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Perceptual factors on entrepreneurial intentions at innovation and efficiency driven economies.

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Introduction

The aim of this paper is to develop and empirically test the determinants of entrepreneurial intentions, using variables of demographic, attitude and behavioral factors. It starts by questioning what attitudes (fear of failure, knowledge of other entrepreneurs, confidence on own skills and experience and knowledge of social perception about entrepreneurship) inspire an individual towards entrepreneurship. Next, research introduces demographic factors (such as age, gender, type of education and level of economic development) in order to examine their influence and effect on intentions to become self-employed.

A major contribution to intentions and perceptual variables is the work of Arenius and Minnity (2005) where they show evidence of their influence on entrepreneurial intentions in nascent entrepreneurship. Their most significant result is the finding that, “across all countries and across genders, perceptual variables and, in particular, the perception that individuals have of their own entrepreneurial abilities are very important. Unfortunately, perceptual variables reflect subjective perceptions rather than objective conditions. As a result, they are likely to be biased.” In other words, despite the fact that they found evidence about the influence of perceptual variables like confidence on skills and experience on entrepreneurial intentions, the problem lies on the subjective nature of the variables.

Nevertheless, opposite to Arenius and Minnity, we focus only on potential entrepreneurs, individuals who see an opportunity that might lead them to start a new business in the next three years. A unique contribution of our study is that not only investigates the influence of perceptual variables on entrepreneurial intentions but also introduces level of economic development as a variable. We use the countries where the entrepreneur is located to form two groups: innovation driven and efficiency driven countries. We choose innovation driven category as binary variable. Our study examines whether the level of economic development affects the decision of someone to start a new business by comparing the two groups.

Entrepreneurship

Entrepreneurship is considered to be one of modern economy’s pillars. It has been recognized as “not only a driving force for job creation, competitiveness and growth; it also contributes to personal fulfillment and the achievement of social objectives”. (Entrepreneurship in the EU and beyond- European Commission, 2010). During past decades, extensive literature has been dedicated to entrepreneurs, individuals who take initiative to set up a new business. The reason that made entrepreneur an interesting topic for research is its complex nature. As economic activity takes place in a dynamic environment, entrepreneur needs to take a series of decisions. These decisions depend on his ability to interpret the constantly changing environment. Decisions regarding the kind of product or service, target group of customers, number of employees, sources of funding, place of the new establishment, further investments in buildings, research & development, marketing and more, make the idea of set-up tough.

Moreover, starting a new business requires a lot of effort, commitment and personal work and time in order to succeed. Even then, when these components do exist,

success is not guaranteed. Good timing and luck are also important factors for an establishment to survive and grow. Consequently, we can see that the life of a venture can be easily influenced by many factors and that results in uncertain outcome. Bad interpretation of social, political, economical environment, usually leads to termination of business. Lack of right information threatens company's operation. Business activity is usually under uncertainty and imperfect information.

Nevertheless, through the years companies keep opening. Even though the odds are against them, individuals keep becoming self-employed or forming ventures with other individuals. Literature has tried to explain what drives them to this decision. Specifically, researchers investigated which factor or factors influence more someone's intentions to start a new business, using possible factors such as opportunity recognition, desire for independence, need for achievement, positive risk-attitude. Many possible explanations exist because every person is different and unique and therefore has his own reasons.

Entrepreneurial intentions

A variety of studies have researched individuals' intentions of starting up a new venture. The study by Krueger, Reilly and Casrud (2000) provides insight on entrepreneurial intentions. Situational (e.g. employment status) and personal factors (e.g. demographic characteristics) appear to provide a small insight of reasons for people to become an entrepreneur. Intentional and motivational factors appear to be the main reasons for becoming an entrepreneur. Others mentioned several individual characteristics such as 'a high propensity of risk attitude' can increase the probability of becoming an entrepreneur (Kihlstrom and Laffont, 1979). Cassar (2007) has marked the importance of "Being independent" as an important key driver. Moreover, social actions (i.e., the way it is viewed by the community) have been identified as factors for the decision of becoming an entrepreneur (Gianetti and Simanov, 2004).

Method and data

Research is based upon data from Global Entrepreneurship Monitor (GEM) 2011. The current research focuses only on samples from countries that have been classified as efficiency driven and innovation driven. The reason for excluding the factor driven countries is that usually there, individuals pushed towards entrepreneurship due to necessity. We would like to form our sample based on individuals that see an opportunity and become self-employed as a result of a conscious choice.

As countries move to the second stage, that of industrialization, economic growth becomes more capital intensive and thus investment-driven. For a successful transition to this stage and its related middle-income status, countries must subsequently get their labor and capital markets working more properly, attract foreign direct investment and educate their workforce to be able to adopt technologies developed elsewhere. Competitiveness is primarily based upon high rates of production efficiency in manufacturing. The key processes in moving from the first (factor driven to efficiency driven) are capital accumulation and technological diffusion. These may enable countries to achieve a certain degree of catch-up growth. A third stage is that of a technology generating economy (innovation-driven stage).

According to Porter et al. (2002), countries that have reached this stage innovate at the global technological frontier in at least some sectors.

This stage also implies a high-income status. The transition to this stage requires a country to develop its ability to generate as well as commercialize new knowledge. This entails intensive cooperation between universities, private businesses and government. Once a critical mass of knowledge, technologies, skills and purchasing power has been built up, innovation may achieve increasing returns to scale. These will fuel a self-perpetuating process of continuing innovation and long-term economic growth (Sachs, 2000). At this point one may speak of a knowledge economy. Audretsch and Thurik (2001, 2004) describe this transition as one from the managed to the entrepreneurial economy.

Countries that belong in the group of efficiency driven economies are Mexico, Argentina, Brazil, Chile, Hungary, Poland and Russia. Countries that belong to innovation driven group are Australia, Japan, Greece, Netherlands, Belgium, France, Spain, Germany, United Kingdom, Sweden and Norway. A similar questionnaire is used in both groups of economies which makes the information directly comparable.

The main variable is intention which describes an individual's probability to start a new business in the next three years. In the research is used a number of independent variables that are possibly determinant factors such as demographic factors (age, gender, type of education, level of economic development), behavioral factors (risk-taking and perceived capabilities) and social factors (social perception of entrepreneurial status). Based on these factors, we form our research question:

“Do behavioral and social factors determine someone's intention to start a new business? If there is effect, is there any difference between innovation and efficiency driven economies?”

The results of our study provide evidence about the influence of these factors. Knowledge of other recent entrepreneurs, confidence on skills and experience and perception that entrepreneurship is a good career choice according to most people in the country, are factors that seem to have positive effect on our dependent variable (entrepreneurial intentions). On the other hand, factors such as fear of failure, age and education, show a negative effect on someone's decision to start a new business. In addition, we found evidence the effect of knowing other entrepreneur is significantly bigger at innovation countries than at efficiency countries. Contrary to this, we found that age has small but significant effect on innovation countries.

The research is organized as follows: In the next section, theoretical framework about determinants of entrepreneurship will be presented, description of the variables that will be used and relative literature. The third section describes the data and the methods used for model structure. In section four, empirical analysis and results are covered. Finally, in the last section, discussion and limitations are provided.

Chapter 1

Theoretical framework

1.1 Definition of Entrepreneurship

About the definition of entrepreneur, there are two approaches: the economist approach and the organizational theorist approach. Common to both is that entrepreneurs don't exist where there is perfect certainty about the future. In other words, entrepreneurs do not exist where everyone has perfect information and the same view about the future. On the contrary, entrepreneurs are more likely to exist when there is uncertainty and imperfect information and therefore uncertain outcome. In its finest form, entrepreneurship exists when an individual judges that there is a price difference between a product/service in one market and its price in another and it is possible to exploit that price difference to make profit. This activity is known as arbitrage. For example, someone might recognize price difference between two cities. As a result, he might see an opportunity to buy goods in the low price city and then sell them at a higher price in the other town. That is called spatial arbitrage.

Another example of arbitrage is temporal arbitrage. Under this situation someone expects the price of a product to become higher in the future. Consequently, he might see an opportunity to buy now quantities of the product in order to sell it at a higher price in the future. This is. These are just a few examples of arbitrage. The most important fact is that the activity of arbitrage is considered by most economists as a key factor associated with entrepreneurship. Although arbitrage is regarded a key element for the existence of entrepreneur, is not always sufficient for someone to engage at this activity. Some of the reasons might be associated costs that decrease or eliminate profit and thus the whole activity becomes unprofitable, lack of sufficient funds to support the entrepreneurial activity, lack of necessary information for opportunity recognition.

Furthermore, a person might not choose to proceed because he thinks that opportunity cost for the entrepreneurial activity is too high and he prefers to do something else. Last but not least, even amongst those that are aware of the entrepreneurial opportunity, not all will choose to exploit the opportunity. The reason is that, as it is mentioned before, the entrepreneurial activity takes place in an uncertain environment and hence is connected with risk. Not everyone is willing to bear this risk and that depends on their level of risk-tolerance and the degree of risk that they are willing to take. There are individuals that are more risk averse than the others and this means that although they recognize an opportunity, the formers might choose not engage in this activity. To sum up, both approaches support the concept that individuals make choices/decisions under uncertain environment.

1.1.1 The economist approach

We will proceed now to the description of each specific approach, starting with the economist approach. Economists have discussed a lot about the key features of entrepreneurship. Some of the main concepts and ideas are about risk, innovation and entrepreneurial traits.

In eighteenth century, Cantillon made a key distinction between entrepreneurs and

employees. The distinction was based about the uncertainty of income. The main idea is that employees are supposed to be certain to get their wages/income, whereas entrepreneurs obtain only income (which is the profit) when their prediction about an opportunity is correct. In other words, income for employees is certain whereas income for entrepreneurs is uncertain.

Moreover, economists like Hamilton (2000), concluded that pecuniary motives are not the only factors that lead an individual and that non-pecuniary incentives can play equally important role to someone's decision to become self-employed. Hamilton showed that those who work as self-employed could earn 35 per cent more as employees, proving that income or other monetary earnings are not the only reason for someone to become self-employed.

Through the years, risk concept became more important ingredient for the definition of entrepreneur. Killstrom and Laffont (1979) assume that one of the main functions of an entrepreneur is to make decision under uncertainty, to bear the risk and obtain the potential profits that derived from this decision. That is to say, the profits from entrepreneurship are the gains for bearing the risk. This point of view, however, is opposite to that of Schumpeter (1934) who argued that these profits from risk reflected ownership more than entrepreneurship.

In addition to this, Killstrom and Laffont (1979) assumed that the expected value of an opportunity would encourage some individuals to change from paid employment to self-employment. But that would not happen for everyone. This will depend on risk-averse level of individuals and how this is affected by an income rise. Opposite to this opinion, is Knight's argument about risk-aversion. Knight (1921) argued that although there might be differences in the levels of risk-averse among individuals; this might not be crucial factor for starting self-employment. According to Knight, the decision to become self-employed is just a choice between uncertain income from entrepreneurial action and certain income from a wage.

Another topic for discussion among economists during the past years is whether entrepreneurs have "special" skills and characteristics that distinguish them from other individuals. Blanchflower and Oswald (1998) assume that only a specific percentage from population has the necessary qualities to become self-employed, qualities either related to skills or information or desire. Nevertheless, Knight's (1921) opinion is that despite the fact that individuals may differ in entrepreneurial skills or talent, there is still an income level at which everyone would be entrepreneur. This means that if expected profits from an entrepreneurial action exceed the benefits from wage-employment, then everyone will turn to self-employment.

Another attempt to define entrepreneur was Schumpeter's. Schumpeter (1934, 1942) connected entrepreneurship with innovation. He believed that an entrepreneur was someone who innovated and brought about, through creating new market conditions, disequilibria in the market. An entrepreneur (innovator) is someone who creates and develops new ways of doing things. For instance, Chad Hurley, Steve Chen and Jawed Karim, founders of YouTube, have created new ways and opportunities in terms of entertainment, education and promotion at internet.

Finally, one more definition of entrepreneur is that of Casson's (1982). From Casson's

point of view, entrepreneur is: “Someone who specializes in making judgmental decisions about the co-ordination of scarce resources”. In his later work, Casson (1999) consider entrepreneur to be an individual that process information when that information is both costly and volatile. In Casson’s opinion, the economic environment is “disturbed by outside events, temporal or permanent.” Entrepreneur is an individual that runs a business and is obliged to make a important business decisions, like the volume of production, product price, investment in new plant or machine, taking into consideration these events or “shocks”. To make these decisions, the entrepreneur is assumed to require information which is costly. But Casson argues that not every entrepreneur is willing to obtain the same amount of information. Since the collection of information depends on entrepreneur individually, Casson suggests that those who collect and process information better, are more likely to be better entrepreneurs.

To sum up, differences exist between economists about the definition of entrepreneur. However, there are some points that are widely accepted. The first is that the individual exercises a choice between becoming self-employed and an employee and is able to switch between the two “states”. The second is that the choice to switch between the two depends on the utility of each “state”. The third one is the recognition that the income from being entrepreneur is more risky than that from being an employee. The last one is that the choice is also influenced by differences between individuals in terms of their entrepreneurial talent and attitudes to risk.

1.1.2 The organizational theorist approach

Like economists, organizational theorists show considerable diversity in the definition of entrepreneurship and entrepreneur. Drucker (1985) considers entrepreneurship as an act of innovation that involves endowing exiting resources with new wealth producing capacity. In later years, Low and MacMillan (1988) argued that entrepreneurship is the creation of new enterprise. Stevenson et al. (1989) suggested that entrepreneur is someone that pursues an opportunity without concern for current resources or capabilities.

Another definition of entrepreneurship is that of Timmons (1997). From Timmons point of view, entrepreneurship as a way of thinking, reasoning and acting that is opportunity obsessed, holistic in approach and leadership balanced. Venkataraman (1997) has suggested that entrepreneurship research seeks to understand how opportunities to bring into existence future goods and services are discovered, created and exploited, by whom and with what consequences. Finally, Shane and Venkataraman (2000) focus upon the dual phenomena of both the presence of lucrative opportunities and the presence of enterprising individuals. Their definition about the field of entrepreneurship is: “The scholarly examination of how, by whom and with what effects opportunities to create future goods and services are discovered, evaluated and exploited.” Their idea is formed by four key assumptions: The first assumption is that entrepreneurial opportunities exist, but are not known to everyone. The second assumption is that people have different perceptions on the value (pecuniary or not pecuniary) of an opportunity. The third assumption is that some people will choose to pursue these opportunities. The fourth and last one is that acting on these opportunities will result in differing outcomes, both profitable and unprofitable.

Last but not least, according to Morris (1998) entrepreneurship is the process through which individuals and teams create value by obtaining and coordinating resources in order to exploit opportunities in the environment. This can take place in any organizational context and results in a variety of possible outcomes such as new ventures, products, services, processes, markets and technologies.

Despite the fact that these assumptions are also the focus of economists, there are differences in the perspectives between the two groups. The economists approach focus mainly on concept of choice and information processing. On the contrary, the organizational approach focuses on individual entrepreneurial traits. Organizational theorists have investigated how individuals gather, analyze and evaluate information in entrepreneurial context. On the contrary, for economists, self-employment is a matter of utility maximization and that shift to entrepreneurship comes when it provides greater utility than other employment “states”.

There are several examples of entrepreneurial traits that have considered through the years by economists as potential factor for self-employment. McClelland (1961) related entrepreneurship with need for achievement (NAch). Rotter (1966) connected locus of control as a factor for someone to become entrepreneur. Locus of control is the belief that the achievement of a goal is due to individual’s own actions. Other examples are risk-taking propensity, desire for autonomy, over-optimism, tolerance for ambiguity. However, these traits can provide weak evidence to interpret solely the behavior of an individual that has some of the traits.

Apart from the entrepreneurial traits, some organizational theorists have turned towards understanding how people think and react in different situations. This comes from the argument that people do not follow apparently rational choices when decisions are made under uncertainty. In order to explain how individuals evaluate opportunities and risks, three cognitive concepts are often used: The concept of self-efficacy, the concept of intrinsic motivation and the concept of intentionality (Storey and Greene 2010). The concepts of self-efficacy and intentionality will be explained further in another section of our research. Intrinsic motivation suggests that individuals that perform tasks are better motivated when they act for their own good than individuals that are motivated by external force.

To conclude with, both approaches provide useful definition about entrepreneur. However, while in the case of economist approach, entrepreneurship is just a matter of choosing the maximum utility among the employment statuses, in the case of organizational approach what matters most is “how” outcomes are achieved and the cognitive or psychological attributes of the entrepreneur. In our research, we adopt and use more concepts from the organizational approach.

1.2 Intention models

1.2.1 Theory of entrepreneurial event¹

Shapero and Sokol (1982) propose an intention model, namely “the theory of

¹ Section 1.2 is part of an assignment on entrepreneurial determinants, during the seminar “Small Business and Entrepreneurs” (FEM 11055) in 2012

entrepreneurial event”. This model considers entrepreneurial behavior as a result of various complementing factors, which influence the individual’s perceptions. The focus is on life path changes that have an impact on perceptions of desirability and perceptions of feasibility associated with new firm formation. Critical changes in life situations, displacement, can cause a change in entrepreneurial intention and subsequent behavior. Displacement may occur in a positive (financial support) or negative form (job loss). The intention of becoming an entrepreneur depends on the perceived desirability, feasibility and propensity to act. Perceived desirability means the degree to which an individual is attracted to a certain behavior. Krueger and Carsrud (1993) explained this as the desirability towards entrepreneurship. According to Kuehn (2008), this is influenced by individual’s social environment, which contains “cultural influences, as well as family, friends and personal exposure to entrepreneurship”.

Furthermore, perceived feasibility is the ability level that an individual assign to carry out that behavior, thus in our case, one’s capability to engage in entrepreneurship. These perceptions are determined by “cultural and social factors” of the individual (Shapero and Sokol, 1982). Accordingly, the case of entrepreneurial event is caused by environmental factors surrounding the individual, thus for example family, education and professional influences. Within the model, intentions are based on the propensity to act, which is stated by Summers (2000) as individuals having psychological traits to become self-employed caused by an event. Entrepreneurial traits that are widely discussed among researchers are for example risk-taking propensity, locus of control, innovativeness and independence (Wang, Lu and Millington, 2011). Propensity to act is argued to be similar to risk-taking and tolerance of ambiguity, described as one’s motivation to begin when outcomes are unknown (Shane, 2003).

1.2.2 Theory of planned behavior

Like Shapero and Sokol, Ajzen (1991) developed an intention model, the theory of planned behavior. According to his theory, the intention of becoming an entrepreneur specifies the effort one will make to perform entrepreneurial behavior. In other words, there is a close relationship exists between the intention of carrying out a specific behavior and its performance. Here, intention is the key element in explaining behavior. It shows the effort one has towards following that behavior and thus “captures the motivational factors that influence behaviors” (Liñán, 2004). The theory proposes three antecedents of intention: attitude, subjective norm and degree of perceived behavioral control (Ajzen, 1991, Liñán, 2004). Attitude relates to the satisfactory consideration of that behavior. In other words, it is defined as “the degree to which the individual holds a positive or negative personal valuation about being an entrepreneur” (Ajzen, 1991). This attitude is formed by experiences through one’s life.

Next, social norm refers to perceived social control to carry out that behavior. Important social connections, such as peers, family, and networks can influence individual. According to Ajzen, third variable, perceived behavioral control can be defined as the ease or difficulty of the behavior of interest as seen by the individual. In turn, this can be associated with self-efficacy, a concept that individuals do not only learn by doing itself, but also from others. The stronger the efficacy towards starting a

new firm, the more likely one will engage in starting up a new venture (Chen, Green and Crick, 1998). When comparing both models, this concept is similar to perceived feasibility, one of the elements of Shapero and Sokol's model. Furthermore, perceived desirability can be related to Ajzen's attitude variable. The main difference between the models is captured by the propensity to act, which is replaced by social or subjective norm. In Shapero and Sokol's model, more emphasis is placed on characteristics and previous experiences of the individual, while Ajzen's theory puts forward the role of social surroundings.

Prediction of Behavior (Intention) = Attitude + Subjective Norm + Perceived Behavior Control

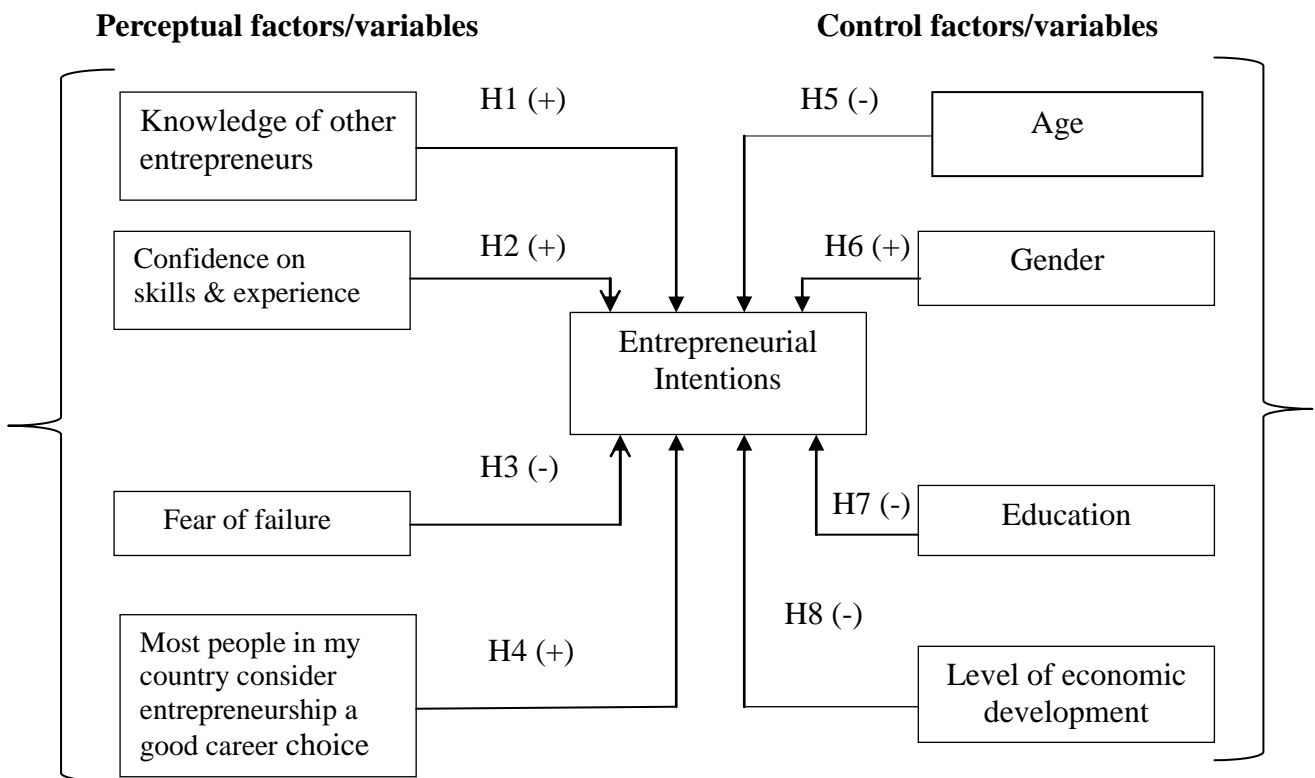
Both theories have received empirical support, the planned behavior model (Kolvereid 1996; Krueger et al., 2000; Shook et al., 2003) and the entrepreneurial event model (Krueger et al., 2000, Shook et al., 2003). The two theories are viewed to be of value towards better, though not complete yet, understanding of entrepreneurial intentions.

1.3 Entrepreneurial intentions

In the past years, several studies have mentioned the utility of entrepreneurial intentions as a tool in prediction of planned behavior. Krueger et al. (2000) found different factors that can have influence on entrepreneurial intentions. One of the main factors is the existence of role models. They indicated that role models can influence intentions by changing someone's beliefs and motivations. Furthermore, researchers mention that if role models can change someone's belief that he is able to succeed in a new venture, they can transform its intentions. According to Krueger et al., intentions are more powerful than personal characteristics and that can lead to entrepreneurship even if the situations for starting a new business are not convenient in a particular time period. The significance of role models effect is also proved in the study of Scott and Twomey (1988). The researchers found that the parental role models and experience can form individual's perception for ability in business and that, in combination with a business idea, can lead someone to a start-up.

Concerning other factors that affect someone's decision to start a new business, there are more examples of studies. However, for practical reasons, we will continue our literature review by focusing on those that we will use in the empirical analysis. These factors are fear of failure, confidence on someone's skills, knowledge of other entrepreneurs/social network and three demographic, gender, age and education. In addition, we use a social factor, which is the personal belief of individual that most people in his country consider entrepreneurship a good career option. In other words, we would like to test whether a positive public opinion towards entrepreneurship as a career choice, can influence positively someone's intentions to start his own venture.

Table 1: Variables and hypotheses in our model



1.4. Knowing other entrepreneurs-social networks

Social capital

During formation, new ventures require many resources, ranging from information and capital to symbolic support such as legitimacy (Singh et al., 1986). Given venture resource constraints, entrepreneurs often form ties with outside entities in an effort to provide many of these critical resources (Dubini and Aldrich, 1991). Such ties form the entrepreneur's "social capital", or the sum of the available actual and potential resources, derived from a relationship network (Nahapiet and Ghoshal, 1998). Besides providing access to economic resources, social capital derived from this network is important because it can provide the entrepreneur access to useful, reliable, exclusive, and less redundant information, which, in turn, improves a venture's likelihood of success (Brüderl and Preisendorfer, 1998). In addition, social capital serves as both a product of the entrepreneurial network and an enabler of continued network development, facilitating coordination and co-operation of network ties by bonding the parties involved (Anderson and Jack, 2002).

For instance, Nahapiet and Ghoshal (1998) discussed how social capital and networks create favorable conditions for the combination and exchange of knowledge that lead to creation of new knowledge. Further, it has been argued that social encounters between an individual and her network contacts may be an important source of new ideas (Christensen and Peterson, 1990). Moreover, networks have been associated

with the number of new opportunities perceived by entrepreneurs. The rationale is that an individual's network can provide access to knowledge that is not currently possessed, thus leading to the potential for opportunity recognition.

Social network theory

A valuable starting point for understanding how social capital is generated through the pattern of interpersonal relationships is social network theory. Core idea of social network theory is its two-fold focus on both individual actors and the social relationships connecting them (Wasserman & Galaskiewicz, 1994). The network literature argues that individuals gain access to information through interaction with other people, who in turn are linked to others, and that network characteristics influence the availability, timing and quality of information access.

An entrepreneur's position in social networks may determine the outcome of the founding process (Aldrich and Zimmer, 1986; Aldrich, Rosen and Woodward, 1986) and it may determine the resources that may be available in social networks in entrepreneurial contexts (Johannison, 1988).

An entrepreneurial context is created when there are several business ventures in an area. This corresponds to the increase in founding rates that is observed with rising density of firms (Hannan and Freeman, 1987). Rising density of firms in an area means that there will be more persons in social networks who possess information and knowledge that is necessary to start firms. This facilitates diffusion of knowledge and makes it possible for more persons to start their own businesses. Individual's position in networks and the way he uses them, can influence his decision positively to establish a firm. A small example of this could be Silicon Valley. An increased number of computer companies established in the certain place, led not only to technology advancements but also to technology diffusion. The access tangible and intangible resources concentrated on this specific region facilitated the creation of new ventures in computer industry.

Homophily

Moreover, social position in networks determines what kinds of other actors (alters) entrepreneurs are able to reach through direct contacts. The position of actors and relations among actors determine the market position and the content of available information. The diversity of information depends on relations among alters, where close connections among alters may lead to a high degree of redundancy of information.

Homophily (i.e. "love of the same"), which colloquially described as "birds of a feather flock together", is a well-established sociological principle that proposes that individuals with similar attributes will have a higher tendency to form interpersonal relationships than dissimilar individuals (Kossinets & Watts, 2006).

Studies of homophily suggest that resources flowing through a network tend to be localized around a specific attribute such as age, gender, or education level (Marsden, 1988). Hence, the more similar individuals are on a specific attribute, including position in a network structure, the more quickly resources will flow among these individuals. In the opposite case, individuals who are different on a specific attribute

are also more “distant” in the network. (McPherson, Smith-Lovin, & Cook, 2001). A homophily helps people to access information (Choudhury, Sundaram, & John 2010), diffusion of innovations and behaviors (Christakis & Fowler, 2007), opinion and norm formation (Centola, Willer, & Macy, 2005).

Role models

In addition to the literature mentioned before, works in various social sciences have established the importance of knowing other entrepreneurs for entrepreneurial decisions. In psychology, for example, Baron (2000) has discussed the importance of role models because of their ability to enhance self-efficacy. In economics, Minniti (2004) has discussed increases in individuals’ confidence generated by the presence of role models and their ability to reduce ambiguity.

Role theory argues that role behavior is learned through socialization (Thomas & Biddle, 1966). Socialization is concerned with the learning of behavior at various stages of the life cycle. Role theorists attempt to describe the processes that enter into the learning of role behavior. Role models serve as someone whose life and activities contribute to learning role behavior (Basow & Howe, 1980). Researchers have argued that role models provide an observational learning experience for the individual (Scott & Twomey, 1988; Lent, Brown, & Hackett, 1994). Scott and Twomey (1988) found that the parental role models and experience can form individual's perception for ability in business and that, in combination with a business idea, can lead someone to a start-up. Additionally, the role model can directly influence an individual by actively participating in the learning experience. These activities may include advice and counsel, but may also involve co-participation in shared learning experiences. Role model behavior impacts both the perceived desirability and feasibility of the role for the individual (Krueger & Brazeal, 1994; Krueger, Reilly & Carsrud, 2000).

When the role is a career role such as entrepreneur, role models can help shape both the outcome expectations and self-efficacy of the individual leading to intentions of pursuing said career (Lent et al., 1994). Scherer et al. (1989) reported that 35–65% of entrepreneurs had one or more entrepreneurial parents. This also implies that the number of entrepreneurs that did not have entrepreneurial parents could also be as high as 65%.

The first hypothesis is the following:

H1: Individuals who know someone that started a new business in the past 2 years are more likely to start a new business in the next three years, than individuals who don't know other entrepreneurs.

1.5 Confidence on one’s skills, knowledge and experience

Internal Locus-of-Control (Rotter 1966), self-confidence, and optimism may be regarded as indicators of Perceived Ability. Several studies have included such presumed traits of entrepreneurs (Brockhaus, 1982; Begley and Boyd 1987). The results are mixed, but taken together they lend some support to the idea that those traits influence entrepreneurial behavior.

The psychology literature has established the importance of confidence in one's skills and ability for entrepreneurial behavior. The decision to start a new business has been related to the presence of intentionality and locus of control (Baron, 2000). Starting a new firm is an intentional act that includes repeated efforts to exercise control over the process in order to achieve the desired outcome (Gartner, 1985). In economics, Harper (1998) argues that an internal locus of control increases the link between entrepreneurial alertness and self-efficacy and thus leads to the creation of more new firms.

1.5.1 Theories

Locus of control

Locus of control is the belief in the extent to which individuals believe that their actions or personal characteristics affect outcomes. People who have an external locus of control believe that the outcome of an event is out of their control, whereas individuals with an internal locus of control believe that their personal actions directly affect the outcome of an event (Rotter, 1966). McClelland (1961) suggested earlier that individuals who are high in nAch (need for achievement) prefer situations in which they feel that they have direct control over outcomes or in which they feel that they can directly see how their effort affects outcomes of a given event. This point was extended by Rotter (1966) who argued that individuals with an internal locus of control would be likely to seek entrepreneurial roles because they desire positions in which their actions have a direct impact on results. The research on locus of control suggests that firm founders differ from the general population in terms of locus of control.

Shapiro (1977) found that firm founders from Texas and Italy were more "internal" than other groups of professions reported by Rotter (1966). This same pattern holds with female firm founders versus the general female population (Bowen & Hisrich, 1986). While locus of control orientation differs between firm founders and the general public, most studies have not found a difference between firm founders and managers on locus of control. For example, in a study of students, Hull, Bosley, and Udell (1980) found that locus of control did not differentiate between students who went on to work in managerial positions and those who started their own business. Similarly, Brockhaus (1982) found that managers and owners of new businesses did not differ on locus of control. Begley and Boyd (1987) argued that locus of control did not distinguish between founders and managers. Babb and Babb (1992) found no differences in locus of control between founders and managers in small businesses in Northern Florida.

Human capital

The start-up attempt is likely to be dependent on the skills and experiences that entrepreneur(s) and their networks bring to a new organization. Human capital relates to the intrinsic qualities and is thought to have a positive influence on the success of starting entrepreneurs. Human capital theory predicts that investments in knowledge, skills and experiences enhances cognitive abilities and subsequently result in more productive or efficient behavior. Knowledge is an important factor in this respect, which may be acquired through general education or through time. Human capital variables include knowledge, skills, experience and education and these variables are

likely to influence the development of a business idea and the organization of resources.

It could be argued that general human capital or the overall stock of knowledge, skills and experience which people have acquired throughout their life, through education or work experience, may help individuals in setting up a firm. People with higher level of education may be better equipped to start up a business than other individuals. Nevertheless, they also are likely to have alternative employment opportunities. This could be a possible explanation for a not significant effect of education on start-up success in previous studies (Davidsson and Gordon, 2009). Also, a rather consistent finding across studies so far is that the amount of overall work experience does not matter for explaining start-up success (Davidsson and Gordon, 2009).

Self-efficacy

Self-efficacy is the belief in one's ability to muster and implement the necessary individual resources, skills and proficiencies to attain a certain level of achievement on a given task (Bandura, 1997). In other words, self-efficacy can be seen as task-specific self-confidence. An individual with high self-efficacy for a given task will put more effort for a greater length of time, persist through obstacles, set and accept higher goals, and develop better plans and strategies for the task. Additionally, a person with high self-efficacy will face negative feedback in a more positive manner and use that feedback to improve his performance. These attributes of self-efficacy may be important to the entrepreneurial process because these situations are often ambiguous ones in which repeated efforts, consistence, persistence and planning are important.

One study directly assessed the effect of self-efficacy on some dimension of the entrepreneurial process. Baum (1994) assessed firm founders in the architectural woodworking industry on a number of variables including general traits and motives (e.g., tenacity and positive affectivity), specific skills and competencies (e.g., industry experience and technical skills), situation-specific motivation (e.g., goal setting and self-efficacy), vision, and strategic action. Baum found that self-efficacy (measured as the self-efficacy to grow the company) had a strong positive relationship with growth.

Our second hypothesis is the following:

Individuals, who have confidence in their skills and experience, are more likely to start a new business in the next three years, than individuals who don't.

1.6 Risk aversion

Entrepreneurs are often considered to be risk avert individuals (Kihlstrom and Laffont, 1979). Cantillon (1755), Marshall (1890) and Knight (1921) describe entrepreneurs as individuals that bear risks. In more recent papers, like Kihlstrom and Laffont (1979), risk aversion level plays a prominent role in one's entrepreneurial decision, such that more risk averse individuals move into paid employment and more risk tolerant individuals become entrepreneurs. A possible definition for propensity for risk taking is "the perceived probability of receiving the rewards associated with success of a proposed situation, which is required by an individual before he will subject himself to the consequences associated with failure, the alternative situation

providing less reward as well as less severe consequences than the proposed situation.” (Brokhhaus, 1980)

In occupational choice-based models, the attribute of risk-taker or risk bearer, plays an important role. Parker (2004) discriminates between three families of occupational choice models while also contributing to the analysis of income risk. Risk tolerance is found to increase the probability of being self-employed. Davidsson (2006) refers to the “fear of failure” variable which influences the propensity to become nascent in the obvious fashion. The intuition is that since most individuals are risk averse and since the perceived (rather than objective) fear of failure is an important component of the risk attached to starting a new business, a lower level of perception of the likelihood of failure should mean an increase in the probability that an individual will start a new business.

Uncertainty and volatility in new venture creation and growth, underline the “risky” character of the whole process. Consequently, it is not surprise that many scholars examine the individual’s risk attitude related to entrepreneurship. Evidence from empirical analysis suggests that risk-tolerant people are more likely to choose to become self-employed than risk-averse individuals (Grilo and Irigoyen, 2006). Lüthje and Franke (2003) in their research on engineering students of MIT found that there is strong influence between risk taking propensity and entrepreneurial intent. Students that are willing to accept risks have more positive attitude for self-employment. Segal et al. (2005) have come with same conclusions; risk tolerance significantly predicts self-employment and influences. In the research of Cramer et al (2002) one of the findings is that an individual’s risk tolerance significantly influences his entrepreneurial intention. On the other hand, there are studies that proved a lesser extent of this influence. In the studies of Rosen and Willen (2002) and Norton and Moore (2006), risk attitude is not an important consideration in the decision to start a business.

Based on the existing literature review, our third hypothesis regarding fear of failure is the following:

H3: Individuals who have fear of failure are less likely to start new business in the next three years, than individuals who have not.

1.7 Considering entrepreneurship a good career choice/macro-cultural influence

Cultural values play a role in shaping the institutions in a country. Values and beliefs shape behavior and therefore the decision to become self-employed (Mueller and Thomas 2000). More deeply rooted cultural values can also be linked to entrepreneurship. Hofstede (1980, 2001) distinguishes between several cultural indicators, including individualism, power distance, individualism, uncertainty avoidance and long-term versus short-term orientation.

The relationship between cultural factors and entrepreneurship is dependent upon whether this relationship is viewed from the aggregate psychological traits or the social legitimation (dissatisfaction) perspective (Davidsson 1995, Hofstede et al. 2004). The aggregate psychological trait explanation of entrepreneurship argues that if

there are more people with entrepreneurial values in a country or society, there can be more entrepreneurs. Based on the social legitimation perspective entrepreneurship is influenced by the difference in values and beliefs between the population as a whole and potential entrepreneurs. When individuals are not satisfied with existing structures in their life or employment (no offer for entrepreneurial opportunities), they are likely to leave organizations and start their own business. Empirical evidence on the relationship between dissatisfaction and entrepreneurship at the country level is scarce, partly due to lack of data. Nevertheless, Noorderhaven et al. (2004) using data for 15 European countries for the period 1978–2000, found a positive effect of dissatisfaction (with life) on self-employment levels, supporting the social legitimating perspective.

According to Becker (1996), a definition of culture is: “Individuals have less control over their culture than over other social capital. They cannot alter their ethnicity, race or family history, and only with difficulty can they change their country or religion. Because of the difficulty of changing culture and its low depreciation rate, culture is largely a ‘given’ to individuals throughout their lifetimes.” Thus, culture may be defined as a set of shared values, beliefs, and norms of a group or community.

Forming our fourth hypothesis:

H4: Individuals who believe that most of the people in their country consider entrepreneurship to be good career choice, are more likely to start a new business in the next three years, than individuals who don't.

1.8 Control variables

1.8.1 Age

Older people may have accumulated more knowledge and financial capital, they have had more time than young people to build up a network. This can lead them to the direction of self-employment in order to avoid compulsory retirement provisions (Parker, 2004). On the other hand, older people may be more risk averse, may attach less value to future earnings out of the firm, and are subject to increasing opportunity costs of self-employment because income from wage-employment increases with age (Lévesque and Minniti, 2006). Empirical evidence of the relationship between age and entrepreneurship based on these different arguments is mixed. The significance and direction of the relationship also depends upon the stage in the entrepreneurial process. For example, for entrepreneurial preferences a U-shaped relationship has been found (Blanchflower et al., 2001; Grilo and Thurik, 2005).

Levesque and Minniti have shown theoretically that the relationship between age and the likelihood of starting a new business picks at a relatively early age and decreases thereafter. Consistently, Reynolds et al. (2003) have found empirical evidence showing individuals between 25 and 34 years of age to be the most likely to be nascent entrepreneurs. Also, Blanchflower (2004) argues that, the likelihood of being a nascent entrepreneur is maximized among young individuals, even though the probability of being an entrepreneur is highest among older individuals.

Forming our fifth hypothesis:

H5: Younger individuals are more likely to start a new business in the next three years, than older individuals.

1.8.2 Gender

In entrepreneurship research, evidence of gender differences is mixed. Nevertheless, gender has been found to influence entrepreneurial behavior at different stages of the process. For example, women tend to have a lower preference for entrepreneurship (Blanchflower et al., 2001; Grilo and Irigoyen, 2006) and are more reluctant to start up a business (Davidsson, 2006) than men. Several studies have suggested that, the “direct” effect of gender on new business creation and performance is non-existent or limited (Collins-Dodd et al., 2004; Parker and Belgithar, 2006). Most studies find that men have a higher probability of engaging in entrepreneurship than women. The same goes for nascent entrepreneurship (Davidsson, 2006).

The literature on female entrepreneurship mainly consists of different approaches. For example, studies at individual level, focusing on characteristics of female and male entrepreneurs such as motivations, personality attributes. Studies at firm level, examining size, goals and strategy and performance, tried to investigate the relation of these measures with entrepreneurial traits. Other studies have attempted to interpret female entrepreneurship through characteristics of the environment, such as financial constraints and other challenges that women face when starting or developing their firms. With the exception of Reynolds et al. (2002) and Minniti et al. (2005) few studies have investigated the influence of macro-level factors on female and male entrepreneurship.

In recent years, gender differences in entrepreneurial behavior have been also the subject of a significant amount of attention. Langowitz and Minniti (2005) found that the factors influencing female and male entrepreneurship tend to be the same. In spite of these similarities, women participation rates in entrepreneurship are systematically below those of men. A possible explanation given by Greene (2000) suggests that the rate difference lies on differences in average human and social capital.

In an earlier attempt to explain the lower likelihood of women to engage in self-employment, Verheul et al. (2012) show that women are less likely to be engaged in entrepreneurship than men, even when the preference for entrepreneurship is similar across gender. Furthermore, there seems to be large cross-country variation in the factors that facilitate or hinder women and men who wish to become entrepreneurs (Verheul et al. 2006). In the case of grouping countries on the basis of level of economic development, researchers observed that in low-income countries, the gender gap in entrepreneurship is smaller than in more developed countries (Baughn et al. 2006; Minniti et al. 2006). In developing countries, women face entry barriers in the formal labor market and resort to entrepreneurship to escape unemployment or even poverty (Minniti and Naude´ 2010). Thus, understanding the role of female entrepreneurship in the context of economic development is especially important (Minniti and Naude´ 2010).

Few studies have focused on female entrepreneurship in efficiency driven countries (Aidis et al. 2007), even though female owned firms are said to be of specific importance within the efficiency driven context. These firms can be the source of job

creation, not only for the female entrepreneurs themselves but also for other women that can be hired. These individuals can serve as role models that make younger generations aware of alternative occupational opportunities and, finally, they can help to speed up the transition process through their creativity and innovative capacity and through the further development of the private sector. Institutional factors that affect women's engagement in entrepreneurial activity in efficiency driven countries include both formal institutions (e.g., legal gender equality, the effect of tax legislation on dual earners, childcare facilities) and informal institutions such as family values, religion, entrepreneurship as masculine activity (Aidis et al. 2007).

Female entrepreneurship may be inhibited in countries where normative support for female entrepreneurship is lacking because the traditional role of women as caretaker in the household is emphasized (Baughn et al. 2006). In such countries, child-care facilities are often relatively underdeveloped or non-existent, and therefore, it is more difficult for women to engage in new venture creation (De Bruin et al. 2006). In terms of stages in the entrepreneurial process, it seems that the problems experienced by women in transition countries mostly occur in the early stages of entrepreneurial activity. For example, the fact that entrepreneurship is mainly seen as an activity undertaken by men may discourage women in efficiency driven economies from pursuing an entrepreneurial career.

Forming our sixth hypothesis:

H6: Male individuals are more likely to start a new business in the next three years, than female individuals.

1.8.3 Education

Although entrepreneurship and the educational system are considered important for economic growth, the importance of education for entrepreneurship has only recently been identified (Kuip and Verheul, 2003). Education is one of the biggest and most important ongoing investments people make. Through access to education, people can not only gain knowledge and develop skills, but also have more opportunities to improve their quality of life. There is plenty of evidence in daily life and scientific literature to show that improving educational level will increase future earnings of individuals and help people achieve overall success (Angrist and Krueger, 1999). But very few researches using the TPB model have been done concerning the relationship between educational background and entrepreneurial intention.

The potential impacts of higher education on students include three aspects: the first is about their personal development, including changes in attitudes and values; the second is to do with changes in their abilities; and the third with possible social impacts (West and Hore, 1989). These aspects are consistent with the components of the TPB model.

Personal attitudes include emotional factors and factors to evaluate. The former are based on person's subjective psychological status, while the later are judged by "expectancy-value model". Attitudes are open to change; therefore entrepreneurial attitudes may be influenced by educators and professors. Educators can change

students' perception and feeling of entrepreneurship by cultivating an attitude of innovation, achievement, self-esteem (Robinson et al., 1991).

While Kolvereid and Moen (1997) in their study, indicate that graduates with an entrepreneurship major have stronger entrepreneurial intentions than other graduates of Norwegian business school, Levenburg et al. (2006) failed to reveal a difference between business and non-business majors of interest in entrepreneurship among US university students.

As for entrepreneurial activity, perceived behavioral control refers to the perception of easiness or difficulty in the fulfillment of creating a new venture. It is based on the evaluation of one's controllability and self-efficacy during the process of new venture development. A high level of perceived behavioral control should strengthen a person's intention to perform the behavior, and increase his/her effort and perseverance (Ajzen, 2002). Since education has two principle functions: knowledge transfer and ability development, it would change a person's perception of his or her ability to perform the intentional behavior. In their research, Ferrante and Sabatini (2007) argued that: "The connection between education and general cognitive abilities is a two-way street: codified knowledge acquired through education helps people to better understanding the general rules which govern the world they live in. Moreover, education enhances the ability to acquire and use codified information about specific aspects of working and not working life. Hence, appropriately explored data on educational attainment should reveal the cognitive abilities possessed by individuals."

Le (1999) argues that there are several channels through which the level of education might influence the propensity to become self-employed. On one hand, the impact of educational attainment can be explained by the Lucas' (1978) model. In this model, education would enhance an individual's ability to manage, which could lead to an increase of the probability to become self-employed. On the other hand, influence as indicated by Le has an opposite, negative effect on selection into entrepreneurship. It points to the possibility that higher levels of education might generate better outside options and thus decrease the likelihood of entrepreneurship as the preferred choice (Van der Sluis et al., 2004). Ajzen (1991) argued that the demographics only indirectly influence intentions and suggests the inclusion of demographic characteristics to assess the sufficiency of the TPB model.

In addition, it has been argued that formal education in general does not support entrepreneurial behavior. Rather, it prepares students for the corporate domain (Timmons, 1994) and suppresses creativity and thus entrepreneurship (Plaschka & Welsch, 1990). There some possible explanations why individuals with higher education might not choose self-employment. One reason, for example, is that highly educated persons earn more as employees than they would as self-employed. Another possible reason is that the cash-flow of earnings is more stable and less uncertain in big firms than in small firms (Kangasharju and Pekkala, 2002). Therefore, individuals prefer employment at big companies or multinationals.

Hence, our seventh hypothesis is formed:

H7: Individuals without post-secondary education are more likely to start a new business in the next three years, than individuals with post-secondary education.

1.8.4 Level of economic development

GEM report 2014

We proceed to our last factor-variable: The level of economic development. Based on the findings of GEM report 2014, the biggest difference among the three categories of economic development exists on the perception whether starting a new business is a desirable career choice or not. African economies have the highest perception whereas the lowest is observed in the European Union economies. If we would like to make a comparison between the level of economic development, we would say that factor-driven and efficiency-driven tend to have similarities at the perception and the degree that these economies consider entrepreneurship a good career choice. For individuals in these economies, entrepreneurship is more desirable than for individuals who live at innovation-driven countries. This comes in line with the findings of previous GEM surveys, which showed that more people are interested in having own business venture in less developed countries where job options are limited. The high prestige of successful entrepreneurs is more common in efficiency and innovation driven economies. This also applies for the perception that media have an effect on society for building entrepreneurial culture. In order to build entrepreneurial culture, education is a crucial factor along with media. However, it is important to mention that education is evaluated low in many countries.

In general, perceived capabilities are higher than perceived opportunities, but they decrease along the economic development level. Perceived capabilities and opportunities are higher at factor and efficiency driven economies than at innovation driven economies. Fear of failure can be a strong obstacle for seizing opportunities and convert entrepreneurial intentions into entrepreneurial activity. Entrepreneurial intentions are the highest among factor driven economies and the lowest among innovation-driven economies. This supports the idea of an existing pattern. When employment option are limited in a region, then self-employment becomes a dominant alternative for job. Therefore, since perceived capabilities are higher for factor and efficiency driven economies than for innovation economies, we form our number eight and last hypothesis:

H8: Individuals from innovation driven economies are less likely to start a new business in the next three years than individuals from efficiency driven economies.

Chapter 2

Data and method

2.1 GEM project

Data used in the paper are from the Global Entrepreneurship Monitor (GEM) project. Using population samples, the GEM project estimates the prevalence rates of nascent and new businesses across several countries. There was a definite need to develop an initiative that would aid to a better understanding of: the different roles of entrepreneurship in the economy and society at large, the degree to which individuals exhibit relevant perceptions and attitudes attributed to entrepreneurship, as well as the degree to which they are involved in entrepreneurial activity in a cross country (or regional) comparisons, the state of key external conditions entrepreneurs face when starting a business and the evolution of the above over time. As a result, GEM was established with the following objectives: To measure differences in entrepreneurial attitudes, activity and aspirations of individuals among as many economies across the globe, to uncover factors determining the nature and levels of entrepreneurial activity, and to identify policy implications for enhancing entrepreneurship in an economy. (GEM manual 2010).

2.2 Data

The data used in this paper were collected in 2011. In each country, a standardized survey was administered to a representative sample of adults (18–64 years old) yielding a cross-country total of 99,043 individuals. The sample size varied from 95 individuals in Japan to 17,500 in Spain. In order to draw conclusions general to the populations, raw data were given appropriate weights to match each country sample with the age and gender structure of the 2011 U.S. Census International Database.

We construct our sample by choosing those individuals that responded yes to the following question:

“In the next six months, will there be good opportunities for starting a business in the area where you live?”

For this criterion, we refer to Kirzner' theory and definition of entrepreneur. The key to initiating the process of entrepreneurship lies within the individual members of society and the degree to which a spirit of enterprise exists, or can be initiated. In this respect, Kirzner (1979) believes the source to be within the human spirit, which will flourish in response to uncertainty and competition. In the Kirznerian tradition, entrepreneurs demonstrate alertness to exploit (profit) opportunities. They are involved in a process of learning and discovery with the result being that the economy is pushed back towards equilibrium.

Since our sample, includes individuals from different stages of entrepreneurial process such as potential entrepreneurs, nascent entrepreneurs, established owners and others, we narrow down the selection of the individuals by selecting those that are potential entrepreneurs. To identify them, respondents were asked:

“Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years?” (FUTSUP).

As a result, our sample consists of 13,608 individuals from 24 countries, who recognize a good opportunity for business in the next six months and they are expecting to start a new business in the next three years.

2.3 Variables

Our study is composed of a set of alternative models estimating the likelihood of an individual starting a new business in the next three years. In our models, we use behavioral, demographical factors and a variable that refers to the level of economic development and more specifically, the country where entrepreneurs are located.

Table 2. Summary statistics

<i>Variables</i>	<i>Observations</i>	<i>Mean</i>	<i>Min</i>	<i>Max</i>
Futsup	13608	0.210	0	1
Knowent	13608	0.411	0	1
Suskill	13608	0.520	0	1
Fearfail	13608	0.374	0	1
Nbgoodc	13608	0.707	0	1
Agecat	13608	42.296	18	99
Male	13608	0.503	0	1
Postsecond	13608	0.480	0	1
Innov_driv	13608	0.536	0	1

Source: GEM report, 2011

Now, we present our variables:

Potential entrepreneurs (Futsup): Our dependent variable is “intention to start a new business in the next three years”. It is expressed by variable FUTSUP which is a binary variable and takes two values, 1 and 0. The variable takes the value 1 if the individual answered YES to the question FUTSUP and 0 if the individual answered NO.

Table 3. Frequencies of variable Futsup

<i>Futsup</i>	<i>Frequency</i>	<i>Percent</i>
YES	2,869	21.08
NO	10,739	78.92
Total	13,608	100.00

Source: GEM report, 2011

As we observe, 21.08% (altogether 2,869 people) in our sample consider themselves future entrepreneurs. Thus, 78.92% of the respondents are not expecting to set up a new venture in the future (altogether 10,739 people) in our sample.

Knowing other entrepreneurs (Knowent): Respondents were asked whether they knew personally someone who had started a business in the two years preceding the survey.

Value 1 if the respondent answered YES, value 0 if NO

Table 4. Question: Do you know personally someone who started a business in the past two years?

Knowent	Futsup		Total
	No	Yes	
No	6,571	1,431	8,002
%	61.19	49.88	58.80
Yes	4,168	1,438	5,606
%	38.81	50.12	41.20
Total	10,739	2,869	13,608
%	100.00	100.00	100.00

Source: GEM report 2011

41.20% of the people answering (altogether 5,606 people) in our sample, know someone that started a business in the past two years. Thus, 58.80% (altogether 8,002 people) don't know other entrepreneurs. 1,438 (50.12%) have answered YES to the question out of 2,869 individuals that consider themselves potential entrepreneurs. In addition, 4,168 (38.81%) have responded YES to the question, out of 10,739 individuals that not consider themselves future self-employed. We perform Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Knowledge of other entrepreneurs and potential self-employment are independent variables. Pearson chi2 (1) = 119.5574, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, knowledge of other entrepreneurs and potential self-employment are not independent from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

Confidence in one's skills (Suskill): Respondents were asked whether they believed to have the knowledge, skill and experience required to start a new business. Value 1 if the respondent answered YES, value 0 if NO

Table 5. Question: Do you have the knowledge, skill and experience required to start a new business?

Suskill	Futsup		Total
	No	Yes	
No	5,703	826	6,529
%	53.11	28.79	47.98
Yes	5,036	2,043	7,079
%	46.89	71.21	52.02
Total	10,739	2,869	13,608
%	100.00	100.00	100.00

Source: GEM report 2011

52.02% of the people answering (altogether 7,079 people) in our sample, have confidence in their skills and experience to start a new business. Thus, 47.98%

(altogether 6,529 people) have not confidence in our sample. 2,043 (71.21%) have answered YES to the question, out of 2,869 individuals that consider themselves potential entrepreneurs. In addition, 5,036 (46.89%) have responded YES to the question, out of 10,739 individuals that not consider themselves future self-employed. We perform Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Confidence on skills & experience and potential self-employment are independent variables. Pearson chi2 (1) =536.31, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, confidence on skills & experience and potential self-employment are not independent from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

Fear of failure (fearfail): The respondents were asked whether fear of failure would prevent them from starting a business. Value 1 if the respondent answered YES, value 0 if NO

Table 6. Question: Would fear of failure prevent you from starting a business?

Fearfail	Futsup		Total
	No	Yes	
No	6,478	2,032	8,510
%	60.32	70.83	62.54
Yes	4,261	837	5,098
%	39.68	29.17	37.46
Total	10,739	2,869	13,608
%	100.00	100.00	100.00

Source: GEM report 2011

37.46% of the people answering (altogether 5,098 people) in our sample, would be prevented from starting a new business. Thus, 62.54% (altogether 8,510 people) would not be discouraged from starting a new business due to fear of failure in our sample. 2,032 (70.82%) have answered NO to the question, out of 2,869 individuals that consider themselves potential entrepreneurs. In addition, 6,478 (60.32%) have responded NO to the question, out of 10,739 individuals that not consider themselves future self-employed. We perform Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Fear of failure and potential self-employment are independent variables. Pearson chi2 (1) = 106.62, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, fear of failure and potential self-employment are not independent from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

Consider starting a new business a desirable career choice (Nbgoodc): The respondents were asked if in their country most people consider starting a new business a desirable career choice. Value 1 if the respondent answered YES, value 0 if NO

Table 7. Question: In your country, most people consider starting a new business a good career choice?

Nbgoodc	Futsup		Total
	No	Yes	
No	3,278	697	3,975
%	30.52	24.29	29.21
Yes	7,461	2,172	9,633
%	69.48	75.71	70.79
Total	10,739	2,869	13,608
%	100.00	100.00	100.00

Source: GEM report, 2011

70.79% of the people answering (altogether 9,633 people) in our sample, believe that in their country, most people consider starting a new business a desirable career choice. Thus, 29.21% (altogether 3,975 people) don't agree with this opinion in our sample. 2,172 (75.71%) have answered YES to the question, out of 2,869 individuals that consider themselves potential entrepreneurs. In addition, 7,461 (69.48%) have responded YES to the question, out of 10,739 individuals that not consider themselves future self-employed.

We perform Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Perception that most people in the country would consider entrepreneurship a good career choice and potential self-employment are independent variables. Pearson chi² (1) = 42.49, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, perception of entrepreneurship as a good career choice and potential self-employment are not independent from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

Age (Agecat): The respondents were asked to provide their year of birth. The mean of age is 42.29 years and has minimum value 18 and maximum value 99 years.

As we can see on the table 8a below, in the group age 18-29 there are 3,502 individuals (25.73%). In the group of 30-39, the number of individuals is 2,816 (20.69%). In the age group 40-49, there are 2,762 individuals (20.30% of the sample). In group 50-59, there are 2,335 individuals (17.16%). In the group of 60-69, the number of individuals is 1,475 (10.84%). Finally, in the group 70-99, the number of individuals is 718 (5.28%).

Table 8a. Age distribution of GEM sample

<i>Age</i>	<i>Frequency</i>	<i>Percent</i>
18-29	3,502	25.73
30-39	2,816	20.69
40-49	2,762	20.30
50-59	2,335	17.16
60-69	1,475	10.84
70-99	718	5.28
Total	13,608	100.00

Source: GEM report, 2011

Table 8b. Age distribution by country (%)

Country	18-29	30-39	40-49	50-59	60-69	70-99	Total
Russia	35.35	21.61	20.83	16.59	5.62	0.00	100.00
Greece	22.56	29.27	17.07	19.51	11.59	0.00	100.00
Netherlands	27.42	17.64	18.17	19.23	11.26	6.27	100.00
Belgium	17.92	27.36	25.91	22.76	6.05	0.00	100.00
France	21.65	18.83	16.67	11.47	18.40	12.99	100.00
Spain	23.65	24.13	23.53	19.09	9.60	0.00	100.00
Hungary	25.73	26.90	21.64	22.22	3.51	0.00	100.00
UK	17.04	14.81	20.49	23.46	19.01	5.19	100.00
Sweden	7.50	15.60	19.05	18.88	22.93	16.03	100.00
Norway	19.73	24.09	24.97	21.72	9.49	0.00	100.00
Poland	36.39	20.00	16.39	18.61	8.61	0.00	100.00
Germany	18.56	16.07	27.46	24.49	13.42	0.00	100.00
Mexico	34.63	31.79	19.10	10.00	4.48	0.00	100.00
Argentina	27.70	18.22	17.48	14.37	12.59	9.63	100.00
Brazil	38.96	23.43	19.25	14.78	3.58	0.00	100.00
Chile	29.84	18.42	18.42	12.91	10.19	10.23	100.00
Australia	24.76	18.89	17.75	18.08	10.75	9.77	100.00
Japan	100.00	0.00	0.00	0.00	0.00	0.00	100.00

Source: GEM report, 2011

In the table 8b above, the values marked with yellow color show the maximum values of participants for each country, in every age group. Russia, Netherlands, France, Poland, Mexico, Argentina, Brazil, Chile, Australia and Japan have most of their participants in the first age category, age 18-29. Greece, Belgium, Spain and Hungary have their most individuals in the second group, age 30-39. In the third group (40-49), only two countries have their maximum values there: Norway and Germany. In the fourth group (50-59), only United Kingdom has its maximum number of individuals. In the fifth group (60-69), the only country that has its maximum number of individuals there, is Sweden. Finally, in the last group (70-99), no country has

maximum number of individuals there. We perform Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Age and potential self-employment are independent variables. Pearson chi2 (1) = 1.8e+03, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, age and potential self-employment are not independent from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

Gender (Male): The respondents were asked to provide their gender.

Table 9a. Frequencies of variable Male

Male	Futsup		Total
	No	Yes	
0	5,455	1,304	6,759
%	50.80	45.45	49.67
1	5,284	1,565	6,849
%	49.20	54.55	50.33
Total	10,739	2,869	13,608
%	100.00	100.00	100.00

Source: GEM report, 2011

Table 9b. Distribution of variable Male in countries

<i>Country</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
Russia	557	600	1,157
Greece	82	82	164
Netherlands	449	492	941
Belgium	252	161	413
France	252	210	462
Spain	951	736	1,687
Hungary	86	85	171
United Kingdom	205	200	405
Sweden	576	584	1,160
Norway	441	360	801
Poland	186	174	360
Germany	379	262	641
Mexico	298	372	670
Argentina	305	370	675
Brazil	366	304	670
Chile	1,171	1,440	2,611
Australia	287	327	614
Japan	6	0	6
Total	6,849	6,759	13,608

Source: GEM report, 2011

50.33% of the people answering (altogether 6,849 people) in our sample are males. Thus, 49.67% (altogether 6,759 people) are females in our sample. On the table 9b, we can see the gender distribution in the countries of our sample. Out of 2,869 individuals that consider themselves potential entrepreneurs, 1,565 (54.55%) are males. In addition, out of 10,739 individuals that not consider themselves future self-employed, 5,284 (49.20%) are males. We perform Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Male and potential self-employment are independent variables. Pearson chi2 (1) = 25.87, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, male and potential self-employment are not independent from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

Education (Postsecond): The respondents were asked to provide the highest degree they had earned.

Their responses were harmonized across all 24 countries into a five-category variable. The five categories are “No education”, “Some secondary education”, “Secondary degree”, “Post-secondary education”, and “Graduate degree”. In this paper, we use observations only for people that have some education and specifically we merge the second with the third category and the fourth with the fifth. As a result we create a new dummy variable “post-secondary” with value 1 if individual has post-secondary education and value 0 if he has not.

Table 10. Frequencies of variable Postsecond

Postsecond	Futsup		Total
	No	Yes	
No	5,417	1,652	7,069
%	50.44	57.58	51.95
Yes	5,322	1,217	6,539
%	49.56	42.42	48.05
Total	10,739	2,869	13,608
%	100.00	100.00	100.00

Source: GEM report 2011

48.05% of the people (altogether 6,539 people) in our sample have post-secondary education. Thus, 51.95% (altogether 7,069 people in our sample) don't have post-secondary education. 1,217 (42.42%) have answered YES to the question, out of 2,869 individuals that consider themselves potential entrepreneurs. In addition, 5,322 (49.56%) have responded YES to the question, out of 10,739 individuals that not consider themselves future self-employed.

We perform a Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Post-secondary education and potential self-employment are independent variables. Pearson chi2 (1) = 46.22, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, knowledge of other entrepreneurs and potential self-employment are not independent

from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

Innov_driv: Value 1 if the respondent belongs to an innovation driven economy, value 0 if he belongs to efficiency driven economy.

Table 11. Frequencies of country categories

Innovation_driv	Futsup		Total
	No	Yes	
No	4,338	1,976	6,314
%	40.39	68.87	46.40
Yes	6,401	893	7,294
%	59.61	31.13	53.60
Total	10,739	2,869	13,608
%	100.00	100.00	100.00

Source: GEM report, 2011

53.60% of the people (altogether 7,294 people) in our sample belong to innovation-driven economy. Thus, 46.40% (altogether 6,314 people) are from efficiency driven economy in our sample. Out of 2,869 individuals that consider themselves potential entrepreneurs, 893 (31.13%) are from innovation driven economy. In addition, out of 10,739 individuals that not consider themselves future self-employed, 6,401 (59.61%) are from innovation driven economy.

We perform Pearson Chi-square test for the independency of the row and column variable. Null hypothesis: Innovation driven economy and potential self-employment are independent variables. Pearson chi2 (1) = 738.37, Pr=0.000. Therefore, we reject our null hypothesis. We conclude that, at any reasonable significance level, knowledge of other entrepreneurs and potential self-employment are not independent from each other. That is, the observed pattern of counts differs significantly from the expected pattern of counts.

A correlation matrix for the variables was computed and is presented in Table 12. All predictor variables have a strong correlation ($p < 0.001$) with our commitment measure. Table 12 shows that the likelihood of starting a new business decreases with age ($r=-0.1878$). Also male respondents are shown to be more likely to become self employed than female respondents ($r=0.0436$). As it was expected, knowledge of other entrepreneurs ($r=0.0937$), confidence in skills ($r=0.1985$) and the perception that most people in the country consider entrepreneurship a desirable career choice ($r=0.0559$), are positively correlated to future self-employment. On the other hand, fear of failure ($r=-0.0885$) and post-secondary education, are negatively correlated to our future self-employment measure. In terms of country categories, we observe that belonging to innovation-driven economy is negatively correlated ($r=-0.2329$).

Table 12. Correlation table (Spearman's rho)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Futsup	1.0000								
2. Knowent	0.0937	1.0000							
3. Suskill	0.1985	0.1762	1.0000						
4. Fearfail	-0.0885	-0.0386	-0.1860	1.0000					
5. Nbgoodc	0.0559	-0.0231	-0.0056	-0.0053	1.0000				
6. Male	0.0436	0.0649	0.1318	-0.0625	0.0031	1.0000			
7. Age	-0.1878	-0.1175	0.0275	-0.0397	-0.0102	-0.0351	1.0000		
8. Postsecond	-0.0583	0.0987	0.0808	0.0247	-0.1387	-0.0080	-0.0126	1.0000	
9. Innov_driv	-0.2329	-0.0404	-0.0768	0.0376	-0.1440	0.0616	0.1385	0.1130	1.0000

Source: GEM report, 2011

2.4 Models

Since our dependent variable is a binary variable, we analyze our data by employing binominal logistic regression models. The binominal logistic regression estimates the probability of an event happening. In our case, the event is to start a new business in the next three years.

The latent variable is not directly observable. This variable can be derived from an equation with other variables which are directly inferred, which is as follows:

Consider $y=1$ if $y^*>0$
 $y=0$ otherwise

where $y^* = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + \varepsilon$

$Pr(y=1|x_1, x_2) = Pr(Y^*>0|x_1, x_2) = F(\beta_0 + \beta_1 x_1 + \beta_2 x_2)$

This last part of the equation can be rewritten as follows:

$F(\beta_0 + \beta_1 x_1 + \beta_2 x_2) = \frac{\exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2)}{1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2)}$

Our first model (Model 1) includes the perceptual variables (Knowent, Suskill, Fearfail and Nbgoodc). Our second model (Model 2) includes perceptual variables plus demographic variables like age, gender and education. The third model (Model 3) consists of all variables mentioned before plus one new: Innovation_driv. The purpose of this variable is to examine whether the level of economic development affects someone's intention to start a new business.

The full equation, for the probability of starting a new business, is as follows:

$E(y=1|knowent, suskill, fearfail, nbgoodc, age, male, postsecond, innov_driv) = Pr(y=1|knowent, suskill, fearfail, nbgoodc, agecat, male, postsecond, innov_driv) = \frac{\exp(\beta_0 + \beta_1 knowent + \beta_2 suskill + \beta_3 fearfail + \beta_4 nbgoodc + \beta_5 agecat + \beta_6 male + \beta_7 postsecond + \beta_8 innov_driv)}{1 + \exp(\beta_0 + \beta_1 knowent + \beta_2 suskill + \beta_3 fearfail + \beta_4 nbgoodc + \beta_5 agecat + \beta_6 male + \beta_7 postsecond + \beta_8 innov_driv)}$

In the third model we relax at the assumption that the effect of perceptual variables is the same for all the sample, innovation countries and efficiency countries. However, this is not always plausible. For this reason, we construct a new model (Model 4) which includes interaction terms between variable `innovation_driv` and the others. Therefore, we construct:

```
knowent_innov = knowent*innovation_driv
suskill_innov = suskill*innovation_driv
fearfail_innov = fearfail*innovation_driv
nbgoodc_innov = nbgoodc*innovation_driv
male_innov = male*innovation_driv
agecat_innov = agecat*innovation_driv
postsecond_innov = postsecond*innovation_driv.
```

In this case the equation becomes:

$$E(y=1 | \text{knowent, suskill, fearfail, nbgoodc, agecat, male, postsecond, innov_driv, knowent_innov, suskill_innov, fearfail_innov, nbgoodc_innov, agecat_innov, male_innov, postsecond_innov}) =$$

$$\frac{\Pr(y=1 | \text{knowent, suskill, fearfail, nbgoodc, agecat, male, postsecond, innov_driv, knowent_innov, suskill_innov, fearfail_innov, nbgoodc_innov, agecat_innov, male_innov, postsecond_innov})}{\Pr(y=1 | \text{knowent, suskill, fearfail, nbgoodc, agecat, male, postsecond, innov_driv, knowent_innov, suskill_innov, fearfail_innov, nbgoodc_innov, agecat_innov, male_innov, postsecond_innov}) + \Pr(y=0 | \text{knowent, suskill, fearfail, nbgoodc, agecat, male, postsecond, innov_driv, knowent_innov, suskill_innov, fearfail_innov, nbgoodc_innov, agecat_innov, male_innov, postsecond_innov})}$$

$$= \frac{\exp(\beta_0 + \beta_1 \text{knowent} + \beta_2 \text{suskill} + \beta_3 \text{fearfail} + \beta_4 \text{nbgoodc} + \beta_5 \text{agecat} + \beta_6 \text{male} + \beta_7 \text{postsecond} + \beta_8 \text{innovation_driv} + \beta_9 \text{knowent_innov} + \beta_{10} \text{suskill_innov} + \beta_{11} \text{fearfail_innov} + \beta_{12} \text{nbgoodc_innov} + \beta_{13} \text{agecat_innov} + \beta_{14} \text{male_innov} + \beta_{15} \text{postsecond_innov})}{\exp(\beta_0 + \beta_1 \text{knowent} + \beta_2 \text{suskill} + \beta_3 \text{fearfail} + \beta_4 \text{nbgoodc} + \beta_5 \text{agecat} + \beta_6 \text{male} + \beta_7 \text{postsecond} + \beta_8 \text{innovation_driv} + \beta_9 \text{knowent_innov} + \beta_{10} \text{suskill_innov} + \beta_{11} \text{fearfail_innov} + \beta_{12} \text{nbgoodc_innov} + \beta_{13} \text{agecat_innov} + \beta_{14} \text{male_innov} + \beta_{15} \text{postsecond_innov}) + \exp(\beta_0 + \beta_1 \text{knowent} + \beta_2 \text{suskill} + \beta_3 \text{fearfail} + \beta_4 \text{nbgoodc} + \beta_5 \text{agecat} + \beta_6 \text{male} + \beta_7 \text{postsecond} + \beta_8 \text{innovation_driv} + \beta_9 \text{knowent_innov} + \beta_{10} \text{suskill_innov} + \beta_{11} \text{fearfail_innov} + \beta_{12} \text{nbgoodc_innov} + \beta_{13} \text{agecat_innov} + \beta_{14} \text{male_innov} + \beta_{15} \text{postsecond_innov})}$$

Chapter 3

Analyses and results

3.1 Only perceptual variables – Model 1

In the first model, we included only the four perceptual variables in order to examine the relation between them and the dependent variable potential. As it can be seen from table 13 below, the variables knowent, suskill and nbgoodc we observe that all of the variables are statistically significant at 5% significance level. However, only fear of failure has a negative effect. These results are expected, based on prior literature. More specifically, the positive (coefficient=0.31) and significant ($p<0.05$) effect of knowledge of other individuals that have already started a new venture can be directly connected with the theory of social network. Based on this, an individual is more likely to start a new business in the future when its social network includes self-employed people or individuals that have start-up experience. These pools of experienced individuals become very important because it is a source of knowledge, experience and know-how about starting a new business. Individuals that have an extended social network and contacts with entrepreneurs, not only have access to valuable opinion in terms of business matters but also it is possible that these entrepreneurs can act as role models.

Regarding variable suskill, the result is expected, similar to the results of knowent variable. Confidence on one's skills and experience is positive (coefficient=0.93) and significant ($p<0.05$) because as it is expected, when someone thinks about starting a new business, he needs to be confident above all about himself. The new business creation is a complex procedure that needs a lot of things to be considered about product, potential customers, place of the company, taxation framework, sources of funds and other important or less important aspects. New business demands commitment, patience and consistence in order to survive in the beginning and grow afterwards. Therefore, it becomes important that possession of skills and confidence that these skills can help to overcome any sort of difficulties in the future.

Concerning the variable about fear of failure, we observe that it has negative (coefficient= -0.29) and significant ($p<0.05$) effect on the likelihood to become self-employed. In accordance to prior literature, people who are risk avert, are more likely to start a new venture. Therefore, fear of failure can be one of the factors that can prevent individuals from starting a new business.

The belief that most people in the country consider starting a new business a desirable choice, is, as it was expected, positive (coefficient=0.34). The effect is significant ($p<0.05$) Reasoning about this effect can be found in existing literature too. We observe that if someone agrees with this opinion, he is positively related with the decision to become self-employed. In other words, someone who thinks that the majority of people in his country are positive towards entrepreneurship, is likely to start a business because he feels that will face fewer obstacles when his country encourages entrepreneurship. In most cases, people care about social approval. They care about having a notable employment that leads to good financial and social status,

enjoying the approval of society. Individuals don't want to suffer from social "stigma" in terms of job. Therefore, people that live in such encouraging environment, are more likely to start their own business. Constant term is negative (coefficient=-2.16) and significant ($p < 0.05$).

Table 13. Results of a logit analysis using GEM 2011

<i>Variables</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
knowent	0.31 (7.18)**	0.23 (5.21)**	0.21 (4.67)**	0.04 (0.72)
suskill	0.93 (19.97)**	1.08 (22.10)**	1.01 (20.34)**	0.95 (15.40)**
fearfail	-0.29 (-6.27)**	-0.32 (-6.69)**	-0.28 (-5.82)**	-0.26 (-4.28)**
nbgoodc	0.34 (6.94)**	0.27 (5.40)**	0.13 (2.61)**	0.17 (2.46)**
agecat		-0.03 (22.44)**	-0.03 (19.38)**	-0.02 (-12.84)**
male		0.02 (0.64)	0.11 (2.55)**	0.12 (2.13)**
postsecond		-0.37 (-8.28)**	-0.29 (-6.25)**	-0.53 (-8.90)**
innovation_driv			-0.98 (20.80)**	-0.99 (-5.51)**
<i>Interaction terms</i>				
know_innov				0.49 (5.18)**
suskill_innov				0.13 (1.34)
fearfail_innov				-0.06 (-0.65)
nbgoodc_innov				-0.07 (-0.66)
agecat_innov				-0.01 (-5.09)**
male_innov				0.02 (0.27)
postsecond_innov				0.64 (6.62)
_cons	-2.16 (-36.6)**	-0.57 (-6.43)**	-0.24 (-2.73)**	-0.42 (-3.95)**

**Significance level 0.05

3.2 Adding demographical variables – Model 2

In our second model, along with the four perceptual variables, we included three demographical variables: age, gender and post-secondary education. Our goal is to examine the effect of perceptual variables on potential self-employment when

demographic variables are present. In the table 13, we observe that all variables except male ($p=0.525$), are statistically significant at 5% significance level. Moreover, the variables that have positive effect are knowent, suskill, male and nbgoodc. On the contrary, variables with negative effect are fearfail, postsecond and age.

To begin with, we observe that variable knowent is still positive and significant ($p<0.05$). However, the new coefficient (coefficient= 0.23) has smaller value than in the first model. Variable suskill is positive (coefficient= 1.08) and significant ($p<0.05$). Thus, we can see that, in the second model, the value of coefficient has increased. Fearfail is still negative (coefficient=-0.32) and significant ($p<0.05$). Variable nbgoodc is positive (coefficient= 0.27) and significant ($p<0.05$) but now the value of coefficient has been decreased in comparison to first model. Age variable is first time included in the model. We observe that the variable has negative coefficient (coefficient=-0.03) and it is significant ($p<0.05$).

Next is variable male. We would like to examine whether gender can influence the decision to become entrepreneur in the future. As we can see, the variable has positive coefficient (coefficient=0.02) but it is no significant ($p<0.05$). This means that, although gender has positive effect on the decision to become self-employed, the effect is not significant. In other words, being a male doesn't affect significantly the likelihood to start a new business in the future.

Finally, variable postsecond has negative coefficient (coefficient=-0.37) and it is significant ($p<0.05$). As we can observe, having a post-secondary education, decreases the probability to become self-employed. Prior research has found evidence about the negative effect of education on someone's decision to start a new venture. Individuals with higher education tend to avoid becoming self-employed, as they regard starting new business a less profitable option, in relation with the amount of money they invested for education. Constant term is negative (coefficient=-0.57) and significant ($p<0.05$).

We performed Wald test to test whether the three new variables improve our model. $\text{Chi}^2(3) = 561.22$ and $\text{Prob} > \text{chi}^2 = 0.0000$. Based on the p-value, we are able to reject the null hypothesis, indicating that the coefficients for the three added variables are not simultaneously equal to zero, meaning that including these variables create a statistically significant improvement in the fit of the model.

3.3 Including variable level of economic development – Model 3

Along with the variables mentioned above, we introduce variable innov_driv. In an attempt to examine whether the type of economy in which someone lives, plays role to his decision for self-employment, we created the variable innov_driv that contains observations from individuals from countries that belong to innovation-driven economies category if yes and comparing them with observations from individuals from countries that belong to efficiency driven economies, if no. Results about coefficients, marginal effects and odds can be seen on the tables, 14a and 14b, below:

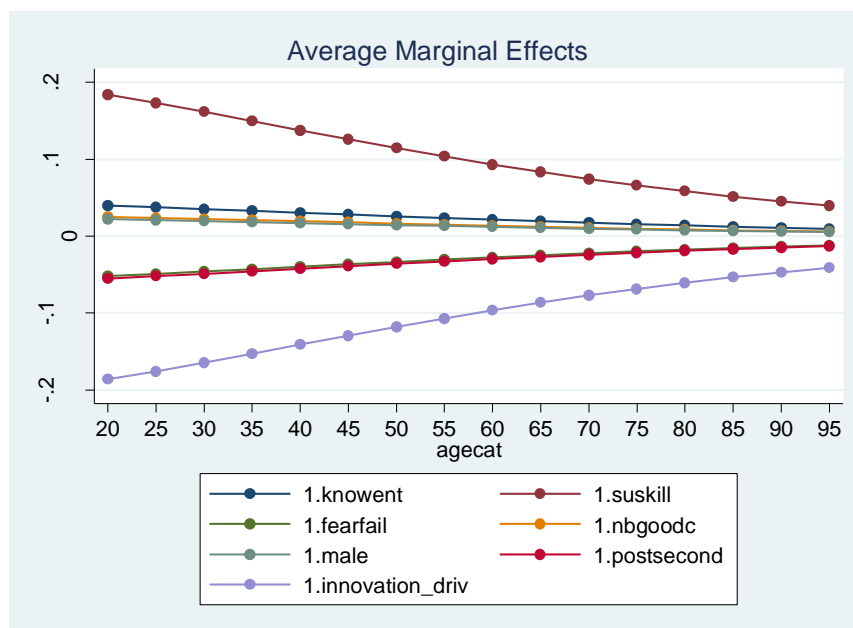
Table 14a. Coefficients, marginal effects and odds for the third model

<i>Variables</i>	<i>Coefficients</i>	<i>Marginal effects</i>	<i>Odds</i>
knowent	0.21 (4.67)**	0.03 (4.65)**	1.24
suskill	1.01 (20.34)**	0.14 (21.13)**	2.74
fearfail	-0.28 (-5.82)**	-0.04 (-6.01)**	0.75
nbgoodc	0.13 (2.61)**	0.01 (2.71)**	1.14
agecat	-0.03 (19.38)**	0.00 (-19.78)**	0.96
male-	0.11 (2.55)**	0.01 (2.66)**	0.74
postsecond	-0.29 (-6.25)**	-0.04 (-6.57)**	1.12
innovation_driv	-0.98 (20.80)**	-0.14 (-21.17)**	0.37
_cons	-0.24 (-2.73)**		

N=13,608

**Significance level 0.05

Table 14b. Plot of average marginal effects



The third model shows us that all variables are statistically significant at 5% significance level. Like we have observed before, the variables knowent, suskill,

nbgoodc have positive effect on the likelihood to start a new business in the next three years. In addition, the variables fearfail, age and postsecond have negative effect. As for the country category variable, we see that being at an innovation driven economy has a negative effect on the likelihood to start a new business in the next three years.

We start again with the first variable knowent. In this model, the variable once again has positive coefficient (coefficient=0.21) and it is significant ($p < 0.05$). An interesting point about this variable is that, although its positive effect is evident in all three models, the effect decreases as new variables are introduced on the models. Variable suskill, remains positive (coefficient=1.01) and significant in this model. However, we can observe that the general pattern for the variable is to be positive and significant related to dependent variable futsup. The same pattern but in the opposite direction applies to variable fearfail. In the third model, the variable is again negatively (coefficient=-0.28) related to the probability of becoming self-employed, even though the value now is lower than in the previous model. Variable nbgoodc stays steadily positive (coefficient=0.13) in the third model too, although the value is decreasing. In both three models-, the value of the variable is significant.

Variable agecat, in the third model, is negative (coefficient=-0.03) and significant in the 5% level. As we can observe, the variable is negative in both models and this means that as years of age increase, the probability of someone becoming future entrepreneur decreases. Variable male in the third model is positive (coefficient=0.11) and significant in the 5% level. From what we can observe, being male increases the probability to become self-employed in the future. However, the effect is significant only in the third model. The variable of education (postsecond) has negative coefficient (coefficient=-0.29) and significant in the 5% level. We can see that in both models, as education level becomes higher, the likelihood for someone to become future entrepreneur decreases. Finally, in the third model, we observe that the newly introduced variable innovation_driv is negatively related to the dependent variable (coefficient=-0.98) and significant in the level of 5%. Constant term is negative (coefficient=-0.24) and significant ($p < 0.05$).

Marginal effects

Starting with our first variable, Knowent, we observe that it has average marginal effect (0.03) and significant at 5% level. This means that knowing other entrepreneurs increases the probability for an individual to start a new business by 3 percentage points compared to individual that doesn't know other entrepreneurs, ceteris paribus. Next, we have the second variable of our model, Suskill. The variable has average marginal effect (0.14) and significant at 5% level. This means that having confidence on skills and experience -increases the probability for an individual to start a new business by 14 percentage points, compared to individual that doesn't have confidence on skills and experience, ceteris paribus.

Variable Fearfail has average marginal effect (-0.04) and significant at 5% level. This means that having fear of failure decreases the probability for an individual to start a new business by 4 percentage points compared to individual that doesn't have fear of failure, ceteris paribus. Variable Nbgoodc has average marginal effect (0.01) and significant at 5% level. This means that, believing that most people in the country consider entrepreneurship good career choice, increases the probability for an

individual to start a new business by 1 percentage points compared to individual that doesn't believe this, *ceteris paribus*.

Variable Male has average marginal effect (0.01) and significant at 5% significance level. This means that being male, increases the probability to start a new business by 1 percentage points compared to being female, *ceteris paribus*. Variable Postsecond has average marginal effect (-0.04) and significant at 5% significance level. This means that having post-secondary education, decreases the probability for an individual to start a new business by 4 percentage points compared to individual that doesn't have post-secondary education, *ceteris paribus*.

Finally, variable Innov_driv has average marginal effect (-0.14) and significant at 5% significance level. This means that living at an innovation driven economy, decreases the probability for an individual to start a new business in the future by 14 percentage points compared to individual that lives at efficiency driven economy, *ceteris paribus*.

Odds

Starting with variable Knowent has value (1.24). This means that the probability of starting a new business in the next three years for an individual who knows entrepreneurs is 1.24 times higher than the probability of starting a new business for an individual who does not know other entrepreneurs, *Ceteris Paribus*. Next, variable Suskill has value (2.74). This means that the probability of starting a new business in the next three years for an individual who has confidence on his skills and experience is 2.74 times higher than the probability of starting a new business for an individual who does not have confidence, *Ceteris Paribus*.

Variable Fearfail has value (0.75). This means that the probability of starting a new business in the next three years for an individual who has fear of failure is 0.75 times lower than the probability of starting a new business for an individual who does not have fear of failure, *Ceteris Paribus*. Variable Nbgoodc has value (1.14). This means that the probability of starting a new business in the next three years for an individual who believes that most people on his country consider entrepreneurship a good career choice, is 1.14 times higher than the probability of starting a new business for an individual who does not believe this opinion, *Ceteris Paribus*.

Variable Age has value (0.96). This means that the probability of starting a new business in the next three years for an individual, who gets into higher age group, is 0.96 times lower than the probability of starting a new business for an individual who does not get into higher group, *Ceteris Paribus*. Variable Male has value (1.12). This means that the probability of starting a new business in the next three years for a male individual is 1.12 times higher than the probability of starting a new business for a female individual, *Ceteris Paribus*.

Variable Postsecond has value (0.74). This means that the probability of starting a new business in the next three years for an individual, who has post-secondary education, is 0.74 times lower than the probability of starting a new business for an individual who does not have post-secondary education, *Ceteris Paribus*. Variable Innov_driv has value (0.37). This means that the probability of starting a new

business in the next three years for an individual who lives at innovation driven country, is 0.37 times lower than the probability of starting a new business for an individual who lives at efficiency driven country, *Ceteris Paribus*.

Goodness of Fit

We proceed by testing the fitness of our third model. Many scalar measures have been developed to summarize the overall goodness of fit for the regression models of continuous, count or categorical dependent variables. Within substantive area, measures of fit can provide a rough index of whether a model is adequate.

Table 15. Measures of Fit for Logit

Log-Lik Intercept Only:	-7008.892	Log-Lik Full Model:	-6071.117
D(13592):	12142.235	LR(8):	1875.549
		Prob > LR:	0.000
McFadden's R2:	0.134	McFadden's Adj R2:	0.132
ML (Cox-Snell) R2:	0.129	Cragg-Uhler(Nagelkerke) R2:	0.200
McKelvey & Zavoina's R2:	0.267	Efron's R2:	0.131
Variance of y*:	4.487	Variance of error:	3.290
Count R2:	0.794	Adj Count R2:	0.024
AIC:	0.895	AIC*n:	12174.235
BIC:	-117232.036	BIC':	-1732.773
BIC used by Stata:	12294.530	AIC used by Stata:	12174.235

Efron's R2: The percentage of variance of dependent variables explained in the model is 13.1%. R-squared increases when the magnitude of correlation between predicted and actual values is strong, so in this case the value is low (0.131) so the correlation is weak.

McFadden (Pseudo-) R2: Compares the likelihood for only the intercept of the model to the likelihood for the model with the predictions. In this case, the likelihood model improves the model by 0.134 (or 13.4%) compared to a model with a constant.

Count R2: The percentage of correct predictions in the model 0.794 (or 79.4%). The value is greater than 0.5 which means that Count R-squared applies the predicted probability outcome of 1

Log Likelihood: Log likelihood compares the fit of the two models. In this case it's -6071.117

3.4 Including interaction terms – Model 4

In the fourth and final model, we examine more specifically the effect of level of economic development on the probability to start a new business in the next three years. For this reason, we introduce interaction terms between the variable `innov_driv` and the other variables. As a result, we construct `knowent_innov`, `suskill_innov`, `fearfail_innov`, `nbgoodc_innov`, `agecat_innov`, `male_innov`, and `postsecond_innov`. Results about coefficients, marginal effects and odds can be seen on the tables, 16a

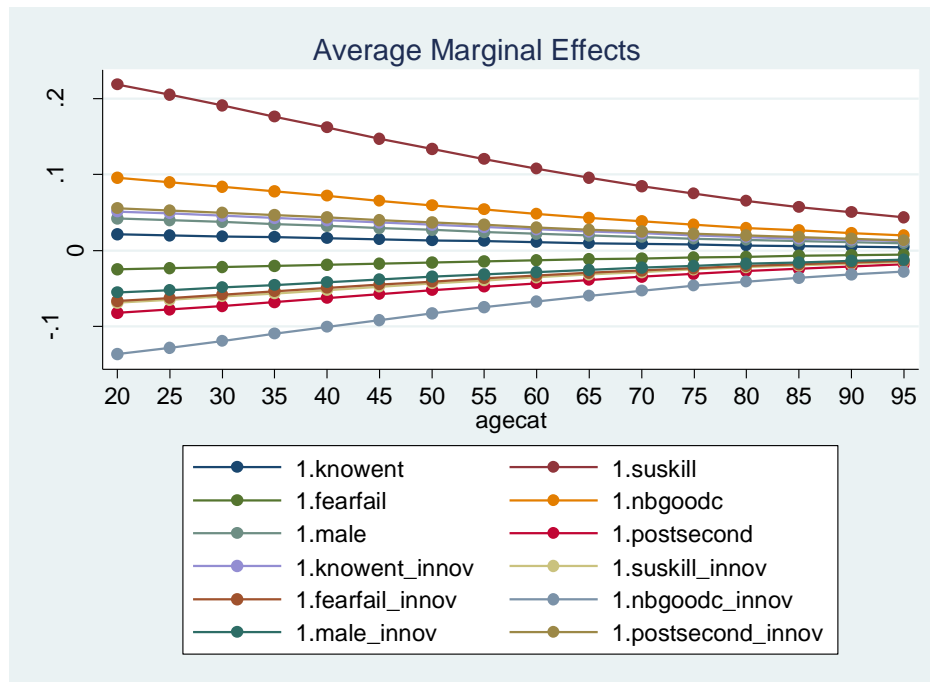
and 16b, below:

Table 16a. Coefficients, marginal effects and odds in the fourth model

<i>Variables</i>	<i>Coefficients</i>	<i>Marginal effects</i>	<i>Odds</i>
knowent	0.04 (0.72)	0.00 (0.72)	1.04
suskill	0.95 (15.40)**	0.13 (15.76)**	2.60
fearfail	-0.26 (-4.28)**	-0.03 (-4.34)**	0.76
nbgoodc	0.17 (2.46)**	0.02 (2.50)**	1.18
agecat	-0.02 (-12.84)**	-0.00 (-13.15)**	0.97
male	0.12 (2.13)**	0.01 (2.13)**	1.12
postsecond	-0.53 (-8.90)**	-0.07 (-8.92)**	0.58
innovation_driv	-0.99 (-5.51)**	not estimable	0.37
<i>Interaction terms</i>			
know_innov	0.49 (5.18)**	0.07 (5.03)**	
suskill_innov	0.13 (1.34)	0.01 (1.03)	
fearfail_innov	-0.06 (-0.65)	-0.01 (-0.72)	
nbgoodc_innov	-0.07 (-0.66)	-0.00 (-0.58)	
agecat_innov	-0.01 (-5.09)**	not estimable	
male_innov	0.02 (0.27)	0.00 (0.25)	
postsecond_innov	0.64 (6.62)	0.09 (6.39)	
_cons	-0.42 (-3.95)**		

**Significance level 0.05

Table 16b. Plot of average marginal effects



We perform Wald test to examine whether our seven new variables – interaction terms, are simultaneously equal to zero. $\text{Chi}^2(7) = 114.17$ and $\text{Prob} > \text{chi}^2 = 0.0000$. Based on the p-value, we are able to reject the null hypothesis, again indicating that the coefficients for the seven interaction terms not simultaneously equal to zero, meaning that including these variables create a statistically significant improvement in the fit of the model

We start again with the first variable Knowent. In this model, the variable once again has positive coefficient (coefficient=0.04) and it is not significant ($p > 0.05$). Variable Suskill, remains positive (coefficient=0.95) and significant in this model too but the value of coefficient is smaller than in previous models. In the fourth model, the variable Fearfail is again negative (coefficient=-0.26) and significant ($p < 0.05$), related to the probability of becoming self-employed, even though the value now is lower than in the previous model. Variable Nbgoodc stays steadily positive (coefficient=0.17) in the fourth model too, although the value is decreasing. In all four models, the value of the variable is significant.

Variable Agecat, in the third model, is negative (coefficient=-0.02) and significant in the 5% level. As we can observe, the variable is negative in all models and this means that as years of age increase, the probability of someone becoming future entrepreneur decreases. Variable male in the fourth model is positive (coefficient=0.12) and significant in the 5% level. From what we can observe, being male increases the probability to become self-employed in the future. The variable of education (Postsecond) has negative coefficient (coefficient=-0.53) and significant in the 5% level. We can see that in all models, as education level becomes higher, the likelihood for someone to become future entrepreneur decreases. Variable Innovation_driv is negatively related to the dependent variable (coefficient=-0.99) and significant in the level of 5%.

We continue with interaction terms. Variable Knowent_innov is positive (coefficient=0.49) and significant ($p < 0.05$). Variable Suskill_innov is positive (coefficient=0.13) and not significant in the level of 5%. Variable Fearfail_innov is negative (coefficient=-0.06) and not significant ($p > 0.05$). Variable Nbgoodc_innov is negative (coefficient=-0.07) and not significant in the level of 5%. Variable Agecat_innov is negative (coefficient=-0.01) and significant ($p < 0.05$). Variable Male_innov is positive (coefficient=0.02) and not significant ($p > 0.05$). Variable Postsecond_innov is positive (coefficient=0.64) and not significant in the level of 5%. Constant term is negative (coefficient=-0.42) and significant ($p < 0.05$).

As we can observe, the only interaction terms that are significant in the level of 5%, are Knowent_innov and Agecat_innov. Consequently, we focus on investigating the difference between the two groups, innovation driven economies and efficiency driven economies, with regard to variables Knowent and Agecat. In the case of Knowent, our equation is:

$$\Pr(y=1 | \text{knowent, suskill, fearfail, nbgoodc, agecat, male, postsecond, innov_driv, knowent_innov, suskill_innov, fearfail_innov, nbgoodc_innov, agecat_innov, male_innov, postsecond_innov}) = \exp(0.42 + 0.04\text{knowent} + 0.95\text{suskill} - 0.26\text{fearfail} + 0.17\text{nbgoodc} - 0.02\text{agecat} + 0.12\text{male} - 0.53\text{postsecond} - 0.99\text{innovation_driv} + 0.49\text{knowent_innov} + 0.13\text{suskill_innov} - 0.06\text{fearfail_innov} - 0.07\text{nbgoodc_innov} - 0.01\text{agecat_innov} + 0.02\text{male_innov} + 0.64\text{postsecond_innov}) / 1 + \exp(0.42 + 0.04\text{knowent} + 0.95\text{suskill} - 0.26\text{fearfail} + 0.17\text{nbgoodc} - 0.02\text{agecat} + 0.12\text{male} - 0.53\text{postsecond} - 0.99\text{innovation_driv} + 0.49\text{knowent_innov} + 0.13\text{suskill_innov} - 0.06\text{fearfail_innov} - 0.07\text{nbgoodc_innov} - 0.01\text{agecat_innov} + 0.02\text{male_innov} + 0.64\text{postsecond_innov})$$

Setting knowent=1 and innov_driv=1 to find the intercept for individuals that are willing to start a new business in the next three years, know other entrepreneurs and live at innovation driven economy, the coefficient for knowent becomes 0.53. Setting knowent=1 and innov_driv=0 to find the intercept for individuals that are willing to start a new business in the next three years, know other entrepreneurs and live at efficiency driven economies, the coefficient for knowent becomes 0.04. As a result, we can say that the effect of knowing other entrepreneurs is higher for individuals that live at innovation driven countries than for individuals that live at efficiency driven economies, Ceteris Paribus. Thus, the estimated proportionate difference between innovation driven and efficiency driven economies for individuals that know other entrepreneurs, is $0.53 - 0.04 = 0.49$. Therefore, knowing other entrepreneurs when living at innovation driven economy, increases 0.49 times the probability to start a new business in the next three years, compared knowing other entrepreneurs when living at efficiency driven economy, Ceteris Paribus.

Setting innov_driv=1 to find the intercept for individuals that are willing to start a new business in the next three years and live at innovation driven economy, the coefficient for agecat becomes -0.03. Setting innov_driv=0 to find the intercept for individuals that are willing to start a new business in the next three years and live at efficiency driven economies, the coefficient for agecat becomes -0.02. As a result, we can say that the effect of getting to another age group on the probability to start a new business, is lower for individuals that live at innovation driven countries than for individuals that live at efficiency driven economies. Thus, the estimated proportionate difference between innovation driven and efficiency driven economies for individuals that get to

another age group, is $-0.03 - (-0.02) = -0.01$. Therefore, getting to another age group when living at innovation driven economy, decreases 0.01 times the probability for an individual to start a new business in the next three years, compared to individual that gets to another age group when living at efficiency driven economy, *Ceteris Paribus*.

Marginal effects

Starting with our first variable, Knowent, we observe that it has average marginal effect (0.00) and significant at 5% level. This means that knowing other entrepreneurs increases the probability for an individual to start a new business by zero percentage points compared to individual that doesn't know other entrepreneurs, *ceteris paribus*. Next, we have the second variable of our model, Suskill. The variable has average marginal effect (0.13) and significant at 5% level. This means that having confidence on skills and experience, increases the probability for an individual to start a new business by 13 percentage points compared to individual that doesn't have confidence on his skills and experience, *ceteris paribus*.

Variable Fearfail has average marginal effect (-0.03) and significant at 5% level. This means that having fear of failure decreases the probability for an individual to start a new business by 3 percentage points compared to individual that doesn't have fear of failure, *ceteris paribus*. Variable Nbgoodc has average marginal effect (0.02) and significant at 5% level. This means that believing that most people in the country consider entrepreneurship good career choice, increases the probability for an individual to start a new business by 2 percentage points, compared to individual that doesn't believe this, *ceteris paribus*.

Variable Male has average marginal effect (0.01) and significant at 5% significance level. This means that on average in this sample, being male, increases the probability to start a new business by 1 percentage points compared to being female, *ceteris paribus*. Variable Postsecond has average marginal effect (-0.07) and significant at 5% significance level. This means that having post-secondary education, decreases the probability for an individual to start a new business by 7 percentage points, compared to individual that doesn't have post-secondary education, *ceteris paribus*.

We continue with marginal effects of interaction terms. These results hold only for individuals that live at innovation driven economies because if we want to obtain marginal effects, both components of interaction term need to be equal to 1. Consequently, $innovation_driv=1$ which represents individuals that live at innovative economies. Variable knowent_innov has average marginal effect (0.07) and significant at 5% level. This means that knowing other entrepreneurs when living at innovation driven economy, increases the probability for individual to start a new business by 7 percentage points, compared to individual not knowing other entrepreneurs, *ceteris paribus*. Suskill_innov has average marginal effect (0.01) and not significant at 5% level. This means that for an individual who lives at innovative economy and has confidence on his skills and experience, the probability to start a new business, increases by 1 percentage points compared to someone that doesn't have confidence on his skills and experience to start a new business, *ceteris paribus*.

Variable Fearfail_innov has average marginal effect (-0.01) and not significant at 5% level. This means that, at innovation driven economy, fear of failure decreases the

probability for an individual to start a new business by 1 percentage points compared to someone that doesn't have fear of failure, *ceteris paribus*. Variable *Nbgoodc_innov* has average marginal effect (-0.00) and not significant at 5% level. This means that at innovation driven economy, believing that most people in the country consider entrepreneurship good career choice, increases the probability for an individual to start a new business by zero percentage points compared to someone that doesn't believe this, *ceteris paribus*. Hence, there is no change in the probability.

Variable *Male_innov* has average marginal effect (0.00) and not significant at 5% significance level. This means that being male at innovation economy, increases the probability to start a new business by zero percentage points compared to being female, *ceteris paribus*. Hence there is no change in the probability when an individual lives at innovation driven country. Variable *Postsecond_innov* has average marginal effect (0.09) and not significant at 5% significance level. This means that, at innovation economy, having post-secondary education increases the probability to start a new business by 9 percentage points compared to someone that doesn't have post-secondary education, *ceteris paribus*.

Variables *Innovation_driv* and *Agecat_innov* cannot be estimated.

Odds

Looking again table 16a, we observe that variable *Knowent* has value (1.04). This means that the probability of starting a new business in the next three years for an individual who knows entrepreneurs is 1.04 times higher than the probability of starting a new business for an individual who does not know other entrepreneurs, *Ceteris Paribus*. Next, variable *Suskill* has value (2.60). This means that the probability of starting a new business in the next three years for an individual who has confidence on his skills and experience is 2.60 times higher than the probability of starting a new business for an individual who does not have confidence, *Ceteris Paribus*.

Variable *Fearfail* has value (0.76). This means that the probability of starting a new business in the next three years for an individual who has fear of failure is 0.76 times lower than the probability of starting a new business for an individual who does not have fear of failure, *Ceteris Paribus*. Variable *Nbgoodc* has value (1.18). This means that the probability of starting a new business in the next three years for an individual who believes that most people on his country consider entrepreneurship a good career choice, is 1.18 times higher than the probability of starting a new business for an individual who does not believe this opinion, *Ceteris Paribus*.

Variable *Agecat* has value (0.97). This means that the probability of starting a new business in the next three years for an individual who gets into higher age group, is 0.97 times lower than the probability of starting a new business for an individual who does not get into higher group, *Ceteris Paribus*. Variable *Male* has value (1.12). This means that the probability of starting a new business in the next three years for a male individual, is 1.12 times higher than the probability of starting a new business for a female individual, *Ceteris Paribus*.

Variable *Postsecond* has value (0.58). This means that the probability of starting a

new business in the next three years for an individual, who has post-secondary education, is 0.58 times lower than the probability of starting a new business for an individual who does not have post-secondary education, *Ceteris Paribus*. Variable *Innov_driv* has value (0.37). This means that the probability of starting a new business in the next three years for an individual who lives at innovation driven country, is 0.37 times lower than the probability of starting a new business for an individual who lives at efficiency driven country, *Ceteris Paribus*.

3.5 Comparison between models 3 and 4

When we applied our third model, we found that the variable *innovation_driv* is significant at 5% significance level. Next, in the fourth model, we examined whether the same variable has an effect on the whole sample or holds only for specific groups. An interesting thing is that we found that the variable basically remains intact. The coefficient changes from (-0.98) to (-0.99) and it is still significant at 5% significance level as we can see in table 13. Based on these results, we can conclude that the effect doesn't hold only for certain groups but it holds for the entire sample. Hence, we found evidence that level of economic development has an effect on our dependent variable which is entrepreneurial intentions. In other words, the category of economy where someone lives, in our case innovation driven or efficiency driven economy, can influence his intentions to start a new business.

Chapter 4

Conclusions and discussion

4.1 Conclusions

Next step in our research is to interpret the behavior of each variable in our model and discuss whether the behavior corresponds to prior literature's findings. In other words, does each variable follow the findings of existing literature? Our first variable is **Knowent**. Knowing other entrepreneurs shows positive effect to someone's decision to start a new business in the future. As we saw in our analysis, Knowent has positive sign and it is statistically significant in any of our four models. The positive effect of the variable shows the importance of social networking in any economy type. Additionally, we found evidence that the effect of knowing other entrepreneurs on entrepreneurial intentions is bigger at innovation driven economies than at efficient driven economies. As a result, we accept our first hypothesis which is that individuals, who have knowledge of other entrepreneurs, are more likely to become future entrepreneurs, than individuals that do not know other entrepreneurs. The result agrees with the results in Minnity's study (2004) where argues that existence of role models (for example parent self-employed) in someone's network can boost his self-efficacy and influence him towards self-employment.

Nowadays, a lot of articles in the press or the web mention how important is networking, whether you are looking for a job or looking for business partners. This is quite natural. Starting a new venture is quite often "terra incognita" (unknown territory) for those who attempt to start a business for the first time. Therefore, it is always useful for someone to know people who have already been there, so that they can help him avoiding mistakes in the process. People say that the difference between an intelligent and a wise person, is that the first learns from his mistakes but the second learns from other people's mistakes.

Apart from their useful experience and knowledge, successful entrepreneurs can set themselves as an example and role model for people. Their patience, courage and consistence, can inspire individuals to start a new business. Nevertheless, media tend to exaggerate in the case of entrepreneurs, projecting a rich life style, where successful business men are presented with expensive houses and cars along with beautiful women. Thus, sometimes this kind of presentation can misguide potential entrepreneurs about true nature of entrepreneurship, difficulties that someone faces when he is self-employed and the high failure rate of new ventures.

As we mentioned before, the effect of knowing other entrepreneurs is stronger in the innovation driven economies than in the efficiency driven. This can be merely explained from the fact that innovation may come from the transfer and diffusion of knowledge. Transfer of knowledge can easier obtained by encouraging entrepreneurs to share their knowledge and experiences with other entrepreneurs or people interested about entrepreneurship. Examples of this are business incubators where synergies between professionals are encouraged, in order to set up new ventures. It is not coincidence that in the last years we see business schools organizing events about entrepreneurship and have business men as guest speakers in order to provide their

experience to students with interest in this topic.

Next variable in our model is **suskill**. As we can see from the results in every model, variable **suskill** which describes someone's confidence on its skills and experience, has positive effect on someone's decision to become self-employed. Consequently, we accept our second hypothesis, which is that individuals that have confidence on their skills and experience, are more likely to become future entrepreneurs, than those that do not have confidence. These results agree again with Minnity (2004) where increase in someone's self-efficacy can lead him towards entrepreneurship. In addition, human capital (Deakins and Whittam, 2000) is likely to influence the development of a business idea and the organization of resources. This shows how important is for a potential entrepreneur to have faith in his skills and experiences. Of course, it is important to have confidence not only for becoming entrepreneur but also for any kind of decision in daily life. We applied interaction term in order to examine if the effect of confidence on skills is different between innovation and efficiency economies. However, the difference was not significant at 5% level.

Moreover, among factors that affect someone's confidence on his skills to become self-employed, we could include "social stigmatism". For example, in USA, where exists a more entrepreneurial culture than in Europe for example, people are not discouraged from starting a new venture when they have already failed previously. In other words, they are not getting any "stigma of failure", if their prior attempt has failed. This could mean that past failure in business, does not mean necessarily incompetent entrepreneur. Frequently, succeeding in business is not only a matter of skills but also matter of timing, luck, circumstances. Therefore, economies that provide support and do not punish severely the failure are more likely to encourage people towards entrepreneurship.

The next variable in our model is **fearfail**. This variable describes the possibility of someone to be discouraged from starting a new business due to fear of failure. We observe negative effect to someone's decision to become self-employed in the future. This comes in line with the studies of Segal et al. (2005) and Grilo and Irigoven (2006) who suggest that risk-tolerant people are more likely to choose to become self-employed than risk averse individuals. Thus, we accept our third hypothesis. We assume that one of the reasons for this difference can be related to "stigma of failure" that we have mentioned also above in the case of confidence on skills and experience. As it was in previous case, living in an economy that "stigmatizes" individuals for failing in business before, may prevent someone from getting involved in a new venture. We applied interaction term in order to examine if the effect of fear of failure is different between innovation and efficiency economies. However, the difference was not significant at 5% level.

The variable **nbgoode** has positive effect. This agrees with our fourth hypothesis. Values and beliefs shape behavior and therefore the decision to become self-employed (Mueller and Thomas 2000). Social environments with stronger bonds between its members can influence individual's decisions. Like in the case of "stigma of failure" but in a positive way, we assume that people can form their decisions, depending on what other people might say. Therefore, an individual that lives in a country that social ties are strong, can make his decision to start a new venture, based on his perception of what people think about entrepreneurship. We applied interaction term

in order to examine if the effect of the variable is different between innovation and efficiency economies. However, the difference was not significant at 5% level.

Next variable is **Agecat**. AgeCat has a negative effect on the probability for someone to start a new business in the next three years and comes in accordance with prior research, where self-employment is “younger’s game”. This means that as age increases, the possibility for someone to start a new business in the next three years, decreases. Therefore, we accept our fifth hypothesis. Our results about age are expected. Levesque and Minniti theoretically (2006) and Reynolds et al. (2003) empirically have shown that the relationship between age and the likelihood of starting a new business picks at a relatively early age and decreases thereafter.

As individual moves to next age group, the odds for an individual to start a new business in the next three years are slightly higher when living at innovation driven economy, than when living at efficiency driven economy. However, due to small difference, our main conclusion is that entrepreneurship is a game for young people. Additionally, we found evidence that the negative effect of age is smaller for individuals at innovation economies than for individuals at efficiency driven. In the table 8b, we saw that as individuals move to another age group, the number of people responding the question about potential entrepreneurial activity in the next three years decreases. In addition, we can observe that the maximum number of respondents for each country decreases by age group.

We now continue our discussion with the next variable in our model variable **male**. Looking the results above, we can conclude that being male has positive effect on someone’s decision to become self-employed in the future. We can accept our sixth hypothesis. We applied interaction term in order to examine if the effect of gender is different between innovation and efficiency economies. Difference is not significant at 5% level. Our results are in agreement with prior findings where male individuals are more likely to become entrepreneurs in the future, in comparison with female individuals, although in the studies of Brush (1990, 1992) and Langowitz and Minniti (2005), men and women entrepreneurs slightly differ with respect to demographic and psychological variables and the factors influencing female and male entrepreneurship tend to be the same. Entrepreneurship is one side of life and directly influenced by woman’s position in society in general. Even though female entrepreneurship has increased over the years, there are still things to be done. As woman’s participation in labor is expected to increase in the forthcoming years, we assume that there will be increase in the number of women entrepreneurs. It might be a good alternative employment type for women, especially if inequalities between men and women, in terms of payment and promotion opportunities at workplace, still exist. Therefore, we expect less gender influence in the future.

Next part of discussion is about variable **postsecond**, which refers to the kind of education, postsecondary or secondary. From the results above we observe that postsecondary education has negative and significant effect on someone’s decision to become self-employed in the next three year. The results follow the findings of existing literature, where higher education is not always strong factor for self-employment (Davidsson and Gordon, 2009). One possible reason is that high educated individuals believe that the expected earnings from self-employment will not match the amount of money spent for obtaining higher education. Therefore, they

prefer more the security of a stable wage than the insecurity and full responsibility that comes with business ownership. Hence, our hypothesis is accepted. We applied interaction term in order to examine if the effect of post-secondary education is different between innovation and efficiency economies. Difference is not significant at 5% level.

Although the effect of higher education is negative, we observe nowadays more and more business schools which include courses about entrepreneurship in their curriculum. We assume that there is high demand for specialized knowledge about entrepreneurship and especially on design business plans. We notice many organizations in Europe and USA which offer courses and seminars about the process of setting up a new venture. This complements the government's efforts to encourage people starting their own business.

Finally, based on our results, we found evidence that level of economic development has an effect on our dependent variable which is entrepreneurial intentions, in the two models that we used, model 3 and model 4. Variable **innov_driv** has negative effect on someone's probability to start a new business in the next three years. This means that when an individual lives at an innovation driven economy, it is less likely to start a new business in the next three years, than if he lives at efficiency driven economy. This comes in agreement with prior findings in GEM past research. Therefore, we can accept our final hypothesis, concerning level of economic development. One comment about level of economic development is that in efficiency driven economies, people usually have less alternative options in terms of employment than in the innovation driven economies. For instance, limited access to higher education can lead to less working opportunities and might force someone to choose self-employment instead of wage employment.

To sum up, in our study, we found evidence about the effect of perceptual factors on someone's intention to start a new business in the next three years. That was our dependent variable. We accepted our eight hypotheses, based on results of four different models. Using sample from innovation driven and efficiency driven economies, we conclude that although every perceptual variable has effect on entrepreneurial intentions, not everyone has positive effect. An example for that is fear of failure, age and education. Nevertheless, these results could positively contribute to entrepreneurship policy. If we are able to identify reasons and factors that affect someone's decision to start a new business, we would be then able to implement the appropriate policies to facilitate entrepreneurship. For instance, if we recognize the importance of networking on the entrepreneurial procedure, we would then support the idea for more incubators and more initiatives to bring together individuals with entrepreneurial attitude and ideas.

4.2 Limitations and future research

One basic limitation in our research is that the population sample is from the year 2011. Since it has been already four years in crisis, a difference in attitude or perception of individuals is expected, especially for countries in European Union where the situation is unstable due to currency uncertainty. Research could be more completed if the sample was from later years. The study might be more accurate if

there were more datasets from later years, so that a panel data analysis would reveal more details about individuals' behavior. Another limitation is that our study consists only of efficiency driven and innovation driven economies. The research leaves out factor economies where of course, as it has been observed in prior studies and reports, individuals start a new business due to necessity rather than individual desire. Moreover, the study is focused on certain variables like perceptual variables such as knowledge of other entrepreneurs, confidence on skills and experience, fear of failure and people's opinion about entrepreneurship as a career choice. As a result, it leaves out other variables that can influence someone's decision such as prior employment, source of funding, need for independence and other factors, which have been used in prior studies. Finally, another limitation is that big countries like China and India are missing and consequently we cannot apply our conclusions, ignoring a large part of planet's population.

One step further from this research could be the comparison between individuals from efficiency and innovation driven countries. In our study, we investigate the effect of living at innovation driven economy on someone's intentions to start a new business in the next three years. One idea for possible exploration is to compare directly the individuals of the two categories of economic development and examine the effect of perceptual variables.

END

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