' (0 = no, 1 = yes) replied to the question: "Do you know someone personally who started a business in the past two years". Empirical research found 'know an entrepreneur' as a strong predictor of entrepreneurship related activities, however past studies have not examined any cultural differences (Arenius and Kovalainen, 2006; De Clercq and Arenius, 2006). *Perceived Opportunity,* this binary variable is based on 'yes' and 'no' (0 = no, 1 = yes) replied to the question: "in the next six months there would be good opportunities for starting a business in the area where you live". Perceived opportunity since the likelihood of entrepreneurship related activities has been associated with the opportunities available in the environment (Shane and Venkataraman, 2000). *Self-efficacy,* research on entrepreneurship has shown that individual's perception of ability to opportunity recognition and self-efficacy towards entrepreneurship related activities are positively linked to enhancing the entrepreneurship (Arenius and Minniti, 2005). This is also a binary variable coded 'yes' and 'no' (0 = no, 1 = yes) asked the following question "who believe to have the required skills and knowledge to start a business".

Table 10. Sample descriptives.

	N	Entry=0	Entry=1	% Entry	IC	PO	UA
Argentina	4653	4442	211	4.53	3.66	3.63	3.63
Australia	3590	3471	119	3.31	4.31	4.37	4.4
Austria	1436	1405	31	2.16	4.34	4.47	5.1
Bolivia	1275	1199	76	5.96	3.96	3.57	3.32
Brazil	5220	5161	59	1.13	3.94	4.11	3.74
Canada	2886	2820	66	2.29	4.36	4.46	4.54
China	5396	5266	130	2.41	4.67	4.37	4.81
Colombia	4359	4029	330	7.57	3.84	3.93	3.62
Denmark	10849	10643	206	1.90	4.93	4.4	5.32
Ecuador	794	764	30	3.78	3.82	4.06	3.63
Egypt	1179	1153	26	2.21	4.36	4.15	3.97
Finland	4699	4600	99	2.11	4.77	4.02	5.11
France	7853	7768	85	1.08	4.2	4.43	4.66
Germany	17549	17271	278	1.58	3.67	4.16	5.19
Greece	3594	3510	84	2.34	3.41	3.34	3.52

Hong Kong	2169	2115	54	2.49	4.03	4.69	4.17
Hungary	6018	5991	27	0.45	3.63	3.5	3.26
India	4135	4083	52	1.26	4.25	4.11	4.02
Indonesia	1239	1169	70	5.65	4.27	4.14	3.92
Ireland	2807	2697	110	3.92	4.57	4.3	4.25
Israel	3823	3760	63	1.65	4.4	4.03	3.97
Italy	2675	2651	24	0.90	3.75	3.66	3.85
Japan	4769	4723	46	0.96	5.23	4.22	4.07
Kazakhstan	1013	1001	12	1.18	4.38	3.72	3.76
Korea	3578	3487	91	2.54	5.2	4.53	3.52
Malaysia	847	796	51	6.02	4.45	4.16	4.59
Mexico	5107	4954	153	3.00	3.95	3.97	4.06
Netherlands	5986	5837	149	2.49	4.62	4.46	4.81
New Zealand	1372	1340	32	2.33	4.96	4.86	4.86
Philippines	1451	1416	35	2.41	4.37	4.21	3.69
Poland	2018	2013	5	0.25	4.51	3.96	3.71
Portugal	1338	1320	18	1.35	4.02	3.65	3.96
Russia	2466	2454	12	0.49	4.57	3.53	3.09
Singapore	5225	5135	90	1.72	4.77	4.81	5.16
South Africa	5942	5735	207	3.48	4.47	4.72	4.64
Spain	52851	51697	1154	2.18	3.87	4	3.95
Sweden	6289	6230	59	0.94	5.26	3.67	5.36
Switzerland	4626	4519	107	2.31	4.2	5.04	5.42
Thailand	6132	5902	230	3.75	3.88	3.84	3.79
Turkey	3149	3079	70	2.22	4.02	3.82	3.67
UK	44094	42995	1099	2.49	4.31	4.16	4.7
United States	10021	9654	367	3.66	4.21	4.45	4.15
Venezuela	1410	1368	42	2.98	3.96	3.41	3.55

Notes: N is the total number of observations per country.
Entry=0 represent the individuals in particular country have not considered as innovative.
Entry=1 represent the individuals in particular country have considered as innovative.
%Entry shows the percentage of individuals per country identified as innovative entrepreneurial entry.
Source: Adult Population Survey (APS) from Global Entrepreneurship Monitor (GEM) 2001 – 2008.
IC = Institutional collectivism.
PO = Performance orientation.
UA = Uncertainty avoidance.
Source: (GLOBE) Globe Leadership and Organizational Behaviour (House et al., 2004) used national scores of the cultural practices.

4.3.2.2. Country-level predictor variables (level 2)

Cultural variables are less studied with entrepreneurship comparatively macroeconomic variables of the country. I used frequently studied cultural variables for societal context at country level in which includes such as institutional collectivism, uncertainty avoidance and performance

orientation (e.g. Wennberg et al., 2013; Autio et al., 2013). Institutional collectivism "the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action" [p. 30]. Institutional collectivism is the cultural dimension that is most likely to inspiration resources allocation to innovation. Institutional theorist inspires individuals and organizational decision making (Bruton et al., 2010). Performance orientation "reflects the extent to which a community encourages and rewards innovation, high standards, excellence, and performance improvement" [pp. 30, 239]. Performance orientation imitates the societies existing practices regarding innovation, improvement and reward system. Uncertainty Avoidance, "the extent to which a society, organization, or group relies on social norms, rules, and procedures to alleviate the unpredictability of future events" [p. 30]. Uncertainty avoidance explains the condition in which peoples are nervous by situations which peoples perceive as unstructured, uncertain, or unpredictable.

4.3.2.3. Cross level interaction terms

Nine interaction terms were made to test my hypothesis. Mean standardized Z-scores used for all country level variables because data comes from different sources and measuring scale were different from each other's, z-scores provides the measures with standard reference point (mean=0 and standard deviation=1) such that comparison will be meaningful and z-scores reduce the chances of multi-collinearity. All three dimensions of societal context (institutional collectivism, performance orientation, uncertainty avoidance) country level cultural practices were multiplied with the individual level entrepreneurial cognition variables (social capital, perceived opportunity, self-efficacy) to produce the nine interaction terms for innovative entrepreneurial entry.

4.3.2.4. Individual-level control variables

Control variables in addition to the three predictor variables, i included four individual –level control variables in my model. I obtained all variables from GEM data-set, that haven been exposed to strongly correlate with innovative entrepreneurial entry.

Gender, i also included two demographic variables, one of them is gender have strong influence on innovative entrepreneurial entry. Women tend to exhibit lower rates of entrepreneurial behavior than men, the respondents' gender with '1' indicating male and '2' indicating female. *Age,* another demographic variable is age and individual's age is an essential influence on entrepreneurial entry (Bosma et al., 2009). Range between 18 and 64 years old respondents which were measured as a continuous variable (i.e. number of years). *Education* and *Household income* have been associated with entry into entrepreneurship. In GEM data-set, household income with a three-step income tier scale, lower average (1), average (2), upper average (3). I controlled for education with a five-step categorical scale toward higher levels of education, none (0), some secondary (1), secondary (2), post-secondary (3) and graduate experience is equal to (4).

4.3.2.5. Country-level control variables

In addition to country level cultural practices added four country level control variables, two were obtained from GLOBE study such as *assertiveness, in-group collectivism* and other two were obtained from Political Risk Services such as *GDP per capital* and *population size* which have an influence on innovative entrepreneurial entry.

Assertiveness, the degree to which individuals are assertive, confrontational, and aggressive in their relationships with others. *In-group collectivism,* the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families. These two cultural dimensions have association with country level predictor and dependent variable.

Previous research suggests that a country's level of economic development influence the nature and distribution of entrepreneurial activity (Stel et al., 2005). I also use the *GDP per capital* (gross domestic product) and *population size* (in millions) for each country from 2001 to 2008. All country level variables were z-standardized because they were obtained from different data sources so scores of each variable contains different interpretation from others.

4.4. Results

My objective is to examine (1) the individual-level effects of entrepreneurial cognition (social capital, perceived opportunity and self-efficacy) with individual's innovative entrepreneurial entry, (2) the interaction effects by which the three country-level cultural measures such as institutional collectivism, performance orientation and uncertainty avoidance moderate the effect

Table 11. Descriptive statistics.

	N	Min	Max	Mean	S.D
Individual-level variables					
Innovative entrepreneurial entry	267,882	0	1	0.02	0.15
Age	267,882	18	64	40.85	12.50
Gender	267,882	1	2	1.51	0.50
Education	267,882	0	4	2.26	1.08
Household income	267,882	1	3	1.90	0.79
Social capital	267,882	0	1	0.39	0.48
Perceived opportunity	267,882	0	1	0.36	0.47
Self-efficacy	267,882	0	1	0.49	0.50
Country-level variables					
GDP per capital (PPP), USD	43	475	62,527	27,720	15,318
Population in million	43	3.90	1,321	101	225.2
Assertiveness	43	3.41	4.77	4.25	0.30
In-group collectivism	43	3.46	6.14	4.86	0.73
Institutional collectivism	43	3.41	5.26	4.20	0.42
Performance orientation	43	3.34	5.04	4.13	0.31
Uncertainty avoidance	43	3.09	5.42	4.36	0.59

of the individual entrepreneurial cognition on an individual's innovative entrepreneurial entry. I adopted a four-step testing strategy for examining the effect on individual's innovative entrepreneurial entry.

Table 11 provides the descriptive statistics for all study variables. Table 12 shows the correlation matrix for individual-level and country-level controls and predictors used in this study. To check for possible multicollinearity issues, i computed variance inflation factor (VIF) scores for all variables included in the study. None of the VIF scores exceeds 5.2, which is evidence of no multicollinearity between variables (Bowerman and O'Connell, 1990), and represent that the analyzing model not infected by multicollinearity.

Mostly empirical research examining hypothesis at individual level, when peoples nested in national borders, they should depend on multi-level models when ICCs present significant national differences in individual level variables (Bliese, 2000; Hofmann et al., 2000). This work also perform this step to meet the multilevel requirement, first i assessed multilevel logistic regressions model without any predictor and control variable called as null model. The ICC, the quantity of total variance contributed by the national level variance component as habitually used in cross-cultural research (Peterson and Castro, 2006) estimated how much of the variance in the dependent variables resided among countries owing to national level characteristics such as culture in my study. Table 13 Colum 2, shows that regression yields an ICC of 10.75, which explains that 10.75% of the variance in innovative entrepreneurial entry resided between countries. The ICC value shows significant variance thus requiring a multi-level analysis.

4.4.1. Direct effects

Table 13 represents the random effect logistic regression models effects on innovative entrepreneurial entry. I adopted a four-step testing strategy to analyze my hypothesis. First step, i added no variable in my random effect logistic regression model called the null model (Colum 2 of Table 13 for innovative entrepreneurial entry). Second step i added (Colum 3 of Table 13) all the individual-level control and predictor variables in the model to estimate the proportion of variance explained by these individual-level variables. This step helped me to isolate the

proportion of the outstanding variance additional explained by the addition of the national level control and predictor in my third step. In my third step, i added country-level control as well as societal context, country-level predictors to estimate their influence on innovative entrepreneurial entry (Colum 4 Table 13). Finally 4rth step, i added the interaction terms of each dimension of societal context; national level three cultural practices were multiplied with the individual level entrepreneurial cognition variables to produce the nine interaction terms for innovative entrepreneurial entry. The variance components of random intercept decrease from .43 in the null model (Colum 2 Table 13) to .27 in (Colum 4 Table 13).

Colum 3 and 4 of Table 13 report the odd ratio (OR), where OR > 1 indicated a positive relationship and OR < 1 indicates a negative relationship. Colum 5 to 13 reports the beta coefficients of the mixed effect logistic regression. Colum 4 of Table 13 shows the direct effect of entrepreneurial cognition and national level predictors' cultural practices (Institutional-collectivism, uncertainty avoidance and performance orientation) on innovative entrepreneurial entry.

Individuals with high social capital are on average around two times (OR = 1.89, $p< 0.000$) more likely to enter into innovative entrepreneurship instead of those individuals have low social capital. These findings support my individual-level Hypothesis 1a. Individuals with more perceived opportunity more than two time more likely to enter in innovative entrepreneurship (OR = 2.05, $p< 0.000$) rather than individuals have lower perceived opportunities. This supports my individual level Hypothesis 1b. Individuals have high self-efficacy around 6 times more likely to enter into innovative entrepreneurial entry (OR = 5.67, $p< 0.000$). This supports my individual level Hypothesis 1c. Individual level social capital, perceived opportunity and self-efficacy positively associated with innovative entrepreneurial entry. I did not officially hypothesize direct effect of societal context on innovative

Table 12. Correlation matrix.

	1	2	3	4	5	6	7	8	9	10	11	12	12	14	15
Individual-level variables															
1. Innovative entrepreneurial entry	1														
2. Age	-.031**	1													
3. Gender	-.032**	.010**	1												
4. Education	.046**	-.090**	-.021**	1											
5. Household income	.028**	-.020**	-.084**	.207**	1										
6. Social capital	.088**	-.120**	-.111**	.107**	.123**	1									
7. Perceived opportunity	.092**	-.051**	-.076**	.089**	.056**	.214**	1								
8. Self-efficacy	.122**	-.004	-.154**	.097**	.100**	.252**	.216**	1							
Country-level variables															
9. GDP per capital (PPP), USD	-.005*	.145**	.016**	.229**	-.020**	-.030**	.046**	-.006**	1						
10. Population in million	-.001	-.051**	-.034**	-.050**	-.023**	.063**	.009**	.008**	-.333**	1					
11. Assertiveness	-.006**	.020**	-.001	-.053**	.023**	-.030**	-.077**	.006**	.173**	-.274**	1				
12. In-group collectivism	.009**	-.111**	-.034**	-.152**	.019**	.037**	-.072**	.022**	-.653**	.240**	.022**	1			
13. Institutional collectivism	-.011**	.027**	.002	.153**	.022**	.012**	.054**	-.086**	.237**	.098**	-.598**	-.455**	1		
14. Performance orientation	.005**	.016**	.001	.045**	.031**	-.004*	.008**	-.056**	.294**	.101**	.112**	-.320**	.426**	1	
15. Uncertainty avoidance	-.013**	.088**	.015**	.060**	.015**	.007**	.049**	-.062**	.522**	-.005**	-.016**	-.714**	.441**	.564**	1

Note: correlation matrix based N = 267,882.

Table 13.
Multilevel logistic regression predicting innovative entrepreneurial entry, 2001–2008.

	1	2	3	4	5	6	7
Fixed part estimates							
Individual-level							
Age			0.98***(0.00)	0.98***(0.00)	-0.01***(0.00)	-0.01***(0.00)	-0.01***(0.00)
Gender			0.86***(0.02)	0.86***(0.02)	-0.15***(0.02)	-0.15***(0.02)	-0.15***(0.02)
Education			1.20***(0.02)	1.19***(0.02)	0.18***(0.01)	0.17***(0.01)	0.17***(0.01)
Household income			1.04**(0.02)	1.05**(0.02)	0.05**(0.02)	0.05**(0.02)	0.05**(0.02)
Social capital	**H4a**		1.90***(0.05)	**1.89***(0.05)**	0.65***(0.03)	0.64***(0.03)	0.64***(0.03)
Perceived opportunity	**H4b**		2.06***(0.06)	**2.05***(0.06)**	0.72***(0.03)	0.72***(0.03)	0.71***(0.03)
Self-efficacy	**H4c**		5.69***(0.23)	**5.67***(0.23)**	1.73***(0.04)	1.73***(0.04)	1.73***(0.04)
Country-level							
GDP per capital (PPP), USD				1.42***(0.06)	0.35***(0.04)	0.35***(0.04)	0.35***(0.04)
Population in million				0.96(0.06)	-0.03(0.07)	-0.03(0.07)	-0.03(0.07)
Assertiveness				0.78*(0.08)	-0.24*(0.10)	-0.24*(0.10)	-0.24*(0.10)
In-group collectivism				1.27(0.16)	0.25(0.13)	0.25(0.13)	0.25(0.13)
Institutional collectivism				0.75*(0.09)	-0.33**(0.12)	-0.30*(0.12)	-0.27*(0.12)
Performance orientation				1.35**(0.13)	0.30**(0.10)	0.30**(0.10)	0.30**(0.10)
Uncertainty avoidance				0.89(0.11)	-0.12(0.13)	-0.12(0.13)	-0.12(0.13)
Interaction effects (cross level)							
Social capital * Institutional collectivism	**H5a**				**0.07*(0.03)**		
Perceived opportunity * Institutional collectivism	**H5b**					**0.03(0.03)**	
Self-efficacy * Institutional collectivism	**H5c**						**-0.02(0.04)**
Random part estimates							
Variance of intercept		0.43(0.10)	0.30(.07)	0.27(0.07)	0.27(0.07)	0.27(0.07)	0.27(0.07)
Intra-class correlation (ICC)		10.75	7.58	6.77	6.77	6.77	6.77
Model fit statistics							
Number of observation		267,882	267,882	267,882	267,882	267,882	267,882
Number of group (countries)		43	43	43	43	43	43
Degree of freedom (number of variables)		0	7	14	15	15	15
Chi-square		-	4524.13	4593.56	4593.95	4593.10	4591.71
Probability > chi-square		-	***	***	***	***	***
Log likelihood		-29,106	-25,992	-25,948	-25,946	-25,948	-25,948
Likelihood ratio (LR) test for goodness of fit		***	***	***	***	***	***

Table 13 - Continued

	1	8	9	10	11	12	13
Fixed part estimates							
Individual-level							
Age		-0.01***(0.00)	-0.01***(0.00)	-0.01***(0.00)	-0.01***(0.00)	-0.01***(0.00)	-0.01***(0.00)
Gender		-0.15***(0.03)	-0.15***(0.03)	-0.15***(0.02)	-0.15***(0.03)	-0.15***(0.03)	-0.14***(0.03)
Education		0.18***(0.01)	0.17***(0.01)	0.17***(0.01)	0.18***(0.01)	0.17***(0.01)	0.17***(0.01)
Household income		0.05**(0.02)	0.06**(0.02)	0.05**(0.02)	0.05**(0.02)	0.05**(0.02)	0.05**(0.02)
Social capital		0.64***(0.03)	0.64***(0.03)	0.64***(0.03)	0.66***(0.03)	0.63***(0.03)	0.64***(0.03)
Perceived opportunity		0.72***(0.03)	0.72***(0.03)	0.72***(0.03)	0.71***(0.03)	0.73***(0.03)	0.71***(0.03)
Self-efficacy		1.73***(0.04)	1.73***(0.04)	1.73***(0.04)	1.73***(0.04)	1.73***(0.04)	1.75***(0.04)
Country-level							
GDP per capital (PPP), USD		0.35***(0.04)	0.35***(0.04)	0.35***(0.04)	0.35***(0.04)	0.35***(0.04)	0.35***(0.04)
Population in million		-0.03(0.06)	-0.03(0.04)	-0.03(0.07)	-0.03(0.07)	-0.03*(0.07)	-0.03(0.07)
Assertiveness		-0.24*(0.10)	-0.24*(0.07)	-0.24*(0.10)	-0.24*(0.10)	-0.24*(0.10)	-0.25*(0.10)
In-group collectivism		0.25+(0.13)	0.25+(0.10)	0.25+(0.13)	0.25+(0.13)	0.25+(0.13)	0.25*(0.13)
Institutional collectivism		-0.28*(0.12)	-0.28*(0.13)	-0.28*(0.12)	-0.28*(0.12)	-0.29*(0.12)	-0.29*(0.12)
Performance orientation		0.26*(0.10)	0.28*(0.12)	0.25*(0.11)	0.30**(0.10)	0.29**(0.10)	0.30**(0.10)
Uncertainty avoidance		-0.12(0.13)	-0.12(0.10)	-0.12(0.13)	-0.21(0.13)	-0.16(0.13)	-0.26(0.14)
Interaction effects (cross level)							
Social capital * Performance orientation	**H6a**	**0.05+(0.03)**					
Perceived opportunity * Performance orientation	**H6b**		**0.03(0.03)**				
Self-efficacy * Performance orientation	**H6c**			**0.05(0.04)**			
Social capital * Uncertainty avoidance	**H7a**				**0.12***(0.03)**		
Perceived opportunity * Uncertainty avoidance	**H7b**					**0.06*(0.03)**	
Self-efficacy * Uncertainty avoidance	**H7c**						**0.16***(0.04)**
Random part estimates							
Variance of intercept		0.27(0.07)	0.27(0.07)	0.27(0.07)	0.27(0.07)	0.27(0.07)	0.27(0.07)
Intra-class correlation (ICC)		6.77	6.77	6.77	6.77	6.77	6.77
Model fit statistics							
Number of observation		267,882	267,882	267,882	267,882	267,882	267,882
Number of group (countries)		43	43	43	43	43	43
Degree of freedom (number of variables)		15	15	15	15	15	15
Chi-square		4594.00	4593.51	4594.96	4600.54	4594.05	4591.63
Probability > chi-square		***	***	***	***	***	***
Log likelihood		-25,947	-25,948	-25,948	-25,941	-25,946	-25,941
Likelihood ratio (LR) test for goodness of fit		***	***	***	***	***	***

Notes: Standard errors are in parentheses. Bold values indicate variables testing the hypotheses. *** p < 0.001, **p < 0.01, *p < 0.05, + p < 0.10. All tests of significances two-tailed. ORs above 1 represent a positive relationship, ORs below 1 represent a negative relationship, ORs in columns 3, 4 all represent a positive relationship; columns 5–13 report beta coefficients because its needed to plot the interactions.

Chi-square and probability evaluations are not feasible from a chi-square, null model contain no variables in it, and reason numbers are not reported in Column 2.Statistically significant likelihood ratio suggests that the group-level (country in my case) variable cannot be ignored as un-important, thus necessitating multi-level analyses

entrepreneurial entry, summarizing them in order. I found one-unit standard deviation change in institutional collectivism decrease the innovative entrepreneurial entry by .25% (1 - .75; $p < 0.05$). Furthermore a one-unit standard deviation change in performance orientation increases the innovative entrepreneurial entry by 1.35% ($p < 0.05$). Finally i found a one-unit standard deviation change in uncertainty avoidance decrease the innovative entrepreneurial entry by 11% (1 - .89; $p< 0.05$).

4.4.2. Moderating effects

To investigate Hypothesis H5a-H7c (Colum 5-13 of Table 13) i introduced cross level moderation effects between entrepreneurial cognition variables and societal context variables. The moderators successfully avoid the multicollinearity. The estimates in model 5-13 reported as beta coefficients of the logistic regression because odd ratios would not meaningful for interpretation of one unit standard deviation change in interaction terms as opposite to the ORs

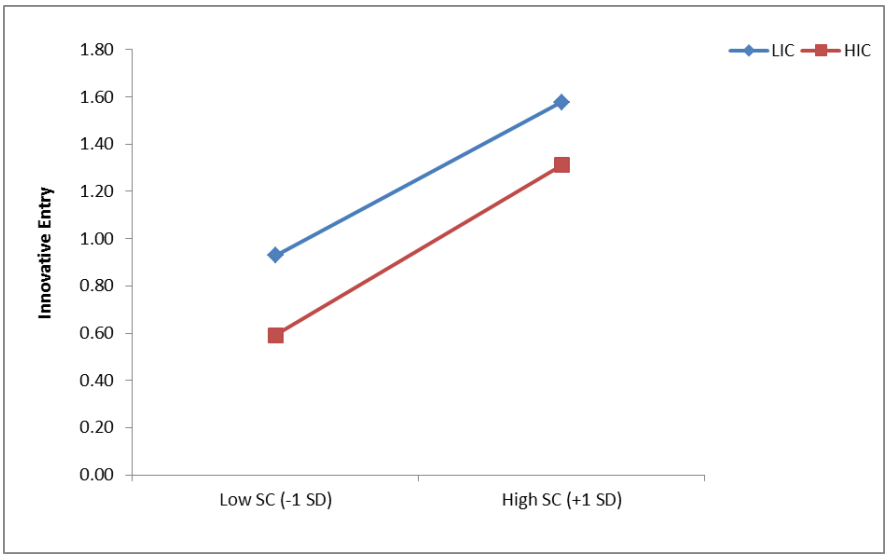

Figure 11: *Interaction between individual-level social capital and country-level institutional collectivism.*

reported in Colum 3 and 4 of Table 13. I therefor plotted the unstandardized solution for the two-way interaction between a continuous variable and a dummy-coded dichotomous moderator for all significant interaction terms. All plotted figures show the interaction among high and low

level of entrepreneurial cognition variables and societal context variables. Predicted values of the interactions terms also permitted me to ascertain the directionality of cross-level effects.

Figure 11 plots the interaction between higher and lower level of institutional collectivism and social capital, examined in Column 5 of Table 13. By comparing the ending

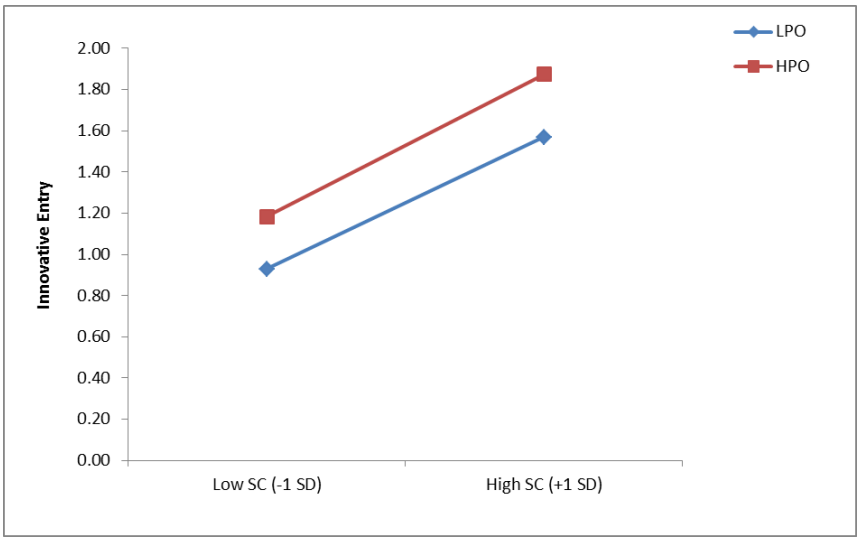

Figure 12: *Interaction between individual-level social capital and country-level performance orientation.*

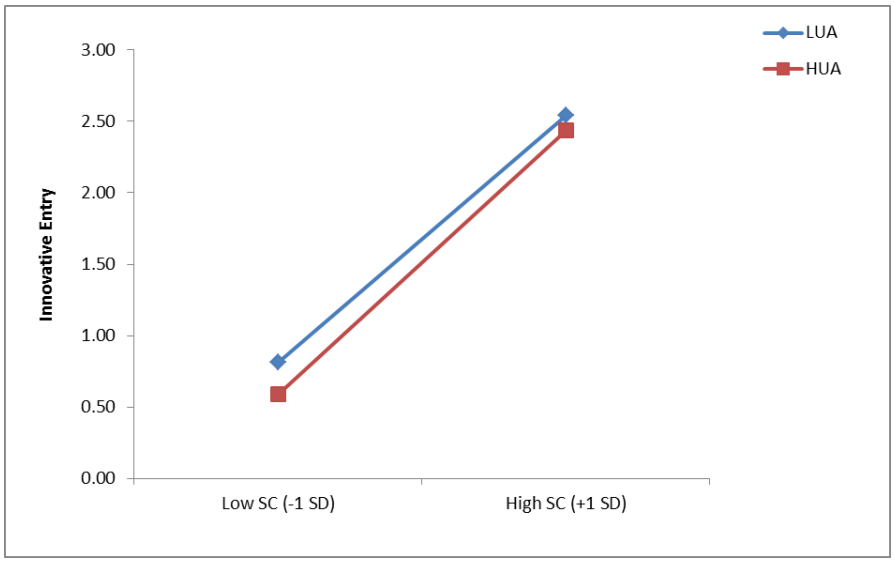

Figure 13: *Interaction between individual-level social capital and country-level uncertainty avoidance.*

point of lines, i found the differences between high and low amount of social capital to a 65% increase in innovative entrepreneurial entry with countries have low institutional collectivism and countries with high institutional collectivism 72% increase in innovative entrepreneurship. This affirms my hypothesis 5a.

Figure 12 plots the interaction between high and low level of performance orientation and social capital, which is observed in Table 13 Column 8. I compare the ending points of lines and

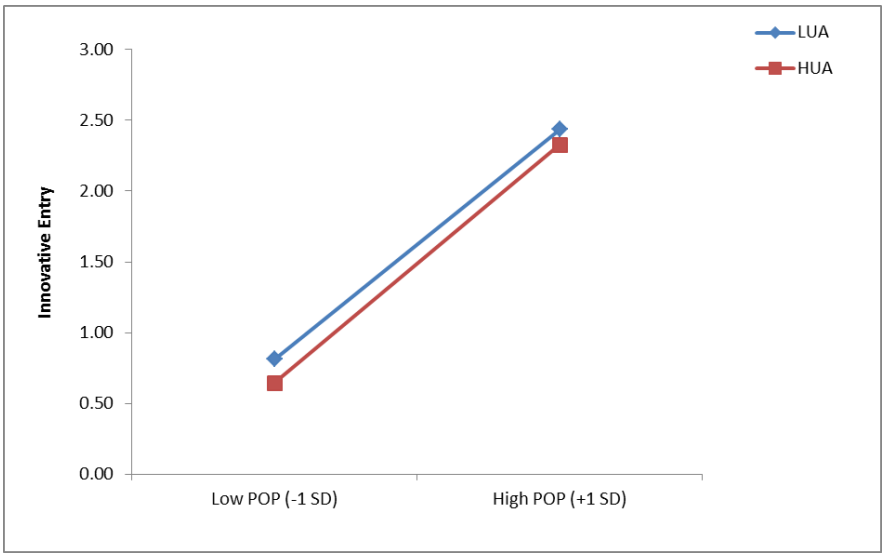

Figure 14: *Interaction between individual-level perceived opportunity and country-level uncertainty avoidance.*

found the differences among higher and lower level of opportunity perception to a 64% decrease in innovative entrepreneurial entry with low performance orientation countries and 69% decrease in countries with high performance orientation. This affirms my hypothesis 6a.

Figure 13 plots the interaction between high and low uncertainty avoidance and social capital, which is observed in Table 13 column 11. By discussing the ending point of lines i observe the differences among high and low amount of social capital to a 1.73 with countries have lower uncertainty avoidance and countries with high uncertainty avoidance are at 1.85, which shows that 12% more increase in likelihood of innovative entrepreneurial entry with

societies have high institutional collectivism rather than low institutional collectivism societies. This affirms my hypothesis 7a.

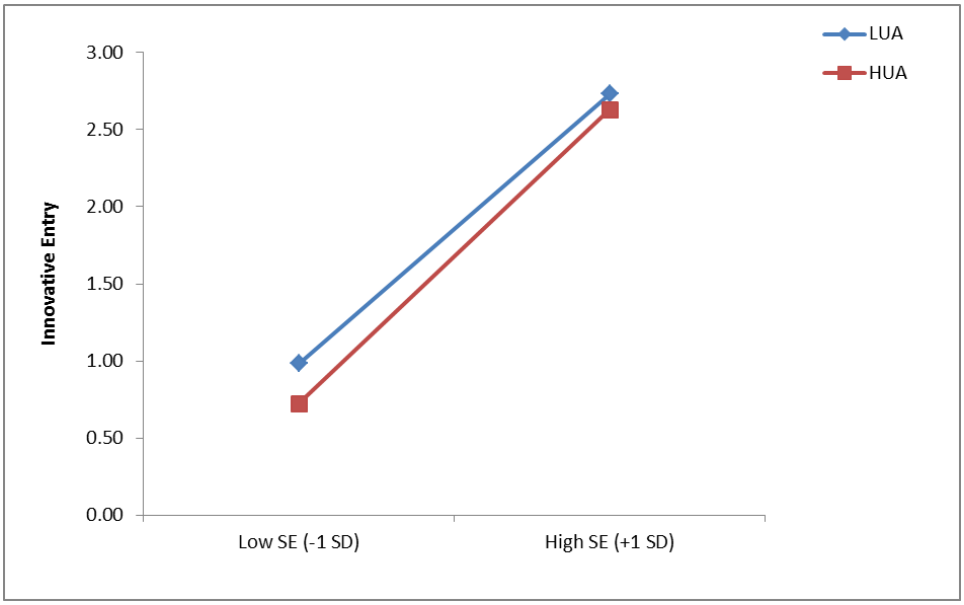

Figure 15: *Interaction between individual-level self-efficacy and country-level uncertainty avoidance.*

Figure 14 plots the interaction between higher and lower level of uncertainty avoidance and perceived opportunity, examined in Column 12 of Table 13. By comparing the ending point of lines, i found the difference between lower and higher degree of opportunity perception to a lower uncertainty avoidance societies are 1.63 and high uncertainty avoidance societies are 1.69, which explains that 6% more individuals likelihood to engage in innovative entrepreneurial with high uncertainty avoidance countries. This affirms my hypothesis 7b.

Figure 15 shows the interaction between higher and lower level of self-efficacy and uncertainty avoidance, investigated in Colum 13 Table 13. By discussing the ending points of lines i found the changes in higher and lower amounts of self-efficacy with low uncertainty avoidance countries are 1.75 and societies with high uncertainty avoidance are 1.91, that is the evidence high uncertainty avoidance countries individuals are 16% more likely to enter in

innovative entrepreneurship instead of low uncertainty avoidance countries. Therefore, results support my Hypothesis 7c.

CHAPTER 5

"ROBUSTNESS CHECKS"

5.1. Introduction

As we know entrepreneurship has an important role in countries economic development. It provides employment opportunities, increases the level of technological innovation and encourages countries economic development and growth (Audretsch and Fritsch, 1999; Fritsch and Mueller, 2004; van Stel and Storey, 2004). Thus, the relationship between entrepreneurial activities and countries economic development has been studied widely. Countries in terms of entrepreneurship rate, type and institutional factors are different form each other's. Some types of entrepreneurship are more important than others. Acs et al., (2008) and Acs (2006) claimed that if more concentration placed on opportunity based entrepreneurship rather than necessity based entrepreneurship the result will be the better for countries economic development. Acs and Varga (2005) found that opportunity entrepreneurship has positive effect on growth and economic development. Aparicio et al., (2016) also identified that opportunity entrepreneurship impact countries economic growth. Empirical research proved that institutional factors have an important role in explaining the entrepreneurial activities at both individual and national level (Aparicio et al., 2016).

In recent period a common approach is conducted in empirical research is called "robustness check". It's applied by the researchers to investigate how certain "core" coefficient estimates of regression perform when specification of regression is altered in particular way by adding or removing characteristics in regression. Leamer (1983) highly supported this type of investigations and claim that brittleness of coefficient estimates of regression is indicate of a specific error, this core analysis (i.e., robustness checks) this type of analysis routinely applied to regression models to identify misspecification. Lu and White (2014) in a recent article argue that

during the year 2009, 98 articles published in "The American Economic Review" from which 76 were involved in empirical investigations from these 76 studies 23 were conducted robustness checks with the suitable regression analysis. Banos-Caballero et al., (2012) argue that if do not accommodate these difficulties, results estimations might be hardly affected. Although, robustness check was applied in this study in terms of avoidance unobservable heterogeneity and most probably endogeneity to control and minimize the effects. In this chapter my main goal is the robustness checks over the foundlings obtained from previous chapters by examining the

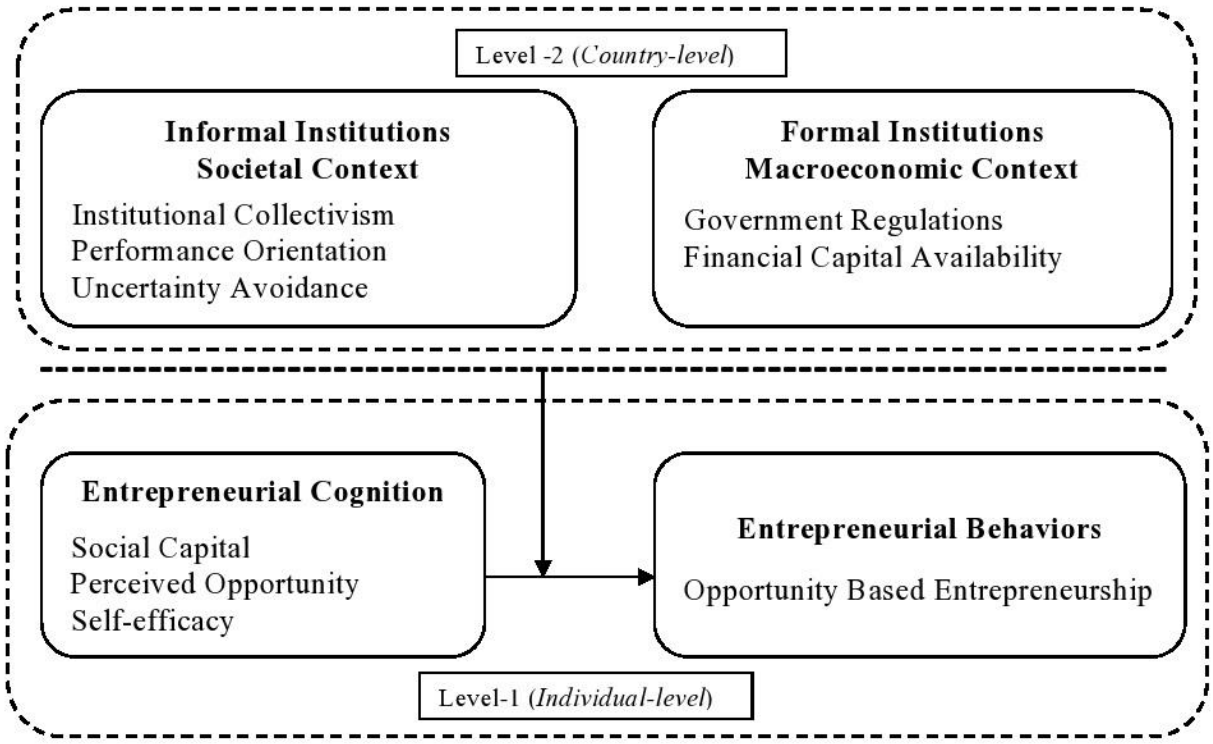

Fig. 16. Research model

relationship between individual-level entrepreneurial cognition and opportunity based entrepreneurship and how country level formal institutions (macroeconomic context) and informal institutions (societal context) moderate the relationship illustrated in Figure 16.

5.2. Methodology

5.2.1. Sample and procedures

Multiple data sources used to construct my cross sectional panel dataset. Two level frame work used in this study, level-1 represents individual level and level-2 represent country level. My dependent variable (opportunity based entrepreneurship), individual level predictor and control variables obtained from APS Global Entrepreneurship Monitor (GEM). To test my hypothesis data used (2001-2008).

To access, country-level macroeconomic context with respect to government regulations and financial capital availability data came from different, commonly accepted sources, including the Index of Economic Freedom (IEF; Gwartney et al., 1996) and Political Risk Services (PRS). Global Entrepreneurship Monitor data supplemented with country level macroeconomic context variables – with four country level and four individual level control variables, this operationalization provides me 190,015 observations for 48 countries between years 2001 to 2008.

For country-level societal context with respect to institutional collectivism, performance orientation and uncertainty avoidance data obtained from Global Leadership and Organizational Behaviour (GLOBE) study of 62 countries (House et al., 2004). Global Entrepreneurship Monitor data supplemented with societal context variables and provide me 267,882 observations after adding the four country level and four individual level control variables for 43 countries between years 2001 to 2008.

5.2.2. Measures

For robustness check my dependent variable is opportunity based entrepreneurship obtained from Adult Population Survey GEM. Percentage of 18-64 year old individuals who are either

nascent entrepreneurs or owner-managers of new businesses (Total early stage Entrepreneurial Activity) who (1) claim to be driven by opportunity instead of necessity and (2) who indicate the main driver for being involved in this opportunity is being independent or increasing their income. Those individuals are involved in nascent entrepreneurs who involved in setting a new business and the business has paid salaries or any other payments not more than 3 months and new owner-managers are those individuals who currently own and managing a business, also business has paid the salaries and any other payments to the owner but not more than 42 months. The all predictors and controls variables are same as used in previous chapters.

5.3. PHASE ONE (macroeconomic context)

Table 14. Sample descriptives

Country	*N*	Entry=1	Entry=0	% Entry	GR	FCA
Argentina	1173	155	1018	13	55.07	81.92
Australia	880	118	762	13	80.31	312.7
Austria	638	21	617	3	76.37	225.59
Belgium	2093	89	2004	4	78.86	341.07
Brazil	5220	424	4796	8	60.4	313.21
Canada	694	73	621	10	78.76	441.47
Chile	4245	509	3736	11	77.37	50.24
China	3808	476	3332	12	49.36	1202.73
Colombia	4359	681	3678	15	62.17	54.9
Czech Republic	1163	64	1099	5	74.99	52.89
Denmark	7815	347	7468	4	79.53	166.22
Dominican Republic	2319	363	1956	15	57	10.45
Ecuador	794	117	677	14	58.09	15.69
Egypt	1179	179	1000	15	59.56	47.93
Finland	2402	213	2189	9	81.49	117.47
France	3042	59	2983	2	68.29	1326.88
Germany	2884	168	2716	6	78.25	1641.18
Greece	2778	215	2563	8	63.07	159.25
Hungary	2211	132	2079	6	73.1	57.02
India	2395	273	2122	11	52.29	355.3
Indonesia	1239	251	988	20	51.7	109.51
Iran	1633	141	1492	9	40.79	93.53
Ireland	2807	259	2548	9	86.35	403.8
Israel	1643	103	1540	6	70.7	60.57
Italy	1197	61	1136	5	67.28	987.93

Jamaica	3447	485	2962	14	71.93	4.06
Japan	2392	129	2263	5	73.63	2095.25
Malaysia	847	148	699	17	59.83	58.45
Mexico	4383	295	4088	7	67.65	254.55
Netherlands	3088	249	2839	8	82.23	592.37
Norway	1544	177	1367	11	71.9	221.45
Peru	4080	1070	3010	26	65.01	34.14
Philippines	1451	203	1248	14	56.47	39.32
Portugal	618	79	539	13	71.11	138.81
Romania	1833	36	1797	2	65.14	67.88
Russia	1451	42	1409	3	51.71	480.02
Singapore	1987	126	1861	6	85.63	102.83
South Africa	2728	197	2531	7	64.67	84.66
Spain	46464	3091	43373	7	73.58	793.79
Sweden	2840	89	2751	3	77.29	242.69
Switzerland	1481	71	1410	5	78.93	378.32
Thailand	5168	581	4587	11	61.07	71.19
Turkey	3149	143	3006	5	62.85	183.85
UK	32026	2240	29786	7	84.55	2474.37
UAE	1285	153	1132	12	58.24	96.47
United States	3566	466	3100	13	82.9	5098.86
Uruguay	2166	224	1942	10	66.92	8.1
Venezuela	1410	204	1206	14	46.42	59.71

N shows total amount of individual for whom data was available for a given country from 2001 to 2008.
Entry=1 respondents involved in total early stage opportunity based entrepreneurship for a given country
Entry=0 respondents are not involved in total early stage opportunity based entrepreneurship for a given country
Entry% represents the respondents per country who are identified as opportunity based entrepreneur.
Source: GEM (2001 - 2008).
GR= government regulations, average score over the all available years for each country from 2001to 2008.
Source: Index of Economic Freedom
FCA= financial capital availability, average score over the all available years for each country from 2001to 2008.
Source: Political Risk Services.

5.3.1. Results

My objective is to examine the robustness checks (1) the individual-level effects of entrepreneurial cognition (social capital, perceived opportunity and self-efficacy) with individual's involved in opportunity based entrepreneurship, (2) the interaction effects by which the two country level macroeconomic context such as government regulations and financial capital availability moderate the effect of the individual entrepreneurial cognition on an

opportunity based entrepreneurship. I adopted a four-step testing strategy for examining the effect on opportunity based entrepreneurship.

Table 15. Descriptive statistics.

	N	Min	Max	Mean	SD
Individual-level variables					
Opportunity based entrepreneurship	190,015	0	1	0.08	0.27
Age	190,015	18	64	40.58	12.49
Gender	190,015	1	2	1.50	0.50
Education	190,015	1	4	2.32	1.12
Household income	190,015	1	3	1.84	0.79
Social Capital	190,015	0	1	0.42	0.49
Perceived Opportunity	190,015	0	1	0.40	0.49
Self-efficacy	190,015	0	1	0.54	0.49
Country-level variables					
Demographic pressure	48	1.6	9.0	4.55	1.77
Group Grievance	48	1.0	9.0	5.13	1.69
Individualism	48	8.0	91.0	54.59	23.94
Uncertainty Avoidance	48	8.0	100.0	63.60	25.26
Govt. regulations	48	285.50	605.70	506.56	70.93
Financial capital availability	48	23.95	31819.92	5351.06	6236.20

Table 14 show the sample descriptives used in this study. Table 15 provides the descriptive statistics for all study variables. Table 16 shows the correlation matrix for individual-level and country-level controls and predictors used in this study. To check for possible multicollinearity issues, i computed variance inflation factor (VIF) scores for all variables included in the study. None of the VIF scores exceeds 5.2, which is evidence of no multicollinearity between variables. Table 17 shows the random effect logistic regression models effects on opportunity based entrepreneurship. Colum 3 and 4 of Table 17 report the odd ratio (OR), where OR > 1 indicated a positive relationship and OR < 1 indicates a negative relationship. Colum 5 to 10 reports the beta coefficients of the mixed effect logistic regression. Colum 4 of Table 17 shows the direct effect of entrepreneurial cognition and national level predictors' macroeconomic context on opportunity based entrepreneurship.

Table 16. Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Individual-level variables														
Opportunity based entrepreneurship	1													
Age	-.072**	1												
Gender	-.062**	.012**	1											
Education	.044**	-.084**	-.017**	1										
Household income	.064**	-.024**	-.085**	.207**	1									
Social Capital	.150**	-.135**	-.108**	.093**	.126**	1								
Perceived Opportunity	.145**	-.066**	-.073**	.051**	.053**	.214**	1							
Self-efficacy	.210**	-.029**	-.139**	.065**	.094**	.247**	.212**	1						
Country-level variables														
Demographic pressure	.072**	-.173**	-.018**	-.180**	.001	.085**	.048**	.064**	1					
Group Grievance	.031**	-.102**	-.017**	-.124**	-.063**	.027**	-.027**	.029**	.614**	1				
Individualism	-.076**	.154**	.029**	.174**	-.071**	-.100**	-.031**	-.071**	-.641**	-.481**	1			
Uncertainty Avoidance	-.004	-.045**	-.031**	-.053**	.076**	.013**	-.088**	.011**	.117**	.324**	-.464**	1		
Govt. regulations	-.060**	.159**	.036**	.168**	-.056**	-.108**	-.036**	-.062**	-.807**	-.571**	.760**	-.345**	1	
Financial capital availability	-.025**	.125**	.027**	.121**	-.086**	-.092**	-.069**	-.033**	-.347**	-.150**	.677**	-.342**	.540**	1

Table 17. Effects on individual-level opportunity based entrepreneurship (ORs for Colum 3, 4 beta-coefficients for Colum's 5–10)

	1	2	3	4	5	6	7
Fixed part estimates							
Individual-level							
Age			0.98***(0.00)	0.98***(0.00)	-0.02***(0.00)	-0.02***(0.00)	-0.02***(0.00)
Gender			0.80***(0.01)	0.80***(0.01)	-0.21***(0.02)	-0.21***(0.02)	-0.21***(0.02)
Education			1.09***(0.01)	1.09***(0.01)	0.09***(0.01)	0.09***(0.01)	0.09***(0.01)
Household income			1.17***(0.01)	1.17***(0.01)	0.16***(0.01)	0.16***(0.01)	0.16***(0.01)
Social capital	**H8a**		1.76***(0.03)	**1.76***(0.03)**	0.58***(0.02)	0.57***(0.02)	0.57***(0.02)
Perceived opportunity	**H8b**		1.85***(0.03)	**1.85***(0.03)**	0.61***(0.02)	0.61***(0.02)	0.62***(0.02)
Self-efficacy	**H8c**		5.24***(0.14)	**5.24***(0.14)**	1.65***(0.03)	1.66***(0.03)	1.73***(0.03)
Country-level							
Demographic pressure				1.05(0.04)	0.05(0.04)	0.05(0.04)	0.05(0.04)
Group Grievance				1.01(0.04)	0.01(0.04)	0.01(0.04)	0.01(0.04)
Individualism				0.88(0.06)	-0.13*(0.07)	-0.13(0.07)	-0.13*(0.07)
Uncertainty Avoidance				.83*(0.07)	-0.19*(0.08)	-0.19*(0.08)	-0.19*(0.08)
Govt. regulations				1.02(0.06)	-0.03(0.06)	-0.02(0.06)	-0.21**(0.06)
Financial capital availability				1.01(0.05)	0.01(0.05)	0.02(0.05)	0.01(0.05)
Interaction effects (cross level)							
Social capital * Govt. regulations	**H9a**				**0.07***(0.02)**		
Perceived opportunity * Govt. regulations	**H9b**					**0.06***(0.02)**	
Self-efficacy * Govt. regulations	**H9c**						**0.27***(0.02)**
Random part estimates							
Variance of intercept		0.39(0.08)	0.24(.05)	0.18(0.04)	0.18(0.04)	0.18(0.04)	0.18(0.04)
Intra-class correlation (ICC)		9.79	6.10	4.6	4.6	4.6	4.6
Model fit statistics							
Number of observation		190,015	190,015	190,015	190,015	190,015	190,015
Number of group (countries)		48	48	48	48	48	48
Degree of freedom (number of variables)		0	7	13	14	14	14
Chi-square		-	9026.87	9043.07	9066.29	9058.11	8966.73
Probability > chi-square		-	***	***	***	***	***
Log likelihood		-53,063	-46,941	-46,934	-46,924	-46,926	-46,859
Likelihood ratio (LR) test for goodness of fit		***	***	***	***	***	***

Table 17 - *continued*

	1	8	9	10
Fixed part estimates				
Individual-level				
Age		-0.02***(0.00)	-0.02***(0.00)	-0.02***(0.00)
Gender		-0.21***(0.02)	-0.21***(0.02)	-0.21***(0.02)
Education		0.09***(0.01)	0.09***(0.01)	0.09***(0.01)
Household income		0.16***(0.01)	0.16***(0.01)	0.16***(0.01)
Social capital		0.56***(0.02)	0.56***(0.02)	0.56***(0.02)
Perceived opportunity		0.61***(0.02)	0.61***(0.02)	0.61***(0.02)
Self-efficacy		1.65***(0.03)	1.65***(0.03)	1.66***(0.03)
Country-level				
Demographic pressure		0.05(0.04)	0.05(0.04)	0.05(0.04)
Group Grievance		0.01(0.04)	0.01(0.04)	0.01(0.04)
Individualism		-0.13(0.07)	-0.13(0.07)	-0.13(0.07)
Uncertainty Avoidance		-0.19*(0.08)	-0.19*(0.08)	-0.19*(0.08)
Govt. regulations		0.02(0.06)	0.02(0.06)	0.02(0.06)
Financial capital availability		-0.04(0.05)	-0.05(0.05)	-0.18**(0.05)
Interaction effects (cross level)				
Social capital * Financial capital availability	**H10a**	**0.09***(0.02)**		
Perceived opportunity * Financial capital availability	**H10b**		**0.10***(0.02)**	
Self-efficacy * Financial capital availability	**H10c**			**0.24***(0.03)**
Random part estimates				
Variance of intercept		0.18(0.04)	0.18(0.04)	0.18(0.04)
Intra-class correlation (ICC)		4.6	4.6	4.6
Model fit statistics				
Number of observation		190,015	190,015	190,015
Number of group (countries)		48	48	48
Degree of freedom (number of variables)		14	14	14
Chi-square		9073.78	9074.56	8988.27
Probability > chi-square		***	***	***
Log likelihood		-46,918	-46,914	-46,900
Likelihood ratio (LR) test for goodness of fit		***	***	***

Notes: Standard errors are in parentheses. Bold values indicate variables testing the hypotheses. *** p < 0.001, **p < 0.01, *p < 0.05, + p < 0.10. All tests of significances two-tailed. ORs above 1 represent a positive relationship, ORs below 1 represent a negative relationship, ORs in columns 3, 4 all represent a positive relationship; columns 5–10 report beta coefficients because its needed to plot the interactions.

Chi-square and probability evaluations are not feasible from a chi-square, null model contain no variables in it, and reason numbers are not reported in Column 2. Statistically significant likelihood ratio suggests that the group-level (country in my case) variable cannot be ignored as un-important, thus necessitating multi-level analyses.

Individuals with high social capital, perceived opportunity, self-efficacy in direct relationship with opportunity based entrepreneurship are in the same row as i found in previous chapter relationship between entrepreneurial cognition and innovative entrepreneurial entry. Thus supports my hypothesis 8a, 8b and 8c.

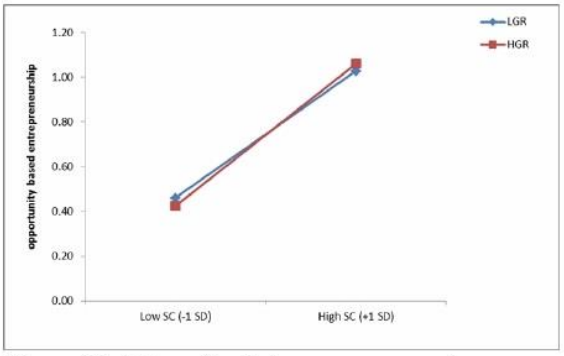

Figure 17: *Interaction between government regulations and social capital*

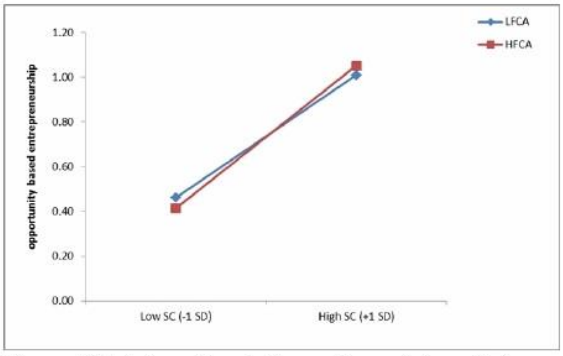

Figure 20: *Interaction between financial capital availability and social capital*

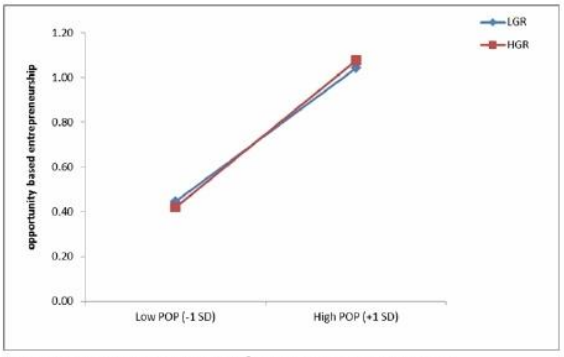

Figure 18: *Interaction between government regulations and perceived opportunity*

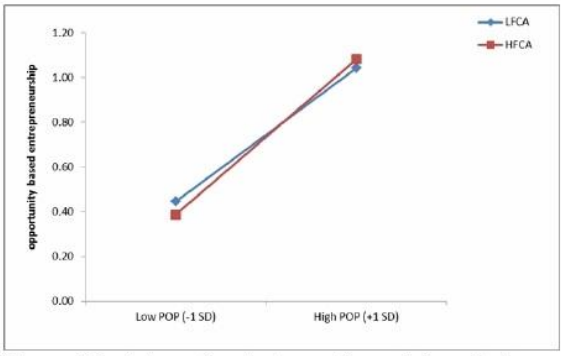

Figure 21: *Interaction between financial capital availability and perceived opportunity*

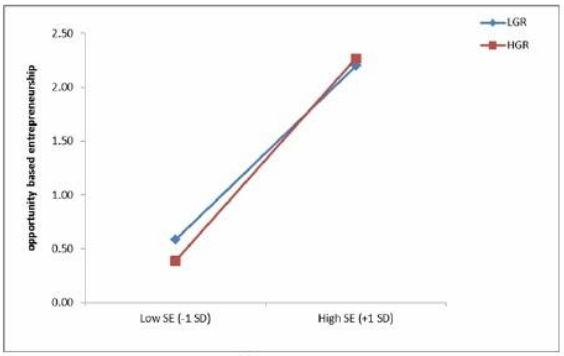

Figure 19: *Interaction between government regulations and self-efficacy*

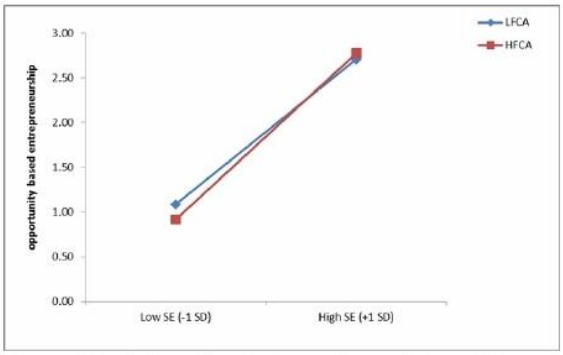

Figure 22: *Interaction between financial capital availability and self-efficacy*

To test the interaction terms i plotted the unstandardized solution for the two-way interaction between a continuous variable and a dummy-coded dichotomous moderator. By comparing the ending points of lines of *Figure 17*, i found the difference between higher and lower amounts of social capitals a 57% increase in opportunity based entrepreneurship where government regulations are lower and 64% increase in those countries where government regulations are higher. This supports Hypothesis 9a. In *Figure 18* difference among the high and low level of perceived opportunity a 58% increase in the individuals likelihood of opportunity entrepreneurship where government regulations are lower and 66% increase in high government regulation countries. This supports Hypothesis 9b. By comparing the *Figure 19*, i observe that the variation between high and low amount of self-efficacy and government regulations a 26% increase in individuals to opportunity based entrepreneurship where government regulations are higher rather than low government regulation countries. This result highly supports to my Hypothesis 9c.

Table 17 Colum 8-10 represents the interaction terms between entrepreneurial cognition and opportunity based entrepreneurship moderated by the financial capital availability. Based on Column 8 Table 17 plotted the unstandardized solution for the two-way interaction. By discussing the *Figure 20*, i found the difference between higher and lower level of social capital a 55% increase in opportunity based entrepreneurship where financial capital availability is lower and countries with high financial capital availability 64% increase so its support my Hypothesis 10a. *Figure 21* shows the difference between lower and higher level of perceived opportunity a 59% increase in opportunity based entrepreneurship with lower amount of financial capital availability countries and 69% increase with more financial capital availability countries. These outcomes support my Hypothesis 10b. By comparing the ending lines of *Figure 22* found the variation between high and low amount of self-efficacy and financial capital

availability a 23% increase in countries with high financial capital availability rather than low financial capital availability countries. This affirms my hypothesis 10c.

5.4. PHASE TWO (societal context)

5.4.1. Results

My dataset is a cross sectional panel dataset grouped by the countries, gathering observation at two levels, country-level and individual level. The second phase of current chapter was to examine the (1) direct effect between individual-level social capital, perceived opportunity, self-efficacy and opportunity based entrepreneurship, (2) the interaction effects by the three country-level – institutional collectivism, performance orientation, uncertainty avoidance moderate the effect of individual-level entrepreneurial cognition variables and opportunity based entrepreneurship illustrated in Figure 16.

In Table 18, present the sample descriptives. Table 19 show the mean, standard deviation and other sample descriptives for all study variables. Table 20 present the correlations matrix. Table 21 represents the associations on individual's likelihood of opportunity based entrepreneurship. The variance inflation factors (VIF) are below the 5.5 for all study variables, thus multi-collinearity is not an issue for my analysis.

Table 18. Sample descriptives

	N	Entry=0	Entry=1	% Entry	IC	PO	UA
Argentina	4653	4223	430	9	3.66	3.63	3.63
Australia	3590	3255	335	9	4.31	4.37	4.4
Austria	1436	1344	92	6	4.34	4.47	5.1
Bolivia	1275	948	327	26	3.96	3.57	3.32
Brazil	5220	4796	424	8	3.94	4.11	3.74
Canada	2886	2641	245	8	4.36	4.46	4.54
China	5396	4802	594	11	4.67	4.37	4.81
Colombia	4359	3678	681	16	3.84	3.93	3.62
Denmark	10849	10323	526	5	4.93	4.4	5.32
Ecuador	794	677	117	15	3.82	4.06	3.63

Egypt	1179	1000	179	15	4.36	4.15	3.97
Finland	4699	4359	340	7	4.77	4.02	5.11
France	7853	7666	187	2	4.2	4.43	4.66
Germany	17549	16700	849	5	3.67	4.16	5.19
Greece	3594	3317	277	8	3.41	3.34	3.52
Hong Kong	2169	2042	127	6	4.03	4.69	4.17
Hungary	6018	5767	251	4	3.63	3.5	3.26
India	4135	3779	356	9	4.25	4.11	4.02
Indonesia	1239	988	251	20	4.27	4.14	3.92
Ireland	2807	2548	259	9	4.57	4.3	4.25
Israel	3823	3655	168	4	4.4	4.03	3.97
Italy	2675	2547	128	5	3.75	3.66	3.85
Japan	4769	4593	176	4	5.23	4.22	4.07
Kazakhstan	1013	913	100	10	4.38	3.72	3.76
Korea	3578	3271	307	9	5.2	4.53	3.52
Malaysia	847	699	148	17	4.45	4.16	4.59
Mexico	5107	4742	365	7	3.95	3.97	4.06
Netherlands	5986	5559	427	7	4.62	4.46	4.81
New Zealand	1372	1206	166	12	4.96	4.86	4.86
Philippines	1451	1248	203	14	4.37	4.21	3.69
Poland	2018	1948	70	3	4.51	3.96	3.71
Portugal	1338	1236	102	8	4.02	3.65	3.96
Russia	2466	2405	61	2	4.57	3.53	3.09
Singapore	5225	4889	336	6	4.77	4.81	5.16
South Africa	5942	5595	347	6	4.47	4.72	4.64
Spain	52851	49207	3644	7	3.87	4	3.95
Sweden	6289	6085	204	3	5.26	3.67	5.36
Switzerland	4626	4332	294	6	4.2	5.04	5.42
Thailand	6132	5379	753	12	3.88	3.84	3.79
Turkey	3149	3006	143	5	4.02	3.82	3.67
UK	44094	41228	2866	6	4.31	4.16	4.7
United States	10021	8924	1097	11	4.21	4.45	4.15
Venezuela	1410	1206	204	14	3.96	3.41	3.55

N shows total amount of individual for whom data was available for a given country from 2001 to 2008.
Entry=1 respondents involved in total early stage opportunity based entrepreneurship for a given country,
Entry=0 respondents are not involved in total early stage opportunity based entrepreneurship for a given country,
Entry% represents the respondents per country who are identified as opportunity based entrepreneur.
Source: Adult Population Survey (APS) from Global Entrepreneurship Monitor (GEM) 2001 – 2008.
IC = Institutional collectivism.
PO = Performance orientation.
UA = Uncertainty avoidance.
Source: (GLOBE) Globe Leadership and Organizational Behaviour (House et al., 2004) used national scores of the cultural practices.

Table 21 represents the multi-level estimates. Column 4 of Table 21 present the influence of individual-level social capital, perceived opportunity, self-efficacy on opportunity based

entrepreneurship reported as odd ratios. Individual's with high social capital are on average around two times (OR = 1.86, $p < 0.000$) more likely, individuals with high perceived opportunity almost two times (OR = 1.92, $p < 0.000$) likelihood and individuals with high amount of self-efficacy almost six times (OR = 5.81, $p < 0.000$) more likelihood to enter into opportunity based entrepreneurship rather than individuals particularly contain lower amount of social capital, perceived opportunity and self-efficacy. These findings support to my individual-level direct effect Hypothesis11a, Hypothesis11b and Hypothesis11c. Column 4 of Table 21, also represent the relationships between institutional collectivism, performance orientation, uncertainty avoidance and opportunity based entrepreneurship.

Table 19. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Individual-level variables					
Opportunity based entrepreneurship	267,882	0	1	0.07	0.25
Age	267,882	18	64	40.85	12.50
Gender	267,882	1	2	1.51	0.50
Education	267,882	0	4	2.26	1.08
Household income	267,882	1	3	1.90	0.79
Social capital	267,882	0	1	0.39	0.48
Perceived opportunity	267,882	0	1	0.36	0.47
Self-efficacy	267,882	0	1	0.49	0.50
Country-level variables					
GDP per capital (PPP), USD	43	475	62527	27719	15318
Population in million	43	3.90	1321.50	100.96	225.28
Assertiveness	43	3.41	4.77	4.25	0.30
In-group collectivism	43	3.46	6.14	4.86	0.73
Institutional collectivism	43	3.41	5.26	4.20	0.42
Performance orientation	43	3.34	5.04	4.13	0.31
Uncertainty avoidance	43	3.09	5.42	4.36	0.59

Although, I did not hypothesize these associations but summarize these effects in order. These findings support the direct relationship between macroeconomic context and innovative entrepreneurial entry. To investigate the interaction terms of hypothesis H12a – H14c, i plotted the unstandardized solution for the two-way interaction between a continuous variable and a dummy-coded dichotomous moderator which investigated in Table 21 Column 5-13.

Figure 23 shows the relationship between institutional collectivism and social capital on opportunity based entrepreneurship. By comparing the ending point of lines I found the difference between higher and level of social capital a 62% increase in opportunity based entrepreneurship where institutional collectivism is lower and countries with high institutional collectivism 72% increase in likelihood of opportunity based entrepreneurship. This supports my Hypothesis 12a. By discussing the *Figure 24*, i observe the change among high and low amount of perceived opportunity a 62% increase with lower institutional collectivism countries and 67% increase in opportunity based entrepreneurship with countries contain high level of institutional collectivism. This outcome supports my Hypothesis 12b.

By comparing the ending point of lines of *Figure 25*, show the differences among higher and lower amounts of social capital a 60% decrease in opportunity based entrepreneurship with countries with low performance orientation and 68% decrease in countries with high performance orientation. This affirms my Hypothesis 13a. *Figure 26* explain the differences between high and low amount of perceived opportunity and found a 61% decrease in likelihood of opportunity based entrepreneurship in countries where performance orientation is lower and 66% decrease in countries where performance orientation is higher. This supports my Hypothesis 13b.

The next *Figure 27* shows the relationship among the social capital and uncertainty avoidance. By discussing the above mentioned figure i found the changes among high and low level of social capital a 63% increase in opportunity based entrepreneurship with countries contain low level of uncertainty avoidance and 74% increase in countries with high uncertainty avoidance. This result supports my Hypothesis 14a. I found some differences by discussing *Figure 28* which shows the variation between higher and lower amount of perceived opportunity a 61% increase

Table 20. Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Individual-level variables															
1. Opportunity based entrepreneurship	1														
2. Age	-.060**	1													
3. Gender	-.064**	.010**	1												
4. Education	.058**	-.090**	-.021**	1											
5. Household income	.063**	-.020**	-.084**	.207**	1										
6. Social capital	.150**	-.120**	-.111**	.107**	.123**	1									
7. Perceived opportunity	.144**	-.051**	-.076**	.089**	.056**	.214**	1								
8. Self-efficacy	.213**	-.004	-.154**	.097**	.100**	.252**	.216**	1							
Country-level variables															
9. GDP per capital (PPP), USD	-.037**	.145**	.016**	.229**	-.020**	-.030**	.046**	-.006**	1						
10. Population in million	.028**	-.051**	-.034**	-.050**	-.023**	.063**	.009**	.008**	-.333**	1					
11. Assertiveness	-.032**	.020**	-.001	-.053**	.023**	-.030**	-.077**	.006**	.173**	-.274**	1				
12. In-group collectivism	.035**	-.111**	-.034**	-.152**	.019**	.037**	-.072**	.022**	-.653**	.240**	.022**	1			
13. Institutional collectivism	-.016**	.027**	.002	.153**	.022**	.012**	.054**	-.086**	.237**	.098**	-.598**	-.455**	1		
14. Performance orientation	-.005*	.016**	.001	.045**	.031**	-.004*	.008**	-.056**	.294**	.101**	.112**	-.320**	.426**	1	
15. Uncertainty avoidance	-.040**	.088**	.015**	.060**	.015**	.007**	.049**	-.062**	.522**	-.005**	-.016**	-.714**	.441**	.564**	1

Table 21. Multilevel logistic regression predicting opportunity based entrepreneurship, 2001–2008.

	1	2	3	4	5	6	7	8
Fixed part estimates								
Individual-level								
Age			0.98***(0.00)	0.98***(0.00)	-0.02***(0.00)	-0.02***(0.00)	-0.02***(0.00)	-0.02***(0.00)
Gender			0.81***(0.01)	0.81***(0.01)	-0.21***(0.02)	-0.21***(0.02)	-0.21***(0.02)	-0.21***(0.02)
Education			1.12***(0.01)	1.12***(0.01)	0.11***(0.01)	0.11***(0.01)	0.11***(0.01)	0.11***(0.01)
Household income			1.15***(0.01)	1.15***(0.01)	0.15***(0.01)	0.15***(0.01)	0.15***(0.01)	0.15**(0.01)
Social capital	**H11a**		1.86***(0.03)	**1.86***(0.03)**	0.64***(0.02)	0.62***(0.02)	0.62***(0.02)	0.62***(0.02)
Perceived opportunity	**H11b**		1.92***(0.03)	**1.92***(0.03)**	0.64***(0.02)	0.66***(0.02)	0.65***(0.02)	0.65***(0.02)
Self-efficacy	**H11c**		5.82***(0.13)	**5.81***(0.13)**	1.75***(0.02)	1.76***(0.02)	1.76***(0.02)	1.76***(0.02)
Country-level								
GDP per capital (PPP), USD				1.20***(0.06)	0.18***(0.02)	0.18***(0.02)	0.18***(0.02)	0.18***(0.02)
Population in million				1.01(0.06)	0.01(0.05)	0.01(0.05)	0.01(0.05)	0.01(0.05)
Assertiveness				0.76***(0.08)	-0.27***(0.07)	-0.27***(0.07)	-0.26***(0.07)	-0.27***(0.07)
In-group collectivism				1.15(0.16)	0.14(0.09)	0.14(0.09)	0.14(0.09)	0.14(0.09)
Institutional collectivism				0.83*(0.09)	-0.26*(0.08)	-0.21*(0.08)	-0.18*(0.09)	-0.18*(0.08)
Performance orientation				1.25**(0.13)	0.23**(0.07)	0.23**(0.07)	0.23**(0.07)	0.17*(0.07)
Uncertainty avoidance				0.80*(0.11)	-0.22*(0.09)	-0.22*(0.09)	-0.22*(0.09)	-0.22*(0.09)
Interaction effects (cross level)								
Social capital * Institutional collectivism	**H12a**				**0.11*(0.02)**			
Perceived opportunity * Institutional collectivism	**H12b**					**0.05*(0.02)**		
Self-efficacy * Institutional collectivism	**H12c**						**-0.01(0.02)**	
Social capital * Performance orientation	**H13a**							**0.09***(0.02)**
Random part estimates								
Variance of intercept		0.34(0.07)	0.19(.04)	0.14(0.03)	0.14(0.03)	0.14(0.03)	0.14(0.03)	0.14(0.03)
Intra-class correlation (ICC)		8.57	4.85	3.6	3.6	3.6	3.6	3.6
Model fit statistics								
Number of observation		267,882	267,882	267,882	267,882	267,882	267,882	267,882
Number of group (countries)		43	43	43	43	43	43	43
Degree of freedom (number of variables)		0	7	14	15	15	15	15
Chi-square		-	13014.73	13077.96	13088.57	13079.07	13075.77	13084.63
Probability > chi-square		-	***	***	***	***	***	***
Log likelihood		-67,417	-58,445	-58,406	-58,388	-58,403	-58,406	-58,394
Likelihood ratio (LR) test for goodness of fit		***	***	***	***	***	***	***

Table 21 - Continued

	1	9	10	11	12	13
Fixed part estimates						
Individual-level						
Age		-0.02***(0.00)	-0.02***(0.00)	-0.02***(0.00)	-0.02***(0.00)	-0.02***(0.00)
Gender		-0.21***(0.02)	-0.21***(0.02)	-0.21***(0.02)	-0.21***(0.02)	-0.21***(0.02)
Education		0.11***(0.01)	0.11***(0.01)	0.11***(0.01)	0.11***(0.01)	0.11***(0.01)
Household income		0.15**(0.01)	0.15**(0.01)	0.15**(0.01)	0.15**(0.01)	0.15**(0.01)
Social capital		0.62***(0.02)	0.62***(0.02)	0.65***(0.02)	0.62***(0.02)	0.62***(0.02)
Perceived opportunity		0.65***(0.02)	0.65***(0.02)	0.65***(0.02)	0.65***(0.02)	0.65***(0.02)
Self-efficacy		1.76***(0.02)	1.76***(0.02)	1.76***(0.02)	1.76***(0.02)	1.77***(0.02)
Country-level						
GDP per capital (PPP), USD		0.18***(0.02)	0.18***(0.02)	0.18***(0.02)	0.18***(0.02)	0.18***(0.02)
Population in million		0.01(0.05)	0.01(0.05)	0.01(0.05)	0.01(0.05)	0.01(0.05)
Assertiveness		-0.27***(0.07)	-0.27***(0.07)	-0.27***(0.07)	-0.27***(0.07)	-0.27***(0.07)
In-group collectivism		0.14(0.09)	0.14(0.09)	0.14(0.09)	0.14(0.09)	0.14(0.09)
Institutional collectivism		-0.18*(0.08)	-0.18*(0.08)	-0.18*(0.08)	-0.19*(0.08)	-0.19*(0.08)
Performance orientation		0.19**(0.07)	0.25**(0.07)	0.23**(0.07)	0.23**(0.07)	0.23**(0.07)
Uncertainty avoidance		-0.22*(009)	-0.22*(009)	-0.30**(0.09)	-0.24*(0.09)	-0.30**(0.10)
Interaction effects (cross level)						
Perceived opportunity * Performance orientation	**H13b**	**0.05**(0.02)**				
Self-efficacy * Performance orientation	**H13c**		**-0.02(0.02)**			
Social capital * Uncertainty avoidance	**H14a**			**0.12***(0.02)**		
Perceived opportunity * Uncertainty avoidance	**H14b**				**0.04*(0.02)**	
Self-efficacy * Uncertainty avoidance	**H14c**					**0.10***(0.02)**
Random part estimates						
Variance of intercept		0.14(0.03)	0.14(0.03)	0.14(0.03)	0.14(0.03)	0.14 (0.03)
Intra-class correlation (ICC)		3.6	3.6	3.6	3.6	3.6
Model fit statistics						
Number of observation		267,882	267,882	267,882	267,882	267,882
Number of group (countries)		43	43	43	43	43
Degree of freedom (number of variables)		15	15	15	15	15
Chi-square		13079.16	13073.43	13095.51	13077.47	13075.58
Probability > chi-square		***	***	***	***	***
Log likelihood		-58,402	-58,406	-58,383	-58,403	-58,397
Likelihood ratio (LR) test for goodness of fit		***	***	***	***	***

Notes: Standard errors are in parentheses. Bold values indicate variables testing the hypotheses. *** p < 0.001, **p < 0.01, *p < 0.05. All tests of significances two-tailed. ORs above 1 represent a positive relationship, ORs below 1 represent a negative relationship, ORs in columns 3, 4 all represent a positive relationship; columns 5–13 report beta coefficients because its needed to plot the interactions.

Chi-square and probability evaluations are not feasible from a chi-square, null model contain no variables in it, and reason numbers are not reported in Column 2. Statistically significant likelihood ratio suggests that the group-level (country in my case) variable cannot be ignored as un-important, thus necessitating multi-level analyses.

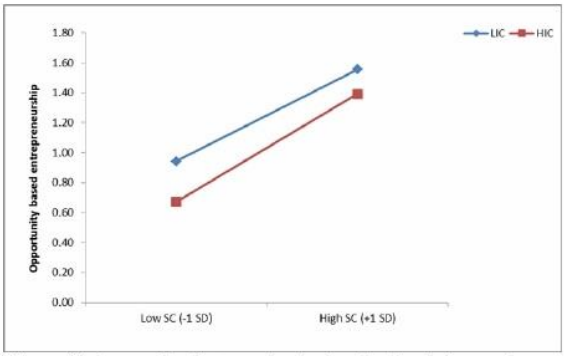

Figure 23: Interaction between institutional collectivism and social capital

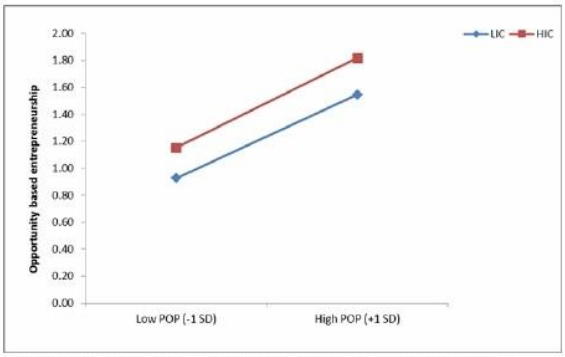

Figure 24: Interaction between institutional collectivism and perceived opportunity

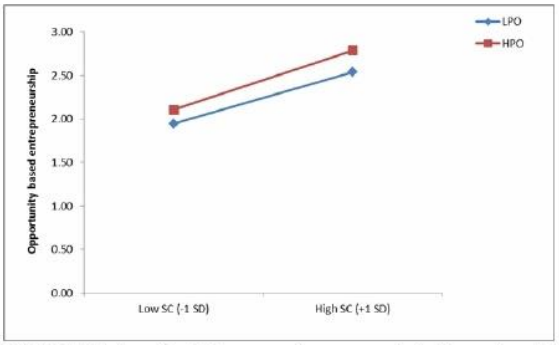

Figure 25: Interaction between performance orientation and social capita

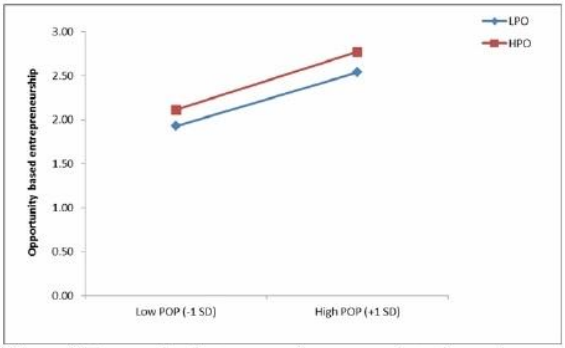

Figure 26: Interaction between performance orientation and perceived opportunity

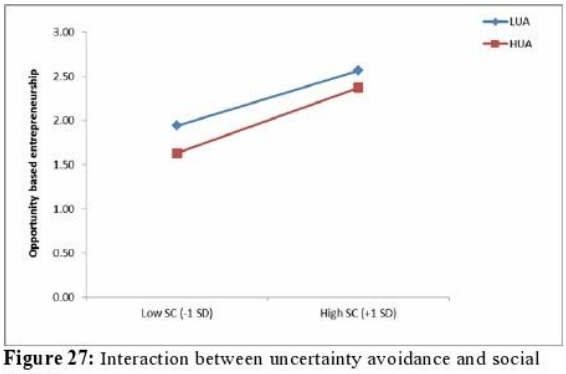

Figure 27: Interaction between uncertainty avoidance and social capital

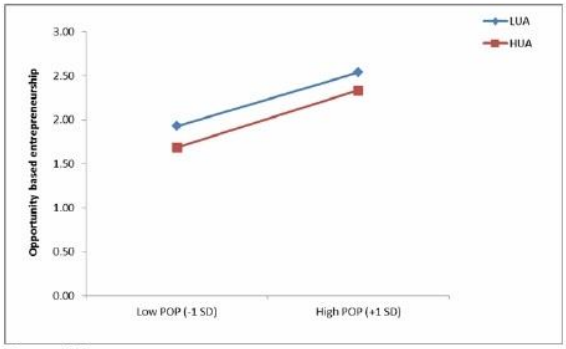

Figure 28: Interaction between uncertainty avoidance and perceived opportunity

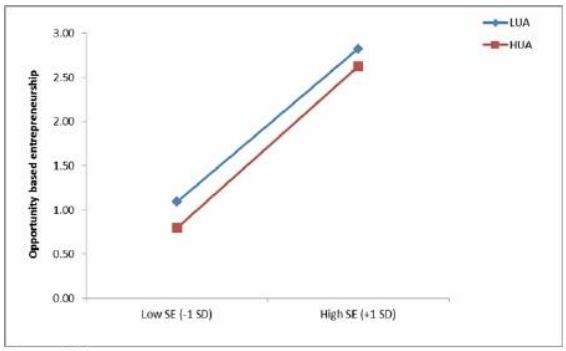

Figure 29: Interaction between uncertainty avoidance and self-efficacy

in opportunity entrepreneurship with countries have lower uncertainty avoidance and countries with high uncertainty avoidance 65% increase in opportunity based entrepreneurship. Results affirm my Hypothesis 14b. By comparing ending points of lines of *Figure 29* i found difference among high and low amount of self-efficacy and uncertainty avoidance a slightly 1% increase in opportunity based entrepreneurship with high uncertainty avoidance comparatively lower uncertainty avoidance countries. This result affirms my Hypothesis 14c.

CHAPTER 6

DISCUSSION and CONCLUSIONS

6.1. Discussion and Conclusions

During my literature review I have observed that few studies have been conducted on national level institutions and entrepreneurial behavior in last three decades. Although, I have found some gaps which needs the further consideration such as Shane (2009) have argued that innovative new businesses with growth play an important role in countries economic development not the general new businesses (countries economic development depends on the quality of entrepreneurship). Mostly, previous studies used national rate of entrepreneurship with country level predictors to investigate the relationship between national-level variables and individual-level entrepreneurial behaviour (e.g., Freytag and Thurik, 2007; Uhlaner and Thurik, 2007; Stephan and Uhlaner, 2008; Stephan and Uhlaner, 2010). However this is an inconsistent dealing of levels of analysis and unsuitable application of regression analysis in clustered data.

During the literature review (past 26 years of data) I couldn't came across any article that had applied multilevel modelling when examining the relationship between individual level entrepreneurial cognition and individual level entrepreneurial behaviour (innovative entrepreneurial entry and opportunity based entrepreneurship) moderated by the country-level cultural context (institutional collectivism, performance orientation and uncertainty avoidance) and macroeconomic context (government regulations and financial capital availability).

In response of my first research question that explains the relationship between entrepreneurial cognition and innovative entrepreneurial entry moderated by the macroeconomic context. Because of various shortcomings in current research on institutional theory and social

cognitive theory, my purpose was to investigate the formal institutions on innovative entrepreneurship in a vast number of countries over number of years. While I have analysed a large sample of individuals from 48 countries, I have included more numbers of individual-level respondents and country-level macroeconomic context and concentrated my consideration on analysing this study for eight-year' time span (2001-2008). Using a cross-sectional panel dataset, I have examine the cross-level interaction effects between individual-level entrepreneurial cognition variables (social capital, perceived opportunity, self-efficacy) and country-level macroeconomic context variables (government regulations, financial capital availability) on the likelihood of innovative business. Thus, there was a good match between exploratory and response variable in my research. As expected, the result showed that the individuals have high cognition can increase innovative entrepreneurship in countries where government regulations and financial capital availability are high. Entrepreneurship is broadly connected with economic growth (Acs and Szerb, 2007; Wennekers and Thurik, 1999; Thurik and Wennekers, 2004) and previous studies have demonstrated that innovative business has been considered as the engine of countries economic development of the regions (Zahra and Dess, 2001; Shane and Venkataraman, 2000). Naude (2013) claimed that organizational policy can play an important role to increase entrepreneurship for countries economic development. With these shortcomings in mind, I believe that my outcomes are robust and significantly expressive of an innovative entrepreneur.

As previously stated, this research is focused on formal institutions, specifically impact of government regulations and financial capital availability on innovative entrepreneurial entry in the presence of entrepreneurial cognition. A number of studies consider the government regulations, public policies and availability of required resources increase the entrepreneurship

(Eckhardt and Ciuchta, 2008; Hessels et al., 2008; Lee et al., 2004; Minniti and Lévesque, 2008; Verheul et al., 2002). Empirical research considering the regulatory environment, particularly regulations for new businesses (Stenholm et al., 2013; Klapper et al., 2006), as an entrepreneurship driver (Acs et al., 2008; Ardagna and Lusardi, 2008), the studies on regulations and entrepreneurship is still young. Stenholm et al., (2013) found that regulation related institutional factors increase the entrepreneurial activity in countries as much as more than any other factor. De Clercq et al., (2013) investigated the link between financial capital and new business activity, they observed that the high financial capital availability increase the entrepreneurship. Van Stel et al., (2007) have observed that the minimum capital required for new venture creation decrease the rate of entrepreneurship across countries. I was motivated to conduct this research because the role of macroeconomic context on entrepreneurial behaviour (e.g. De Clercq et al., 2013; Pathak et al., 2016) recently looks to be under researched.

This study marks a modest influence to the entrepreneurship literature in at least four ways. First, deals with the slightly analyzed entrepreneurial behaviour which is innovative entrepreneurial entry in this study. Second, investigates the direct relationship between individual-level entrepreneurial cognition and innovative entrepreneurial entry moderated by the country-level macroeconomic institutions. Third influence is that, previous studies used countries institutions with countries rate of entrepreneurship (e.g., Acs et al., 2008; Freytag and Thurik, 2007, Stenholm et al., 2013; Aparicio et al., 2016). Just few studies are available that consider together, both the country level formal institutions and individual-level variables with entrepreneurship in single framework (Pathak et al., 2016; De Clercq et al., 2013). In order to use the appropriate statistical technique for regression analysis, I have used multilevel examination of the relationship between entrepreneurial cognition and innovative entrepreneurial entry

moderated by the macroeconomic context. Lastly, number of studies have used institutions as exploratory variables that effects entrepreneurial behaviour (e.g., Aidis et al., 2012; Urbano and Alvarez, 2014; Ovaska and Sobel, 2005) only few studies that used formal institutions as a moderator (e.g., De Clercq et al., 2013; Estrin and Mickiewicz, 2004). I observed how macroeconomic contingencies such as government regulations and financial capital availability moderates the effect of individual-level attributes through cross-level moderation effect. Also this study conceptualizes macroeconomic context and allows performing an empirical and theoretical consistency test of relationship between national macroeconomic context and individual-level entrepreneurial cognition, innovative entrepreneurial entry.

My analysis theorized that the government regulations were positively associated with individual's entrepreneurial cognition on innovative entrepreneurial entry. Also it would be expected increased because the individual's trust in his or her capability and their social network help them to keep in touch with happenings in the market to succeed and it would alleviate the potentially positive effect of government regulations and attitudes. I have found it highly supportive for an impact, which was also proved to be robust in my study. My analysis revealed the effect of financial capital availability in terms of how entrepreneurial cognition impact innovative entrepreneurial entry. I found that financial capital availability positively moderated the effect of individuals' entrepreneurial cognition. I also found that innovative entrepreneurial process, independent of its goals, is assisted by the strong government regulations, high financial capital availability, and suggested that current situation is not inconsistent with the macroeconomic context in perspective. I have found evidence supporting the innovative entrepreneurial entry with regards to high entrepreneurial cognition when government regulations and financial capital availability is high in countries.

Regarding my second research question, that explains the relationship between entrepreneurial cognition and innovative entrepreneurial entry moderated by the cultural practices. Entrepreneurship is broadly connected with economic growth (Acs and Szerb, 2007; Wennekers and Thurik, 1999; Thurik and Wennekers, 2004) and innovation is the most important driver of that growth. Although innovation businesses cover a little part of the whole population of business founders, these businesses influence a country's economy in an extraordinary way. Although these businesses creates new jobs and produce innovative technologies, these factors help to enhance the revitalization of country's volume. The globalization of the economies in the world necessitates interaction between individuals from different cultures. While I have analysed a large sample of individuals from 43 countries and included more numbers of individual-level variables along with country-level variables. Thus in this study I have concentrated my consideration on analysing a total time span of eight-year (2001-2008). Current study analyses culture at the country-level cultural practices to predict prevalence rates at the country level. Thus, I was motivated to conduct this research because the role of specific cultural practices on entrepreneurial activity recently appears to be under researched (Wennberg et al., 2013; Autio et al., 2013; Minola et al., 2016). I addressed methodological shortcoming in the literature by complementing past studies, the innovation based entry of entrepreneurs was examined from a multi-dimensional perspective by testing individual-level and context level effects, acknowledging non-linear relationships and using multi-level statistical techniques that are new to this field.

Current study participates to the entrepreneurship literature in at least four ways. First is the use of less examined entrepreneurial behaviour which is innovative entrepreneurial entry in

this study. Second, is to examine the direct relationship between entrepreneurial cognition and innovative entrepreneurial entry moderated by the country-level cultural practices. Third is the use of multilevel modelling which is new and most appropriate way of examining of individual-level and context-level framework. Previous literature contended the same-level studies of this relationship found to be susceptible to any environmental or individualistic misconceptions, because past studies mixed this phenomenon (i.e., collective phenomenon, culture) with individual-level entrepreneurial behaviour. Although, many studies have investigated national culture with national rates of entrepreneurship; but they ignore the most important fact that entrepreneurship is individual-level behaviour (e.g Bowen and De Clercq, 2008; Stephen and Uhlaner, 2010). Fourth is that, most of the previous studies conceptualized culture as an exploratory variable that effect entrepreneurial behaviour (Hayton et al., 2002; Freytag and Thurik, 2007; Stephan and Uhlaner, 2010). Although the current study uses the national culture as a moderator and has provided valuable insights, however, it is more helpful to examine how innovation is functional in certain national cultural contexts. In current study, conceptualization of culture allows an empirical and theoretical consistency test of relationship between national culture and individual-level innovative entrepreneurial entry. This study is in line with the recent cross country research with multilevel analysis that has considered different types of institutions to explain entrepreneurship (Minola et al., 2016; Pathak et al., 2015, 2016; De Clercq et al., 2013).

This study explains the important aspects of cultural practices to explain national level differences in innovative entrepreneurial entry. I have investigated many contingencies such as, how country's national culture moderates the effect of individual level attributes through cross-level moderation effect. Cross-level moderating effect shows that how the direct relationship

between individual level entrepreneurial cognition such as social capital, perceived opportunity, self-efficacy has an influence on innovative entrepreneurial entry. Also it deals with how cultural practices (societal context) institutional collectivism, performance orientation and uncertainty avoidance moderates the influence of entrepreneurial cognition variables on innovative entrepreneurial entry. I have found that uncertainty avoidance at national level moderates the entrepreneurial cognition variables such as social capital, perceived opportunity and self-efficacy influence the likelihood of innovative entrepreneurial entry. Furthermore, it was found that institutional collectivism and performance orientation moderates the individual's social capital on innovative entrepreneurial entry. While no evidence was found for the effect of individual's perceived opportunity and self-efficacy for innovative entrepreneurial entry weather, higher or lower as pronounced in national culture.

My analysis has theorized that the cultural practices of institutional collectivism were positively associated with individual's social capital on innovative entrepreneurial entry. It would be increased, because the stronger social capital would help the individuals to create new innovative ideas and they will be linked with frequent market activities. In empirical research I have studied the individual's cognitive process and macro-level elements influence and complement resources in individual's decision making to involve in new venture creation (Lim ey al., 2010). My analysis reveals the effect of performance orientation on social capital impact and innovative entrepreneurial entry. I found that performance orientation positively moderates the effect of positive relationship between individual social capital and innovative entrepreneurial entry that would increase the innovative entrepreneur in countries. The most important aspect of current study is that the cultural practices uncertainty avoidance found to have a high support for all entrepreneurial cognition variables and innovative entrepreneurial

entry. Stenholm et al, (2013) also found that entrepreneurial cognition is important to increase the rate of entrepreneurship in countries. While my result supports that entrepreneurial cognition increases the rate of innovative entrepreneurship inside the countries. Uncertainty avoidance positively moderates the effect of individual's social capital on innovative entrepreneurial entry. Uncertainty avoidance positively moderates the perceived opportunity on innovative entry that could enhance the innovation inside countries because the ability of opportunity recognition is an important element for entrepreneur to choose the right option and help them to observe the gaps in the market. I have also found that uncertainty avoidance positively moderate the individual's self-efficacy on innovative entrepreneurial entry that would increase the innovative entrepreneurship because individuals' trust in his or her capability to succeed the goals and knowledge facilitate them to achieve the tasks. Uncertainty avoidance cross level moderation shows that the trust in individual's capability and ability to opportunity recognition with stronger social capital might have more chances of success. This also separate the individual from the negative impacts of national cultural norms for innovative entrepreneurial entry. Similarly, if there is a low uncertainty avoidance culture in a country and individual contains more social capital, perceived opportunity and self-efficacy than these individuals are more likely to become innovative entrepreneur. In addition, these results have also identified that individual-level variables motivating innovative entrepreneurship are systematically entangled with, and embedded in both, entrepreneurial cognition variables and cultural practices variables.

In 5th chapter I have applied an additional process called "robustness check". In recent period this particular approach is commonly used in empirical research. It is applied by the researchers to investigate how certain "core" estimate coefficients of regression perform when

specification of regression is altered in particular way by adding or removing characteristics in regression. Lu and White, (2014) in a more recent article have argued that during the year 2009, 98 articles have been published in "*The American Economic Review*" from which 76 were involved in empirical investigations and from these 76 studies, 23 had conducted robustness checks with the suitable regression analysis. Although, robustness check was applied in this study in terms of avoidance unobservable heterogeneity and most probably endogeneity to control and minimize the effects. The basic purpose of the application of robustness checks was to examine the effect of entrepreneurial cognition on opportunity based entrepreneurship and how country level formal institutions and informal institutions (macroeconomic context and societal context) moderate the relationship. While compared with the findings in 3rd and 4th chapters conducted on innovative entrepreneurial entry, I found that the results were in the same direction and so this identification process made my study validated and more valuable.

6.2 Limitations and Future Research

With all of these conclusions in mind, my research is not without its limitations. First, although my analysis contains a satisfactory sample size for this kind of studies, this is clearly affected the accurate statistical process and the method I approached to obtain the data. While on the other hand I relied on data which I obtained from six different independent sources and there is no common method bias found in my all dissertation analysis. Multi-level modeling that is quite new to the entrepreneurship field, allow the scholars to discover more comprehensive statistical analysis of the relationship between national-level institutions and individual-level entrepreneurial behaviour. Moreover, the multi-level theories provide more opportunities to the researchers for entrepreneurship research. But there will be variance at the individual level

besides from national culture, for example a pair of identical twins can grow to have different perspectives.

Here is a good match between independent and dependent variables in this dissertation. I found the effect of national-level institutions on entrepreneurial behaviour that depends on countries' economic development. Thus, here needs to address the interactions between national-level institutions and individual-level entrepreneurial behaviour. Such possible moderators might comprise the institutional factor (Lee et al., 2007), which is formed by formal institutions such as government regulations and financial capital availability (Holmes et al., 2012), informal institutions such as national culture (House et al., 2004). Both institutions are most important because in strong institutional environmental societies government regulations and financial capital availability determine individual's decision making and low institutional environmental societies might be culture work as social supporting system for entrepreneurial behaviour. Furthermore, all the variables considered in current dissertation were based on validated measurements. All individual-level and country-level data obtained from secondary sources, though I cannot draw the real picture of dynamics that motivate the hypothesized relationships. Future research may be qualitative research with the interviews of the entrepreneur. The individual cognition processes by which country-level institutions affect people's resources towards their decisions to start new venture creation (Lim et al., 2010; De Clercq et al., 2013).

However this dissertation is considered as the few attempts in the entrepreneurship literature to provide the insights into the role of national culture and national-level factors (government regulations and financial capital availability) on individual-level entrepreneurial behaviour. The relationships I have investigated in my study are all cross-sectional and relatively depend on eight years duration. Future research can emphasize on longitudinal research that

depend on more longer period to unpack the dynamics and complex systems between individual's resources, country-level institutions and entrepreneurial activity.

I focused on the informal institutions of institutional collectivism, performance orientation and uncertainty avoidance. Regarding the formal institutions I have emphasized on government regulations and financial capital availability. There are many more cultural practices and macroeconomic attributes that might influence entrepreneurial behaviours. Entrepreneurship research must depend on more sophisticated approaches of formal and informal institutions. The extension of my theoretical model with additional individual-level and country-level variables could further explain the shades of individual-level entry into entrepreneurial behaviour.

6.3 Implications for Policy Makers

Empirical studies have suggested that the countries institutional environmental impacts on the contribution of such resources to make decision to new venture creation are scarce (De Clercq et al., 2013). With all of above mentioned conclusions in mind, I propose implications for policy makers should fully distinguish the risk bearing and struggle to innovative entrepreneurial entry in challenging environment. In order to enhance the innovative entrepreneurship in countries policy makers should take a targeted attitude to stimulate new venture creation by applying some special policy tools to support new innovative entrepreneurial activities depending upon the individual's cognitive resources which influences the most. Policy makers should introduce the policies that enhance the regulations and policies for new venture creation and provide more financial resources to entrepreneurs to increase entrepreneurship rate in countries. With high government regulations and high financial capital availability should pursue the quality of entrepreneurship.

In regard to societal context, I believe that current research provides essential practical and theoretical implications. I posit implication for policy practice should fully distinguish the risk-bearing and effort of innovative entrepreneur in challenging context. I studied culture at the country-level cultural practices to predict prevalence rates at the country level. More attention is required; in the strength with more entrepreneurial cognition availability increase innovation business may be contingent on how countries culture unlocks such resources. My research will help to the policy makers to know that, which countries are most important for innovative business (quality of entrepreneurship). Suppose that, if country's individuals have high entrepreneurial cognition and there are low uncertainty avoidance cultures so policy makers should introduce the policies that encourage individuals to start innovative businesses because this study strongly supports that low uncertainty avoidance countries are better for quality of entrepreneurship. However, with this shortcoming in mind, I believe that my outcomes are robust and significantly expressive for quality oriented entrepreneurs.

Table 22. Findings from all chapters

Macroeconomic Context	Innovative entrepreneurial entry		Opportunity based entrepreneurship	
Social capital	H1a	Accepted	H8a	Accepted
Perceived opportunity	H1b	Accepted	H8b	Accepted
Self-efficacy	H1c	Accepted	H8c	Accepted
Social capital * Government regulations	H2a	Accepted	H9a	Accepted
Perceived opportunity * Government regulations	H2b	Accepted	H9b	Accepted
Self-efficacy * Government regulations	H2c	Accepted	H9c	Accepted
Social capital * Financial capital availability	H3a	Accepted	H10a	Accepted
Perceived opportunity * Financial capital availability	H3b	Accepted	H10b	Accepted
Self-efficacy * Financial capital availability	H3c	Accepted	H10c	Accepted
Societal Context	Innovative entrepreneurial entry		Opportunity based entrepreneurship	
Social capital	H4a	Accepted	H11a	Accepted
Perceived opportunity	H4b	Accepted	H11b	Accepted
Self-efficacy	H4c	Accepted	H11c	Accepted
Social capital * Institutional collectivism	H5a	Accepted	H12a	Accepted
Perceived opportunity * Institutional collectivism	H5b	Rejected	H12b	Accepted
Self-efficacy * Institutional collectivism	H5c	Rejected	H12c	Rejected
Social capital * performance orientation	H6a	Accepted	H13a	Accepted
Perceived opportunity * performance orientation	H6b	Rejected	H13b	Accepted
Self-efficacy * performance orientation	H6c	Rejected	H13c	Rejected
Social capital * Uncertainty avoidance	H7a	Accepted	H14a	Accepted
Perceived opportunity * Uncertainty avoidance	H7b	Accepted	H14b	Accepted
Self-efficacy * Uncertainty avoidance	H7c	Accepted	H14c	Accepted

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Table: Journal published articles

Journal published articles	
Journal of business venturing	JBV
Emerging Markets Finance and Trade	EMFT
Technological Forecasting & Social Change	TFSC
Research Policy	RP
Journal of Comparative Economics	JCE
Journal of Business Research	JBR
International Business Review	IBR
Business Research Quarterly	BRQ
Economic Systems	ES
Small Bus Econ	SBE
Journal of international Business Studies	JIBS
Review of Development Economics	RDE
Academia, Revista Latinoamericana de Administración	ARLDA
Management Decision	MD
Public Choice	PC
Int Entrep Manag J	IEMJ
Entrepreneurship & Regional Development	ERD
Faedpyme International Review	FIR
Journal of Balkan and Near Eastern Studies	JBNES
Asia Pac J Manag	APJM
Journal of Public Economics	JPE
Organization Studies	OS
Canadian Journal of Administrative Sciences	CJAS
Acta Polytechnica Hungarica	APH
Strategic Entrepreneurship Journal	SEJ
Estudio de Economia	EE
J Evol Econ	JEE
Scientific analysis of entrepreneurship and SMEs	SAES
Journal of Technol Transf	JTT
International Journal of Entrepreneurial Behaviour & Research	IJEBR
International Journal of Emerging Markets	IJEM
Journal of Small Business Management	JSBM
Journal of Management Studies	JMS
The National Bureau of Economic research	NBER
Journal of Small Business and Enterprise Development	JSBED
Applied Economics	AE
Economics Letters	EL
Ann Reg Sci	ARS
European Journal of Development Research	EJDR
Social science research network	SSRN
Journal of Banking & Finance	JBF
Romanian Journal of Economic Forecasting	RJEF
The Journal of Private Enterprise	JPEN

Table: statistical techniques distribution

Codes used in Table 1	Statistical techniques used in published articles	Sub dimension of statistical technique
MVR	Multivariate Regression	Lineal Multiple Regression
PPR	Pooled Panel Regressions	
MR	Multiple Regression	
HGLM	Hierarchical Generalized Linear Models	
HMLR	Hierarchical Multinomial Logistic Regression	
HLR	Hierarchical Logistic Regressions	
HR	Hierarchical Regression	
HOLSR	Hierarchical ordinary least squares regression	
PR	Probit Regression	Logit, Probit and Tobit Model
OLSR	Ordinary Least Square Regression	
GLS	Generalized Least Squares	
PLSR	Partial Least Squares Regression	
MNLR	Multinomial Logit Regression	
LGR	Logit Model	
TR	Tobit Regression	
LR	Logistic Regression	
GLR	Grouped Logit Results	
REML	Mixed-Effects REML Regression	Multilevel Regression
MLR	Multilevel Logistic Regression	
MUR	Multilevel Regressions	
PD	Panel Data	Panel Data
SUR	Seemingly Unrelated Regression	Others
SEM	Structure Equation Modeling	
WCPR	Wald Chi and pseudo R-squared	
GEE	Generalized estimating equations	
CA	Correlation Analysis	
BT	Bootstrap technique	
CST	Chi-square test	
DA	Discriminant Analysis	