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The Joint Effect of Institutional Profile and National Innovation System on the types of Entrepreneurship

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ABSTRACT: While prior research has uncovered the impact of some national institutions on the general level of entrepreneurship in a country, there is still limited knowledge about the role of the institutional arrangements of a country on specific types of entrepreneurial activities, namely necessity versus opportunity entrepreneurship. To address this gap, we conduct a multilevel analysis using a sample of 10776 individuals from 55 diverse countries to examine how institutional factors (i.e., countries' institutional profile and national innovation system) impact entrepreneur's choice of pursuing a specific type of entrepreneurship. Using Hierarchical Linear Modeling, the findings indicate that neither institutional profile nor national innovation system (NIS) elements solely determine the choice between opportunity motivated entrepreneurship (OME) and necessity motivated entrepreneurship (NME); however, OME tends to be higher in instances when supportive institutional arrangements (regulatory, normative, and cognitive) toward entrepreneurship get coupled with national innovation system factors. The study contributes to a more nuanced understanding of embedded agency within the institutional logics perspective. It bridges the literature on individual and institutional antecedents of entrepreneurship. Further implications for theory and practice are discussed.

Keywords: National Innovation System (NIS), Institutional profile, Opportunity Motivated Entrepreneurship (OME), Necessity Motivated Entrepreneurship (NME)

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1. INTRODUCTION

Do institutions have equal impact on everyone in society? Under what circumstances individuals may act differently in terms of choosing a certain type of entrepreneurial activity? Which individuals are more likely to start a business to take advantage of an un-exploited or under-exploited opportunity rather than starting a business merely out of necessity? These are key issues for policymakers striving to promote entrepreneurship due to its significant economic outcomes. Though some scholars have examined the impact of institutions on the rate of entrepreneurship [1, 2], the impact of national institutions on individuals' choosing a specific type of entrepreneurship is still under-researched.

The main focus of the institutional logics perspective [3, 4] is on how broader belief systems may shape the cognition, behavior, identity, and goals of economic actors. Under this view, entrepreneurs demonstrate individual agency subject to complex systems of institutional forces which may lead them to perform differently in terms of engaging in business activities [5]. This situation of limited freedom due to institutions is known as embedded agency [6]. We utilize this framework to uncover the nuanced impact of institutions on the type of entrepreneurial ventures that people pursue. National institutions have proven to influence the types of opportunities people discover, the decision to start up a venture, the types of organizations they form, the financing arrangements they select, the management methods they employ, and the growth they achieve [7]. The institutional context provides the tools, models, and constraints that shape the entrepreneur's choices about each of these [2].

While entrepreneurship has been long identified as one of the major engines of economic growth [8-10], not all types of entrepreneurship have equal impact on economic development. While necessity entrepreneurship (motivated by lack of employment and financial distress) has been identified to have no significant impact on economic growth, opportunity entrepreneurship (motivated by discovering a specific opportunity and an innovative solution) leads to significant and positive economic outcomes [11]. Thus, exploring the factors that spur opportunity entrepreneurship and its consequent economic outputs is of great interest for policymakers. Studying entrepreneurial choice in 55 countries, we find that in countries where the national innovation system components get coupled with the supportive institutional profile toward entrepreneurship, potential entrepreneurs are more likely to engage in opportunity rather than necessity motivated entrepreneurship.

This study has several implications for the understanding of institutions, entrepreneurship, and opportunity recognition. First, it further demonstrates the value of the institutional logics perspective in explaining the nature of how institutions impact individuals. By highlighting a situation in which agents differ in their responses to institutional forces, the importance

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of one of the institutional logics perspective's defining features, embedded agency, is further validated. Second, this study advances understanding about the entrepreneurial opportunity recognition [12].

Entrepreneurship scholars have increasingly grappled with whether personal or contextual characteristics matter most for successful entrepreneurship. Our findings show that besides individual characteristics (e. g. age, gender, employment status, and household size), institutional arrangements have a significant impact on entrepreneurial choice. Furthermore, this study has important policymaking implications for economic development. It does so by highlighting conditions in which national innovation system factors have a stronger impact on potential entrepreneurs' choice. Specifically, supportive institutional profile components coupled with higher levels of entrepreneurial education, access to the latest technology and support from venture capitalists, increase the likelihood of individuals pursuing opportunity motivated entrepreneurship rather than necessity motivated ones.

2. THEORY DEVELOPMENT

2.1 Institutional Logics, Embedded Agency, and Entrepreneurship

The institutional logics perspective considers institutions as the outcomes of systems of interconnected and logically cohesive ideologies that have taken root within societies over long periods of time. These systems of institutional logics are socially constructed, historical outlines of material practices, conventions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality [3]. In sum, institutional logics are the underlying thought patterns and worldviews that support and shape human behavior. Each institutional logic includes several practices, beliefs, values, and rules. By participating in these institutions, agents gain identity, legitimacy, a basis of attention, a basis for strategy, and goals for the future [13]. Relying on these insights, the notion of embedded agency claims that individuals are embedded agents using individual discretion within a complex institutional environment [4]. In other words, people have freedom, but it's limited. Simply put, individuals' behaviors are formed based on the logics they are surrounded with which are in turn shaped by: (a) the degree to which a particular institutional logic has been historically institutionalized within a given society (b) the degree to which agents are embedded in fields consisting of conflicting logics and (c) the situational context(s) (i.e. the immediate time and place) in which individuals find themselves [4].

2.2 Types of Entrepreneurial Activity

Entrepreneurial activity can be conceptualized as either opportunity or necessity motivated [8]. Opportunity motivated entrepreneurship activities are embarked upon in the spirit of innovation, profit, and growth [14, 15] or may entail the leveraging of existing information in a new way [16]. On the other hand, a necessity-motivated venture may be undertaken to provide employment and meet financial obligations out of economic necessity [17, 18]. Opportunity motivated entrepreneurship is more consistent with the Schumpeterian innovations which contribute significantly to economic growth through providing greater job growth, exports, and exploitation of new market niches [19]. However, previous studies show that necessity motivated entrepreneurship has at best no significant economic effect [11].

Unlike necessity entrepreneurship that is mainly driven by lack of employment opportunities, opportunity entrepreneurship is defined as the voluntary decision to enter the entrepreneurial career in order to exploit an unexploited or underexploited entrepreneurial opportunity, either imitative (Kirznerian) or innovative (Schumpeterian), even if other employment alternatives are available [17].

Previous research has indicated that necessity- and opportunity-motivated entrepreneurship should be considered separately to accurately understand how context relates to the level of entrepreneurial activity [7]. Institutions appear to impact the level of entrepreneurial activity regardless of the type [2]. However, the overall environmental context of countries may support one type of entrepreneurship more than the other [2]. Therefore, institutional structures that provide a suitable environment for innovations would increase the probability of people being engaged more in opportunity motivated entrepreneurship and thus, contribute to the economic growth and prosperity of a country [20]. Consistent with this argument, Stenholm, et al. [7] believe that to conduct entrepreneurs toward high-impact entrepreneurship (e.g. OME), an institutional environment, filled with new opportunities created by necessary knowledge and capital, matters most.

2.3 Institutional Profile and Entrepreneurial Activity

Primarily, the institutional theory was developed to explain how different groups and organizations better establish their positions and win legitimacy by meeting the requirements of the institutional environment in terms of rules, norms, and cognitions [21]. Broadly speaking, institutions refer to formal sets of rules [22], agreements [23], less formal shared interaction sequences [24], and implicit assumptions [25] that organizations and individuals are expected to follow. These institutional forces are summarized in Scott's [21] three-pillar framework; regulatory, normative, and cognitive.

Following Scott's [21] seminal conceptualization of national institutions into three main pillars, Kostova [26] introduced the notion of a "three-dimensional country institutional profile" to explain how domestic business activities of nations can be understood through a country's government policies (constituting a regulatory dimension), value systems (a normative dimension), and widely shared social knowledge (a cognitive dimension). Later, Busenitz, Gomez, and Spencer [27] utilized Kostova's institutional profile concept to develop and validate measures of the regulatory, normative, and cognitive dimensions of a nation's institutional profile, particularly within entrepreneurship domain [28]. Although

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these studies had some methodological limitations, the concept of examining the impact of a country's institutional profile on entrepreneurship seems to be a promising direction. This point of view has been further supported by the Global Entrepreneurship Monitor (GEM) survey which shows cultural social norms, financial support, and government policies are the three most often mentioned issues related to the entrepreneurial activity [17].

The regulatory pillar is mostly the result of studies in economics and refers to factors such as governmental laws and legislations, and industrial standards and protocols. This dimension of institutional arrangement can either promote or hinder entrepreneurship through defining the context in which new ventures evolve including the extent of risk involved in creation and start of a new business [29]. In general, entrepreneurial activities are higher in nations with free markets, less regulation, and few barriers to entry [30] and small-business sector is larger where business start-up costs are lower. In countries with unstable regulatory settings and lack of intellectual property rights, respectively, entrepreneurship opportunity cost may increase significantly, and individuals may be discouraged to specialize or exploit their capabilities to the fullest [31]. In other words, while supportive and facilitating regulations toward entrepreneurship result in higher country-level entrepreneurship, weak support from regulatory institutions enhances the transaction cost for entrepreneurs who want to launch a new venture [32].

Social norms, values, and beliefs related to human behavior form the normative institutional pillar [22, 28]. Within a society, perspectives are shared socially, embedded and transmitted by people [27] and they gain legitimacy based on the extent to which the related action is getting accepted [33]. Translating these insights into entrepreneurship language, norms and values can define the desirability of entrepreneurship as a career within a society. In other words, individuals' entrepreneurial intentions are influenced by the attitudes, beliefs, and expectations of a social reference group which can be family, relatives, and also a larger set of social references at the national-level [7, 34]. Prior studies have found a positive correlation between the rate of new venture creation and a positive view toward entrepreneurs, and a negative correlation between undesirable societal view toward those who previously failed and the founding rates within a country. For instance, Lounsbury and Glynn [35] found that the extent to which successful entrepreneurs are introduced publicly is significantly associated with entrepreneurial activity in a society. Fostering a favorable impression of entrepreneurial activity in the society [36] and giving high status to the successful entrepreneurs by means of educational system and the media, result in higher rates of entrepreneurship at the country level [2, 7].

The cognitive institutional pillar refers to the people's collective understandings of the social reality that is used as a reference of meaning within a society and form the individuals' interpretations and beliefs [22, 37]. What makes the cognitive distinct from the normative pillar is that the normative pillar is concerned with what people consider legitimate, acceptable ways of gaining something that has broad societal approval, while the cognitive pillar reflects the principles that are believed and internalized by individuals [37]. Using available data on cross-country differences in culture, perceptions of entrepreneurial activity, and cognitive scripts, recent studies acknowledge that the variance of entrepreneurial cognitions across countries will result in different rates of entrepreneurship [2, 7]. Support from cognitive institutions such as social capital, social networks, and role models, increases the degree to which individuals perceive that they are capable of starting a new venture [7]. Such institutions are major determinants of recognition and exploitation of entrepreneurial opportunities [38] and therefore entrepreneurial intentions [39].

Although there is a well-established relationship between supportive institutional profile toward entrepreneurship and the rate of entrepreneurial activity [2, 7], the relationship between institutional arrangements and the type of entrepreneurship is still unclear despite their distinct impact of OME (versus NME) on economic growth.

2.4 National Innovation System

National Innovation Systems (NIS) is one of the major theoretical frameworks that allows scholars to identify the distinctive aspects of a nation's innovation environment including the flow of knowledge, technology and information among people, enterprises and institutions which is key to the innovation at the national level [40, 41]. Country-specific general and structural mechanisms of society (such as political and educational systems) influence the growth and distribution of knowledge [41]. National institutions impact patterns of innovation in a given country in two major ways [42]: First, the societal institutions which support industrial innovation vary substantially country by country. For example, in many countries, the procedures and practices of a nation's universities and governmental research institutes are shaped by the nation's historical development. In other words, since technology-driven industries are often supplied by universities and research institutes for knowledge and human capital, the technological performance of a country's firms is influenced by the features of these institutions [43]. Second, the national setting impacts the institutional arrangements and behavioral outlines of firms and individuals. For example, the organization of work and patterns of communication within and between firms, or between universities and firms reflect broader societal features that have been imprinted on firms and institutionalized over time [44].

The elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge either located within or rooted inside the borders of a nation state.	Lundvall [45]
A set of institutions whose interactions determine the innovative performance of national firms.	Nelson [43]

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The national institutions, their incentive structures and their competencies, that determine the rate and direction of technological learning (or the volume and composition of change generating activities) in a country.	Patel & Pavitt [46]
That set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts which define new technologies.	Metcalfe [47]

Table 1: Summarizes some of the definitions for the national system of innovation.

A country's innovative performance relies on the way these elements work with each other to create and diffuse knowledge and technology. For example, public research institutes, academia, and industry serve as research producers carrying out R&D activities [48]. On the other hand, governments (central or regional) play the role of coordinator among research producers through their policy instruments, visions, and perspectives for the future [41]. Furthermore, in order to enhance innovation level in a country, innovative actors must get coupled with each other and the government should promote and activate trust among the different innovation actors [49]. These corporations could take place in forms of joint research initiatives, personnel exchanges, cross patenting, and purchase of equipment [40].

In the following section, we put forth some hypotheses to explain and examine how some fundamental components of NIS affect the likelihood of potential entrepreneurs' getting involved in opportunity motivated entrepreneurship, an innovation-oriented entrepreneurial activity [7].

2.4.1 Entrepreneurship education and training

One of the major elements influencing innovative activities in a society is the national education systems [45]. Baumol [50] believes that the design of the educational process has significant consequences for the capabilities of the individuals engaged in innovative activities through stimulating creativity and imagination and facilitating their utilization. There are several arguments for why different education systems may play an important role in explaining the discovery of opportunities. For instance, Arenius and Clercq [51] argue that opportunities are recognized by some individuals and not by others based on their differential access to the resources. More specifically, they claim that individuals' education may enhance opportunity recognition through the facilitation of access to knowledge, e.g., connections to other "knowledgeable" people such as alumni network contacts [52].

Individuals' educational level also positively affects the likelihood of perceiving opportunities because highly-educated individuals have a broader knowledge base to draw from and thus a higher likelihood to relate this knowledge to potential entrepreneurial opportunities [52]. In fact, prior knowledge has been proven to influence the discovery of entrepreneurial opportunities [12]. Training and education, specifically in the field of entrepreneurship, enhance the population's ability to recognize and pursue entrepreneurial opportunities. Additionally, they provide people with the necessary technical skills and competencies required to launch new start-up firms [53]. Thus, while the supportive institutional profile of a country may result in higher rates of entrepreneurship regardless of the type, it may induce higher opportunity motivated entrepreneurial activities in the countries with more entrepreneurial related education and training. Therefore,

Hypothesis 1: Individuals' entrepreneurial choice is associated with the interaction between country's institutional profile and the level of entrepreneurship training and education such that supportive institutional profile toward entrepreneurship coupled with higher levels of entrepreneurship training and education will lead to higher OME rather than NME.

2.4.2 University-industry collaboration

The collaboration between industries and universities is defined as the interaction between any parts of the higher education system and corporations aiming mainly to encourage knowledge and technology exchange [7, 54]. Such exchange process can enrich the knowledge and function as a vehicle to boost innovation [55]. Additionally, the linkage between universities and industries has been identified as a tool for enhancing organizational capacity in open innovation, where an organization employs external networks in developing innovation and knowledge [56], as a complementary option to the traditional internal R&D [57]. Countries, however, vary in the extent to which firms collaborate with research institutions and higher education system, reflecting differences in the commercial orientation of academia [58].

In sum, the collaboration between universities and industries can significantly improve innovation in an economy by facilitating the flow and utilization of knowledge, technology, and experience across sectors [59]. Since opportunity motivated entrepreneurship is characterized by innovation level, it can be assumed that higher levels of the university-industry collaborations, may induce higher opportunity motivated entrepreneurial activities in the presence of facilitative institutional profile toward any types of entrepreneurial activities (OME or NME). Accordingly,

Hypothesis 2: Individuals' entrepreneurial choice is associated with the interaction between country's institutional profile and the level of university-industry collaboration such that supportive institutional profile toward entrepreneurship coupled with higher levels of university-industry collaboration will lead to higher OME rather than NME.

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2.4.3 Availability of latest technology

One of the particular features of national innovation system which affect the flows of scientific knowledge is the national technology policy and nations vary substantially in a way technology is diffused within the society [41]. In some nations technology diffusion is considered as an explicit part of the government's mandate which is carried out by "diffusion-oriented innovation policies". Accordingly, the government establishes programs, institutions, and structural linkages specifically for the purpose of facilitating the industry's appropriation of new scientific developments [58]. Most studies show that technology diffusion at the country level has a positive impact on productivity and innovation [60]. In fact, dissemination of technology can be as important as R&D investments to innovative performance in many cases [61].

"Technological change provides the basis for the creation of new processes, new products, new markets, and new ways of organizing; and entrepreneurship is central to this process" [62]. Shane [12] notes that any given technological change will generate a range of entrepreneurial opportunities that are not obvious to all potential entrepreneurs. Accordingly, it can be assumed that in a country with supportive institutional arrangements toward entrepreneurship, it is more likely for potential entrepreneurs to start a new business to exploit new opportunities rather than alleviating their financial needs through necessity motivated entrepreneurship, when they have more access to the latest technology and are aware of the technological change,. Thus,

Hypothesis 3: Individuals' entrepreneurial choice is associated with the interaction between country's institutional profile and the level of the latest technology availability such that supportive institutional profile toward entrepreneurship coupled with higher levels of latest technology availability will lead to higher OME rather than NME.

2.4.3 Availability of venture capital

Another element of the national innovation system which affects the accumulation of knowledge and its diffusion through society is the venture capital system [41]. The availability of venture capital (VC) firms that fund start-ups vary significantly across countries [58]. Kortum and Lerner [63] are among the early scholars who systematically studied the relationship between VC and innovation by examining the influence of VC on patented innovations in the United States across 20 industries and find that a dollar of VC appears to be about three times more effective in stimulating patenting than a dollar of traditional corporate R&D and that the VC investments may have accounted for 8 percent of industrial innovations during 1983-1992.

Similarly, Hellmann and Puri [64] find that VC-backed firms follow more innovative strategies than non-VC-backed firms and that the former tends to grow faster than their industry counterparts. For high impact entrepreneurs (i.e., OME), an institutional environment filled with new opportunities created by knowledge spillovers [65] and the capital availability are crucial [7, 66]. VC firms provide not only the required capital but also their technical and managerial expertise and connect the ventures to other elements of their value chain. So, in presence of a supportive institutional profile toward entrepreneurship, opportunity motivated entrepreneurial activities are more likely to be pursued in a society where the individuals are more supported by VCs. Thus,

Hypothesis 4: Individuals' entrepreneurial choice is associated with the interaction between country's institutional profile and the level of venture capital availability such that the supportive institutional profile toward entrepreneurship coupled with higher levels of venture capital availability will lead to higher OME rather than NME.

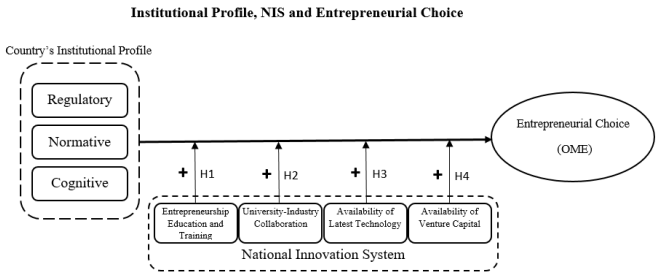

Figure 1: Displays the theoretical framework developed by hypotheses 1-4.

3. METHODOLOGY

3.1 Data and Sample

Data for this study were taken from several sources. Data for entrepreneurial choice (dependent variables) are taken from the 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. The GEM includes standardized measures for various aspects of each surveyed country's entrepreneurial activities. In 2013 the GEM interviewed more than 240,000 people from 69 geographically and economically dispersed economies (coded 1 for OME and 0 for NME). Of these observations, much was not useable for this study. Observations with missing data were removed. Finally, we were able to retain 10,776 observations from 55 different economies. Individual level data from the GEM's 2013 Adult Population Survey, were combined with institutional level data from the GEM's 2013 National Expert Survey, Heritage Foundation/Wall Street Journal IEF and the World Bank's Ease of Doing Business Index and Global Competitiveness Index report.

3.2 Dependent Variable: Entrepreneurial Choice

The GEM Adult Population Survey contains data on individuals' entrepreneurial choice. The survey asks the question "Were you involved in this start-up to take advantage of a business opportunity or because you had no better choices for work?" Answers range from 0 to 5 (I don't know=-0, Take advantage of business opportunity=1, No better choice=2, Combination of both=3, Have a job but seeking better opportunities=4, Other=5). We just included those who answered 1 and 4 (coded 1 for OME) and 2 (coded 0 for NME) to make our data mutual exclusive. Prior literature has

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validated this measure as a means of capturing entrepreneurial choice [2, 20].

3.3 Independent Variables

3.3.1 Institutional profile

GEM has also developed country level entrepreneurship variables through its National Expert Survey. That survey has developed standardized measures of business and government experts' perceptions of several key indicators of the country's entrepreneurial framework. The expert questionnaire assesses the institutional environment, including elements of the nations' institutional profile, specifically as it relates to entrepreneurship. Several of the survey's constructs contain multiple items. These constructs have been demonstrated to be valid and reliable [2, 7, 20]. Here, we follow Valdez and Richardson [2] and Stenholm, et al. [7] and utilize those elements consistent with Kostova's [27] framework. Accordingly, we use three independent variables to assess Kostova's institutional profile. Data for the first institution, the regulatory pillar, is drawn from the Heritage Foundation/Wall Street Journal IEF and the World Bank's Ease of Doing Business Index, 2013. Data for the other two (normative and cognitive institutions) are collected from the 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey.

Prior studies [1, 6, 17] have used Heritage Foundation/Wall Street Journal Index of Economic Freedom (IEF) and Ease of starting up a business to operationalize the regulatory dimension. The concept of economic freedom is closely related to the concept of regulatory institutions, which are government laws, and regulations that guide and restrict economic action. There are 10 components that form the Index of Economic Freedom (IEF). These components are property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom and financial freedom where each component is a composite of multiple items [20]. Countries are scored on a one to five scale where low scores represent less governmental interference and high scores indicate that a country has less economic freedoms. In this study, other than the Heritage Foundation IEF, we also used the concept of ease of starting up a business that includes the number of procedures needed to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations as well as the time it takes to legally start a business [7].

To capture normative construct, we used three already validated measures of high status to successful entrepreneurs, entrepreneurship as a good career choice and media attention for entrepreneurship [2, 7] from 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. The first item measures the status of entrepreneurship in a country through the percentage of the adult population that agreed with the statement that in their country people attach high status to successful entrepreneurs. The second item captures desirability of entrepreneurship by measuring the percentage of adults who agreed with the statement that in their country, most people consider starting a business as a desirable career choice. The third item measures the level of perceived media attention paid to entrepreneurship through the percentage of the adult population who agreed with the statement that in their country they would often see stories in the public media about successful new businesses. All three components align with Scott's [22] conceptualization of normative institutions [2, 7].

The cognitive pillar is captured by four indicators of perceived opportunities, perceived capabilities, knows an entrepreneur and fear of failure [2, 7] from 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. These items are percentages reflective of participants' answers to the GEM's categorical questions. The first item measures the percentage of the adult population who see promising opportunities to start a business in the area in which they live. The second item captures the participants' perceived knowledge, skill, and experience required to start a new business. It reveals how the participant views handling of uncertainty, given their resources and background within the national context reflecting one's self-confidence in the entrepreneurial domain [2]. The third item captures the role of networks on participants' cognition toward entrepreneurship. The fourth item demonstrates the impact of fear of failure in preventing participants from starting a new business. This item shows risk aversion and should be reverse coded to capture the entrepreneurial cognitive institutions within a country.

To create one single factor for each institutional pillar, we used factor analysis approach. The theory behind this method is that the information gained about the interdependencies between observed variables can be used to reduce the set of variables in a dataset [67]. Not being properly loaded on a higher level factor as others, we removed the labor freedom and the monetary freedom to create one single factor for regulatory pillar using the other ten indicators. After creating three major institutional pillars (regulatory, normative, and cognitive), we did another factor reduction process to create one single factor for the country's institutional profile out of the regulatory, normative and cognitive pillars. Tables 2 through 5 show the factor loadings for each institutional pillar and the country's institutional profile.

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

Table 2: Factor loadings for regulatory institutions.

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

Table 3: Factor loadings for normative institutions.

Perceived opportunities	.800
Perceived capabilities	.919
Knows an entrepreneur	.861
Fear of failure	-.695
Extraction Method: Maximum Likelihood.	

Table 4: Factor loadings for cognitive institutions.

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

Table 5: Factor loadings for countries' institutional profile.

3.3.1 National innovation system

For national innovation system components, we have four variables of entrepreneurship training and education, university-industry collaboration, availability of latest technology and availability of venture capital. Entrepreneurship training and education have been measured by two indicators of basic-school entrepreneurial education and training and post-school entrepreneurial education and training, which are taken from the 2013 Global Entrepreneurship Monitor (GEM) national expert survey. Again, to extract one single factor from these two indicators, we used factor analysis approach. For university-industry collaboration, availability of latest technology and availability of venture capital. We used the data from the Global Competitiveness Index report for 2012-2013.

3.4 Control Variables

In this study, we have both individual level and country level control variables that have been shown to have significant impacts on entrepreneurial choice. Data for individual level control variables were taken from the 2013 Global Entrepreneurship Monitor (GEM) Adult Population Survey. Age in years, a binary variable for sex (male=1), a binary variable for whether the individual is employed (employed=1), and finally, household size (number of family members in the household) [68, 69]. Countries' economic status is the country level factor that has an impact on individuals' entrepreneurial choice. This is because past work has identified a structural relationship between an economy's level of development and its key entrepreneurship activities [70]. We used Gross national income (GNI) per capita and GDP growth, both taken from World Bank Database 2013, to control for the economic conditions at the country level. The means, standard deviation, and correlations of the individual and country level variables included in the study are displayed in Table 6.

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

Table 6: Variable means, standard deviations, and correlation matrix.

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3.5 Analytical Technique

To test our hypotheses, we use Hierarchical Generalized Linear Modeling (HGLM) with robust standard errors. HGLM is appropriate for research designs where the data for participants is organized at more than one level and the dependent variable displays a binomial distribution. HGLM models can decompose and analyze the variance in the dependent variable that occurs both between groups and within each group. At a conceptual level, HGLM first analyzes separate regression equations within units and summarizes them with intercepts and slopes. In step two, HGLM uses the intercepts and slopes of the within unit relationships as outcome variables and regresses them on level II characteristics. So, the within group average is regressed on the level II variables. Finally, HGLM uses the logit function to predict the outcome of a categorical dependent variable based on the predictor variables. As such HGLM is the most appropriate technique for testing our hypotheses [71].

4. RESULTS

Results of the analyses suggest that elements of the institutional profile impact entrepreneurial choice differently when they get coupled with national innovation system components. In the interests of establishing a baseline for comparison across models, we first review the results of Model 1. All three models with the robust standard are presented in Table 7.

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

Table 7: HLM Results for Entrepreneurial Choice (OME/NME).

Model 1 (the Control Model), in line with past work, indicates that age, being female, having a job, smaller household size, higher country level GNI per capita and higher GDP growth rate are all positively associated with the likelihood of selecting OME over NME. Previous studies believe that OME is a substantially risky project to start [72]. So, it is understandable when the individuals get older the likelihood of selecting riskier projects (here OME) decreases. The effect of gender on the choice of entrepreneurship could be explained using "gender differences" approach which stipulates that normative differences between men and women define the family as women's sphere and paid work as men's domain

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[73]. So, it can be inferred that it is more likely to see men choosing entrepreneurship out of necessity rather than exploiting an entrepreneurial opportunity. In other words, being female increases the probability of starting an opportunity motivated entrepreneurial activity. The household size significant negative sign with our dependent variable may mean that when the number of people in a family increases the likelihood of starting a new business out of necessity increases. The employment status effect on the choice of entrepreneurship is very intuitive. Having a job makes it unlikely to do entrepreneurship out of necessity. Being currently employed, potential entrepreneurs usually initiate an entrepreneurial activity in order to exploit an opportunity rather than addressing their primary financial needs. The effect of the economic status of a country on the choice of entrepreneurship can be explained similarly. Higher income levels make it unlikely to start a business out of necessity or in other words having less financial concern creates more freedom to exploit unexploited or underexploited business opportunities.

Model 2 in Table 7 tests the main effect hypotheses for dimensions within the institutional profile and national innovation system surrounding the entrepreneur. Results of that analysis indicate that neither institutional profile nor national innovation system factors cannot solely determine the choice between OME and NME, but looking at interaction effects, we can see another story. Model 3 shows while neither institutional profile nor NIS components have a significant impact on entrepreneurial choice, results largely support our hypotheses for their joint effects.

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

The second hypothesis, which argues that the interaction between a supportive institutional profile toward entrepreneurship and university-industry collaboration is positively significantly associated with entrepreneurial choice, is not supported. A plausible explanation could be that however, the diffusion of knowledge and information between research institutes and industries is the major source of innovation at the country level, its influence may be more significant at the firm level and not the individual level. In other words, the opportunities created by knowledge exchange between universities and industries may just be accessible for those individuals having relationships with either of industry or universities and not all potential entrepreneurs within a country.

Hypothesis 3, stating that availability of latest technology coupled with supportive institutional profile toward entrepreneurship increases the likelihood of choosing OME over NME, is supported. In other words, access to the latest technology will increase the supportive role of regulatory, normative and cognitive components toward opportunity exploitation by potential entrepreneurs. For example, besides TV channels and newspapers, media attention toward entrepreneurial activities can be more addressed via newly introduced social media such as Instagram, Telegram etc. Using online registration, as part of new technology, also makes it even easier to go through the new venture registration process which is a part of the regulatory pillar. Furthermore, access to the latest technology generates a range of entrepreneurial opportunities that are not obvious to all potential entrepreneurs [12].

Hypothesis 4 is also supported and indicates that the presence of supportive institutional profile components coupled with higher support from VCs will increase the likelihood of choosing OME over NME. In other words, in a country where being an entrepreneur is respected and desirable, having high levels of VC availability which shows higher support for risky projects such as OME, encourage potential entrepreneurs to choose OME rather than NME. Furthermore, in a country where regulations are favorable for entrepreneurship in general, higher support for innovative ideas and risky projects, may induce people to start an opportunity motivated entrepreneurial activity. VCs can also assist potential entrepreneurs through the official procedure they need to go through to start their new businesses, which strengthens the role of already present facilitative rules and regulations. In terms of the cognitive pillar, higher support from VCs will reduce potential entrepreneurs' fear of failure to strengthen the role of the cognitive pillar.

Finding support for H1, 3 and 4 indicates that while institutional profile and national innovation system will not determine the type of entrepreneurship on their own, improvement in entrepreneurship training and education, availability of latest technology and availability of venture capital in the presence of supportive institutional profile toward entrepreneurship, will increase the odds of potential entrepreneurs pursuing OME rather than NME. This interpretation is because of our dichotomous dependent variable. While we have 1 for OME and 0 for NME, an increase in independent variables (interaction between institutional profile and NIS) should be interpreted as an increase of the probability of dependent variable occurrence and not its magnitude. So, it can be stated that 1 unit increase in each interaction terms will increase the probability of OME occurrence equal to its corresponding significant coefficient.

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5. DISCUSSION

This study sheds light on the joint effect of general institutional profile and national innovation system of a country on the probability of choosing opportunity entrepreneurship over necessity one. While previous studies have shown the important roles of individual characteristics such as age, gender, employment status, and household size on the type of entrepreneurship [68, 69, 74], our results indicate that 13.1% of the contrast among individuals in terms of their entrepreneurial choice between OME and NME is explained by country-level factors. In other words, potential entrepreneurs are like seeds which are waiting to germinate until their essential needs are met: water, warmth, and fertile soil. Supportive institutional profile of a country may act as the fertile soil for any type of potential entrepreneurs, but to bring about a particular type of entrepreneurship (i.e., OME), it needs to be coupled with certain types of conduits i.e., entrepreneurship training and education, availability of latest technology and availability of venture capital.

5.1 Contribution to the Institutional Logics Literature

The finding that agents differ in their responses to institutional forces such as regulatory, normative and cognitive institutions considering the nations' level of innovation, supports the institutional logics perspective. According to Thornton and Ocasio [75], cross-level effects between the institutional and individual level factors are critical because actors and institutions interact and influence one another. Utilizing the notion of embedded agency [6], we found that, beyond personal characteristics, individuals' entrepreneurial choice is restricted by the national innovation system that they are surrounded with.

While age, being female, having a job and smaller household size are determinants of the entrepreneurial choice, our results show that higher levels of entrepreneurship training and education, availability of latest technology and availability of venture capital, coupled with supportive institutional profile toward entrepreneurship, have also significant impact on the type of entrepreneurship people may pursue.

Finding support for the influence of individual level factors (e. g. age, gender, employment status, and household size), as well as national level elements (e. g. economic development, and joint effect of institutional profile and the national innovation system), is in line with expectations one would have using the work of sociologist Pierre Bourdieu [76]. According to Bourdieu different individuals embedded in the same institutional/social field act differently (here choosing between OME and NME) in response to the same institutional forces. Variation in these responses is caused by both their personal features within the institutional/social field as well as their ability to access resources in the field [73], which are the sources of innovation in this case.

5.2 Contribution to the Entrepreneurial Opportunity Recognition Literature

Entrepreneurship scholars argue that there are both a supply (individual) and a demand (contextual) sides to entrepreneurship [77]. This idea echoes Shane and Venkataraman's [78] seminal piece that viewed entrepreneurship as the intersection of agents' entrepreneurial actions and objective opportunities existing in the market and institutional environments. Sarason, Dean, and Dillard [79] explain, entrepreneurs are "reflexive agents engaging in purposeful action. Sources of opportunities are extant features that provide the context for creating entrepreneurial ventures. The act of entrepreneurship occurs as the agent specifies, interprets, and acts upon the sources of opportunity. This is a dynamic process whereby the sources of opportunity are acted on by the agent, and the agent is affected by the sources of opportunity." Thus, the linkages between a vibrant institutional environment and an actor with important characteristics are both vital for new venture activity [80]. By arguing from an institutional logics perspective that broader societal institutions matter but that their impact is subject to individual characteristics, our study contributes to opportunity identification literature showing that individuals' opportunity identification capability is affected by the extent they are provided with or have access to the sources of innovation such as entrepreneurial education, latest technology, and VCs. This is in line with Baron [81] statement that entrepreneurs identify opportunities for new business ventures by using frameworks they have acquired through experience to perceive connections between seemingly unrelated events or trends in the external world.

5.3 Contribution to Policymaking

Since the type of entrepreneurial ventures (OME versus NME) determines their economic impact [11, 20], identifying the factors leading to opportunity motivated entrepreneurship is crucial to policymakers. For policymakers, our study sheds light on those factors and circumstances under which they collectively lead to high impact entrepreneurial activities. In addition to facilitative and supportive institutional profile toward entrepreneurship, nations need to enhance the level of entrepreneurial education and training, access to the latest technology, and support from VCs in order to bring about a more constructive type of entrepreneurial activity. In other words, in the same conditions of a supportive institutional profile, those countries with higher entrepreneurial education and training, higher access to the latest technology and higher availability of VCs, can expect to see more OMEs rather than NMEs.

5.4 Limitations and Future Research

Our study is not without limitations. First, we use multiple indicators to capture each institution and factor reduction to create single institutional profile indicator for each country. While this approach helps in having a more parsimonious look at the institutions, it may limit our understanding of the interaction effect of each element of the national innovation system on every single indicator of countries' institutional profile. More fine-grained studies may investigate these interaction effects on the entrepreneurial choice.

Second, we conduct a cross-sectional analysis. Thus, we do not capture changes over time. Future research can examine the impact of institutional change on the same individuals over time. Such a research design would greatly increase confidence in the implications of this study. If changes in institutional profile and innovation level were shown to impact entrepreneurial choices, policymakers could be far more confident in developing remedies.

Third, while institutional data are collected at the country level, this is not always the way in which institutions manifest their effects. As Stenholm et al., [6] notes, "an increasing amount economic development is 'spiky,' concentrating in particular geographic regions and often without regard to borders". Within countries as large as the United States there is significant variation in institutional components, particularly the national innovation system. For instance, the level of access to the latest technology in places such as Silicon Valley is significantly higher than other places. While these measures are not systematically skewed (i.e. biased) for the individuals within each country, geography may improve the reliability of their application to each individual in the sample. Of course, such nuance is in keeping with the overall framework of this paper: institutions within countries do not impact all individuals evenly. Future research can analyze our results in various clusters within the same country.

REFERENCES

[1] Yay, T., Yay, G.G., & Aksoy, T. (2018). Impact of institutions on entrepreneurship: a panel data analysis. Eurasian Economic Review, 8(1), 131-160.

[2] Valdez, M.E., & Richardson, J. (2013). Institutional determinants of macro-level entrepreneurship. Entrepreneurship Theory and Practice, 37(5), 1149-1175.

[3] Thornton, P.H., & Ocasio, W. (1999). Institutional logics and the historical contingency of power in organizations: Executive succession in the higher education publishing industry, 1958-1990. American Journal of Sociology, 105(3), 801-843.

[4] Thornton, P.H., Ocasio, W., & Lounsbury, M. (2012). The institutional logics perspective: A new approach to culture, structure, and process. Oxford University Press.

[5] Battilana, J., & D'aunno, T. (2009). Institutional work and the paradox of embedded agency. Institutional Work: Actors and Agency in Institutional Studies of Organizations, 31, 58.

[6] Green, S.E., Li, Y., & Nohria, N. (2009). Suspended in selfspun webs of significance: A rhetorical model of institutionalization and institutionally embedded agency. Academy of Management Journal, 52(1), 1136.

[7] Stenholm, P., Acs, Z. J., & Wuebker, R. (2013). Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. Journal of Business Venturing, 28(1), 176-193.

[8] Acs, Z. (2006). How is entrepreneurship good for economic growth? Innovations: Technology, Governance, Globalization, 1(1), 97-107.

[9] Bosma, N., Sanders, M., & Stam, E. (2018). Institutions, entrepreneurship, and economic growth in Europe. Small Business Economics, 51(2), 483-499.

[10] Urbano, D., Aparicio, S., & Audretsch, D. (2019). Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned? Small Business Economics, 53(1), 21-49.

[11] Acs, Z.J., & Varga, A. (2005). Entrepreneurship, agglomeration and technological change. Small Business Economics, 24(3), 323-334.

[12] Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. Organization Science, 11(4), 448-469.

[13] Ocasio, W. (1997). Towards an attention-based view of the firm. Strategic management journal, 18(S1), 187-206.

[14] Wennekers, A.R.M. & Thurik, R. (1999). Linking entrepreneurship and economic growth. Small Business Economics, 13(1), 27-55.

[15] Boudreaux, C.J., & Nikolaev, B. (2019). Capital is not enough: opportunity entrepreneurship and formal institutions. Small Business Economics, 53(3), 709-738.

[16] Kirzner, I.M. (1997). Entrepreneurial discovery and the competitive market process: An Austrian approach. Journal of Economic Literature, 35, 60-85.

[17] Reynolds, P.D., Bygrave, W.D., Autio, E., Cox, L.W. and Hay, M. (2002). Global Entrepreneurship Monitor, 2002 Executive Report, Babson College, London Business School and Kauffman Foundation.

[18] Boudreaux, C., & Nikolaev, B. (2017). Entrepreneurial traits, institutions, and the motivation to engage in entrepreneurship. In Academy of Management Proceedings (Vol. 2017, No. 1, p. 16427). Briarcliff Manor, NY: Academy of Management.

[19] McMullen, J.S., Bagby, D., & Palich, L.E. (2008). Economic freedom and the motivation to engage in entrepreneurial action. Entrepreneurship Theory and Practice, 32(5), 875-895.

[20] Aparicio, S., Urbano, D., & Audretsch, D. (2016). Institutional factors, opportunity entrepreneurship and economic growth: Panel data evidence. Technological Forecasting and Social Change, 102, 45-61.

[21] Scott, W.R. (1995). 'Introduction'. In Scott, W. R. and Christensen, S. (Eds), The Institutional Construction of Organizations. California: Sage Publications.

[22] North, D.C. 1990. Institutions, institutional change and economic performance. Cambridge university press.

[23] Bonchek, M.S. & Shepsle, K.A. (1996). Analyzing Politics: Rationality, Behavior and Institutions. New York: W.W. Norton & Co.

[24] Jepperson, R.L. (1991). Institutions, institutional effects, and institutionalism. The New Institutionalism in Organizational Analysis, 6, 143-163.

[25] Meyer, J.W., Rowan, B., Powell, W.W., & DiMaggio, P.J. (1991). The new institutionalism in organizational analysis. The new institutionalism in organizational analysis, 41-62.

[26] Kostova, T. (1997). Country institutional profiles: Concept and measurement. Academy of Management Best Paper Proceedings, 180-184.

[27] Busenitz, L.W., Gomez, C., & Spencer, J.W. (2000). Country institutional profiles: Unlocking entrepreneurial phenomena. Academy of Management Journal, 43(5), 994-1003.

[28] Petrovskaya, I., Zaverskiy, S., & Kiseleva, E. (2017). Attitude to entrepreneurship in Russia: Three-dimensional institutional

approach. Advances in Systems Science and Applications, 17(2), 29-43.

[29] Baumol, W.J., & Strom, R. J. (2007). Entrepreneurship and economic growth. Strategic Entrepreneurship Journal, 1(3-4), 233-237.

[30] El-Namaki, M.S.S. (1988). Encouraging entrepreneurs in developing countries. Long Range Planning, 21(4), 98-106.

[31] Autio, E., Acs, Z.J. (2010). Intellectual property protection and the formation of entrepreneurial growth aspirations. Strategic Entrepreneurship Journal, 4(4), 234-251.

[32] Webb, J.W., Tihanyi, L., Ireland, R.D., Sirmon, D.G. (2009). You say illegal, I say legitimate: entrepreneurship in the informal economy. Academy of Management Review, 34(3), 492-510.

[33] Veciana, J.M., & Urbano, D. (2008). The institutional approach to entrepreneurship research. Introduction. International Entrepreneurship and Management Journal, 4(4), 365-379.

[34] Krueger, N.F., Reilly, M.D., Carsrud, A.L. (2000). Competing models of entrepreneurial intentions. Journal of Business Venturing, 15 (5-6), 411-432.

[35] Lounsbury, M., Glynn, M.A. (2001). Cultural entrepreneurship: stories, legitimacy, and the acquisition of resources. Strategic Management Journal, 22 (6/7), 545-564.

[36] Verheul, I., Wennekers, S., Audretsch D. and Thurik, A.R. (2002). An eclectic theory of entrepreneurship: policies, institutions and culture, Entrepreneurship: Determinants and Policy in a European-US Comparison, 11-81.

[37] DiMaggio, P., & Powell, W.W. (1983). The iron cage revisited: Collective rationality and institutional isomorphism in organizational fields. American Sociological Review, 48(2), 147-160.

[38] De Carolis, D.M., & Saparito, P. (2006). Social capital, cognition, and entrepreneurial opportunities: A theoretical framework. Entrepreneurship Theory and Practice, 30(1), 41-56.

[39] Aidis, R., Estrin, S., & Mickiewicz, T. (2008). Institutions and entrepreneurship development in Russia: A comparative perspective. Journal of Business Venturing, 23(6), 656-672.

[40] OECD. Centre for Educational Research and Innovation (CERI). (1996). Education at a glance: OECD indicators 1996. OECD, Paris, France.

[41] Bartholomew, S. (1997). National systems of biotechnology innovation: complex interdependence in the global system. Journal of International Business Studies, 28(2), 241-266.

[42] Noorderhaven, N., Koen, C., & Sorge, A. (2015). Comparative international management. Routledge.

[43] Nelson Richard R. (1993). National Innovation Systems: A Comparative Analysis, Oxford University Press, New York.

[44] DiMaggio, P.J., & Powell, W.W. (1991). Introduction. In W. W. Powell & P. J. DiMaggio (Eds.), The New Institutionalism in Organizational Analysis, 1-38.

[45] Lundvall, B.A. (1992). National innovation system: towards a theory of innovation and interactive learning. Pinter, London.

[46] Patel, P., & Pavitt, K. (1994). The nature and economic importance of national innovation systems. STI review, 14(1), 9-32.

[47] Metcalfe, S. (1995). The Economic Foundations of Technology Policy: Equilibrium and Evolutionary Perspectives, in Stoneman, P. (ed.), Handbook of the Economics of Innovation and Technological Change, Blackwell, Oxford.

[48] Perkmann, M., & Walsh, K. (2007). University-industry relationships and open innovation: Towards a research agenda. International Journal of Management Reviews, 9(4), 259-280.

[49] Chung, S. (2002). Building a national innovation system through regional innovation systems. Technovation, 22(8), 485-491.

[50] Baumol, W.J. (2005). Education for innovation: Entrepreneurial breakthroughs versus corporate incremental improvements. Innovation Policy and the Economy, 5, 33-56.

[51] Arenius, P., & Clercq, D.D. (2005). A network-based approach on opportunity recognition. Small Business Economics, 24(3), 249-265.

[52] Cohen, W.M., & Levinthal, D.A. (1990). Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, 35, 128-152.

[53] Henry, C., Hill, F., & Leitch, C. (2005). Entrepreneurship education and training: can entrepreneurship be taught? Part I. Education + Training, 47(2), 98-111.

[54] Fukugawa, N. (2017). University spillover before the national innovation system reform in Japan. International Journal of Technology Management, 73(4), 206-234.

[55] Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Broström, A., et al. (2013). Academic engagement and commercialisation: A review of the literature on university-industry relations. Research Policy, 42(2), 423-442.

[56] Dess, G.G., & Shaw, J.D. (2001). Voluntary turnover, social capital, and organizational performance. Academy of Management Review, 26(3), 446-456.

[57] Coombs, R., Harvey, M., & Tether, B.S. (2003). Analyzing distributed processes of provision and innovation. Industrial and Corporate Change, 12(6), 1125-1155.

[58] Ergas, H. (1987). Does technology policy matter? Technology and Global Industry: Companies and Nations in the World Economy, 191-245.

[59] Perkmann, M., Neely, A., & Walsh, K. (2011). How should firms evaluate success in university-industry alliances? A performance measurement system. R&D Management, 41(2), 202-216.

[60] Papaconstantinou, G., Sakurai, N., Wyckoff, A., Fagerberg, J., and Ionnidis, E. (1996). Technology Diffusion, Productivity and International Competitiveness: An Empirical Analysis. Report for the European Commission. EIMS Publication, 13.

[61] Lundvall, B.Å. (2007). National innovation systems—analytical concept and development tool. Industry and Innovation, 14(1), 95-119.

[62] Schumpeter J. (1934). The Theory of Economic Development. New Jersey, USA: Transaction Publishers.

[63] Kortum, S., & Lerner, J. (2001). Does venture capital spur innovation? Entrepreneurial Inputs and Outcomes: New Studies of Entrepreneurship in the United States, 1-44.

[64] Hellmann, T., & Puri, M. (2000). The interaction between product market and financing strategy: The role of venture capital. Review of Financial Studies, 13(4), 959-984.

[65] Audretsch, D.B., Keilbach, M. (2007). The theory of knowledge spillover entrepreneurship. Journal of Management Studies, 44(7), 1242-1254.

[66] Gu, W., Qian, X., & Lu, J. (2018). Venture capital and entrepreneurship: A conceptual model and research suggestions. International Entrepreneurship and Management Journal, 14(1), 35-50.

[67] Thompson, B. (2004). Exploratory and confirmatory factor analysis: Understanding concepts and applications. Washington, DC: American Psychological Association.

[68] Verheul, I., & Van Mil, L. (2011). What determines the growth ambition of Dutch early-stage entrepreneurs? International Journal of Entrepreneurial Venturing, 3(2), 183-207.

[69] Ashourizadeh, S., Chavoushi, Z.H., & Schøtt, T. (2014). People's confidence in innovation: a component of the entrepreneurial mindset, embedded in gender and culture, affecting entrepreneurial intention. International Journal of Entrepreneurship and Small Business, 23(1), 235-251.

[70] Wennekers, S., Van Wennekers, A., Thurik, R., & Reynolds, P. (2005). Nascent entrepreneurship and the level of economic development. Small business economics, 24(3), 293-309.

[71] Lee, Y., & Nelder, J.A. (1996). Hierarchical generalized linear models. Journal of the Royal Statistical Society. Series B (Methodological), 619-678.

[72] van der Zwan, P., Thurik, R., Verheul, I., & Hessels, J. (2016). Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. Eurasian Business Review, 6(3), 273-295.

[73] Keene, J.R., & Quadagno, J. (2004). Predictors of perceived work-family balance: Gender difference or gender similarity? Sociological Perspectives, 47(1), 1-23.

[74] Robichaud, Y., LeBrasseur, R., & Nagarajan, K.V. (2010). Necessity and Opportunity-driven Entrepreneurs in Canada: An Investigation into their Characteristics and an Appraisal of the Role of Gender. The Journal of Applied Business and Economics, 11(1), 59.

[75] Thornton, P.H. & Ocasio, W. (2008). Institutional logics. In R. Greenwood & C. Oliver & K. Sahlin-Andersen & R. Suddaby (Eds.), The Sage handbook of organizational institutionalism, 99-129. London: Sage.

[76] Bourdieu, P. (1988). Homo Academicus. Trans. Peter Collier. Stanford, CA: Stanford University Press.

[77] Eckhardt, J.T., & Shane, S.A. (2003). Opportunities and entrepreneurship. Journal of Management, 29(3), 333-349.

[78] Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. Academy of Management Review, 25(1), 217-226.

[79] Sarason, Y., Dean, T., & Dillard, J.F. (2006). Entrepreneurship as the nexus of individual and opportunity: A structuration view. Journal of Business Venturing, 21(3), 286-305.

[80] Thornton, P.H. (1999). The sociology of entrepreneurship. Annual Review of Sociology, 25(1), 19-46.

[81] Baron, R.A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities. Academy of Management Perspectives, 20(1), 104-119.