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*PERCEIVED ENTREPRENEURIAL ABILITY AND
THE QUALITY AND QUANTITY OF
ENTREPRENEURIAL ACTIVITIES*

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ABSTRACT

Through a set of four papers this dissertation is aimed at understanding the role of subjective ability judgment in the form of *perceived* entrepreneurial ability in influencing the decision to initiate entrepreneurial activities. Recent studies suggest that the decision to initiate entrepreneurial activities could be influenced by subjective ability judgment i.e. positive perceptions of one's entrepreneurial ability. This dissertation extends this stream of research by comparing perceived entrepreneurial ability with actual ability and examines the role of these two ability dimensions in influencing the quality and quantity of entrepreneurial activities. In this dissertation entrepreneurial ability is defined as the cognitive and non-cognitive abilities necessary to undertake and pursue the tasks of new venture creation and management while perceived entrepreneurial ability is an individual's subjective judgment about his/her own entrepreneurial ability.

The main premise of this dissertation is that perceived entrepreneurial ability is an important determinant of entrepreneurial behavior. Secondly, the impact of perceived entrepreneurial ability is higher than actual ability in the decision to initiate entrepreneurial activities leading to increase in the quantity of entrepreneurial initiatives. Thirdly, individuals with high actual ability are more likely to initiate entrepreneurial activities when they develop positive perceptions about their entrepreneurial ability. Fourthly, the interaction effect of high actual ability and perceived entrepreneurial ability is positive and influences both the decision to initiate entrepreneurial activities and the choice of innovative entrepreneurship. This implies that perceived entrepreneurial ability in conjunction with high actual ability is a source of quality entrepreneurship. To test the above premises this dissertation uses a large statistical sample with consistent definitions and concepts across multiple contexts.

Overall the results of this dissertation support the contention that perceived entrepreneurial ability have a distinct and significantly positive influence on the decision to initiate t entrepreneurial activities and its impact is greater than actual ability. Furthermore, the joint effect of perceived entrepreneurial ability and high actual ability not only influences entrepreneurial action but also leads to innovative form of entrepreneurship.

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SUMMARY

Through a series of four academic papers, this dissertation is aimed at understanding the role of subjective ability judgment in the form of *perceived* entrepreneurial ability in influencing the decision to initiate nascent entrepreneurial activities. Entrepreneurial abilities in general are the cognitive and non-cognitive abilities necessary to undertake and pursue the tasks of new venture creation and management while perceived entrepreneurial ability is an individual's judgment about his/her own entrepreneurial ability. Recent studies suggest that the decision to initiate nascent entrepreneurial activities could be influenced by subjective ability judgment i.e. positive perceptions of one's entrepreneurial ability. This dissertation extends this stream of research by comparing perceived entrepreneurial ability with actual ability and examines the role of these two ability dimensions in influencing the quality and quantity of entrepreneurial activities. The main premise of this dissertation is that perceived entrepreneurial ability is an important determinant of entrepreneurial behavior. Secondly, the impact of perceived entrepreneurial ability is higher than actual ability in the decision to initiate nascent entrepreneurial activities. This has the likely effect of contributing to the quantity of entrepreneurial activities in an economy. Thirdly, when individuals with high actual ability develop positive perceptions of entrepreneurial ability they are more likely to initiate nascent entrepreneurial activities. Fourthly, the interaction effect of high actual ability and perceived entrepreneurial ability is positive and leads to entrepreneurial activities that have a greater impact on the society than entrepreneurial initiatives in general. This implies that perceived entrepreneurial ability in conjunction with high actual ability can be a source of quality entrepreneurship.

To test the above premises this dissertation uses a theoretical framework based on human capital theory, the theory of self-efficacy, theory of entrepreneurial intentions, social cognition theory and the signaling theory to examine four specific objectives: 1) the direct influence of perceived entrepreneurial ability, its impact viz.-a-viz. actual ability and their joint influence on the decision to initiate nascent entrepreneurial activities; 2) The spatial influence of perceived entrepreneurial ability and actual ability, uniquely and jointly, across economies; 3) the determinants of perceived entrepreneurial abilities 4) and finally the joint effect of perceived entrepreneurial ability and high actual ability in influencing the quality of nascent entrepreneurial activities in an economy. As noted above the first two objectives are concerned with the quantity of nascent entrepreneurial activities and answer the following research question: Does positive perceptions of entrepreneurial ability influence the entrepreneurial entry decision and how does it relate to actual ability? The third objective answers the question, what makes some individuals perceive their entrepreneurial activities favorably? The fourth objective related to quality entrepreneurship answers the following question: how does the society benefit when individuals with both perceived entrepreneurial ability and high actual ability pursue nascent entrepreneurial activities. To achieve these objectives, this dissertation uses a large statistical sample with consistent definitions and concepts across multiple contexts.

The dissertation is divided into six chapters with four chapters (II to V) answering each research question. In chapter II using a theoretical framework drawn from human capital theory, the theory of self-efficacy and role identify the first objective of this dissertation is examined. The results support the hypothesized effects. Chapter III

examines whether the effect of the identified ability dimensions i.e. perceived ability judgment and actual ability holds across economies. The results suggest that the effect is not systematic. In chapter IV the determinants of perceived entrepreneurial ability is examined using theoretical arguments developed from cognition theory. The results suggest that perceived entrepreneurial ability has both endogenous and exogenous origin. In chapter V, the form of nascent entrepreneurial activities pursued by individuals with both dimensions of ability is examined. The results suggest that perceived entrepreneurial ability influences the nature of entrepreneurship by individuals with high actual ability.

Overall the results of this dissertation support the contention that perceived entrepreneurial ability have a distinct and significantly positive influence on the decision to initiate nascent entrepreneurial activities and its impact is greater than high actual ability. Furthermore, the joint effect of perceived entrepreneurial ability and high actual ability leads to innovative entrepreneurial initiatives, a potential source of quality entrepreneurship in an economy.

Chapter I: Introduction

1.1 Entrepreneurship and the question of quality and quantity.

Every year millions individuals initiate nascent entrepreneurial activities across the world (Kelley et al., 2011; Xavier et al., 2012). The initiation of nascent entrepreneurial activities is the first step in a process that culminates in the founding of new ventures (Lichtenstein et al., 2006; Gartner et al., 2010). Nascent entrepreneurial activity¹ constitutes a large proportion of total entrepreneurial activity (TEA)² across economies (Xavier et al., 2012). One of the important drivers of such entrepreneurship is the ability judgments of individuals. For instance, while comparing the role of demographic, economic and perceptual factors on entrepreneurial behavior Arenius and Minniti, (2005) found that among all the variables in their study, ability judgments in the form of perceived entrepreneurial ability has the strongest (positive) correlation with nascent entrepreneurial activity. In another study Townsend et al., (2010) found that unlike judgment of entrepreneurial success entrepreneurial ability judgment is central to the decision to initiate nascent entrepreneurial activity. Similarly, Clercq's et al., (2011) study revealed that ability judgment have a significantly positive influence on the business entry decision. Furthermore, in Koellinger's et al., (2007) study ability judgment is the single most important variable in all their regressions models, and more

¹ Nascent entrepreneurial activity represents the on-going activity of creating a new venture. According to the definition used in this dissertation nascent entrepreneurial activity takes into account those new ventures creating activities that an individual initiates 12 months prior to the date of data collection.

² The Total entrepreneurial activity (TEA) rate measures entrepreneurship at an individual level. It takes into account percentage of individuals in the working age adult population who are in the process of creating a new venture or are already running new businesses. A TEA rate 10% is an indication that 10 out of 100 individuals in the population between the ages 18-64 are involved in creating a new business (nascent entrepreneurs) or are managing a new business less than 42 years old (baby business owners).

importantly its relative explanatory power is strongest for nascent entrepreneurs compared to more established entrepreneurs.

However, ability judgments could be erroneous (Kruger and Dunning, 1999; Moore and Small 2007). Aspiring entrepreneurs could be no different from others in exhibiting such errors of ability judgment (Busenitz and Barney, 1997; Simon et al., 2000). For instance entrepreneurs could be overconfident actors (Hayward et al., 2006). Such overconfidence makes individuals overestimate their ability in specific tasks (Moore and Healy, 2008). Koellinger et al., (2007) and Cain et al. (2013) found evidence of overconfidence among entrepreneurs. Entrepreneurial action based on overconfidence can result in less than expected outcome or even failure. For example, majority of individuals who initiate nascent entrepreneurial activities fail to convert those initiatives into operating new ventures (Parker, 2006). Similarly, at the macro-level there is evidence to suggest that a higher rate of entrepreneurship does not necessarily have a corresponding effect on economic growth (Carree et al., 2007; Valliere and Peterson, 2009). Evidence also suggests that in most economies the entrepreneurial pool tends to get dominated by individuals with low ability (Evans and Leighton, 1989), many of whom might be influenced by their favorable but misplaced perceptions of entrepreneurial ability (Arenius and Minniti, 2005). This could be an explanation for the low impact of entrepreneurship in the presence of high rates of entrepreneurial activities (Carree et al., 2007). On the contrary if individuals with high ability pursue entrepreneurship the impact of entrepreneurship on economic growth could be higher for several reasons. First, several studies suggest that there is a significantly positive relationship between founder's abilities and entrepreneurial success (Unger et al., 2011). Second, high ability is also positively related to innovation outcomes in new ventures

(Marvel and Lumpkin, 2007; Koellinger, 2008). Third, individuals with high ability are better evaluators of opportunities (Ucbasaran et al., 2008; Gruber et al., 2012). Fourth, individuals with high abilities tend to pursue growth-oriented strategies when they become entrepreneurs (Cooper et al., 1994; Barringer et al., 2005; Colombo and Grilli, 2009). The question therefore is: similar to most individuals does ability judgment influence the decision to initiate nascent entrepreneurial activities by individuals with high ability? This question has been sparsely examined in entrepreneurship research. For instance, on the one hand most studies examining the relationship between founder's abilities (often denoted as human capital) focus on the relative role of different components of ability, for instance education or general work experience or entrepreneurial experience and so on, ignoring the subjective ability judgment. Moreover, the focus is often on entrepreneurial success (Unger et al., 2011). On the other hand studies examining perceptual factors ignore the founder's education and other components of ability in influencing entrepreneurial behavior.

In the next section, we discuss the importance, and the treatment given to individual's abilities in entrepreneurship research followed by a discussion on why both subjective ability judgments and objective abilities must be taken into consideration in understanding entrepreneurial behavior.

1.2 Abilities and entrepreneurship.

Historically, few studies explicitly recognized the importance of individual's ability because the focus of entrepreneurship research was on defining "who is an entrepreneur" (Gartner, 1989). Entrepreneurship research was mainly concerned with

entrepreneurial functions. Some of the important functions identified in the literature were the ability to deal with risk (Kilstrom and Laffont, 1979; Caliendo et al., 2010) and uncertainty (Knight, 1921), the ability to innovate (Schumpeter, 1934; Drucker, 1985), the ability to coordinate production activities (Casson, 1982) and the ability to identify opportunities (Shane and Venkataraman, 2000). These studies implied that abilities required for entrepreneurship or what can be called entrepreneurial abilities are of diverse nature (Hebert and Link, 1989). It is not only related to “alertness” to information which is considered to be at the root of several abilities (Kirzner, 1979; Shane, 2000; Archdvilli et al., 2003; Eckhardt and Shane, 2003) but is also concerned with the abilities to organize, coordinate and manage resources (Low and McMillian, 1988; Alvarez and Busenitz, 2001; Foss et al., 2008).

The thrust towards researching founder’s abilities in entrepreneurship was given through the studies undertaken by Timothy Bates (1985, 1990, and 1995), Preisendörfer and Voss (1990), Brüderl et al., (1992) and Cooper et al., (1994). However, unlike experimental studies in social psychology where participant’s abilities could be measured using standardized tests, the early studies on founder’s abilities used proxy indicators. This approach did not identify the entrepreneurial abilities per se but investigated the relationship between the different proxy indicators of abilities and new venture performance. Some of the proxy indicators of ability were as narrow as founder’s age (Preisendörfer and Voss, 1990) and/or as wide as different types of education and experience of the founder(s) (Cooper et al., 1994). This tradition was continued by other researchers who included more specific (proxy) measures of ability. These measures were used either to examine the performance outcomes like survival (Bates, 1990; Brüderl et al., 1992; Delmar and Shane, 2006; Gimon and Levie, 2010), or first

sale/profit (Gimeno et al., 1997; Davidsson and Honig, 2003; Delmar and Shane, 2006). Other studies focused on the relationship between abilities and decision to become self-employed in the first place (Robinson and Sexton, 1994; Davidsson and Honig, 2003; Delmar and Shane, 2006). However, unlike the relationship between founder's abilities and new venture success (Unger et al., 2011) the role of abilities in the decision to become entrepreneurs was found to be non-significant (Dickson et al., 2008). One possible explanation for this result could be that subjective judgments of ability rather than objective abilities could be a more important determinant of the business entry decision. This is because the use of objective indicators of abilities ignores the invisible or unobservable abilities such as tacit abilities, those that cannot be codified (Davidsson and Honig, 2003). In other words objective indicators could not account for several cognitive and non-cognitive abilities. These cognitive abilities are related to the collecting, processing and interpretation of information (Neisser, 1967). For instance – opportunity identification is now considered one of the most important abilities that cannot be captured through common indicators like education and training. Similarly, several non-cognitive abilities related to social and emotional abilities are ignored (Baron, 2008; Hartog et al., 2010). Moreover, entrepreneurship is the outcome of subjective judgment, those that are taken in the presence of unreliable or uncertain information (Foss et al., 2008; Casson, 2010; Hogarth and Karelaia, 2012). Although such judgmental decisions might suffer from biases (Kruger and Dunning, 1999), distinguishing ability judgments from objective ability allows us to examine the mental process by which enterprising individuals make sense of the entrepreneurial process and their ability to execute the tasks relevant for creating and managing a new venture (Grégoire et al., 2011). Several studies on the cognitive process of entrepreneurs show clear differences in the way entrepreneurs collect, evaluate, interpret and use

information (Busenitz and Barney, 1997; Mitchell et al., 2007; Kickul et al., 2009). Therefore, because of private information arising out of education, training, general experience or the context, aspiring entrepreneurs might have perceptions of ability that could be different from what the objective (proxy) measures of abilities indicate. Moreover, sources of knowledge and skills that lead to the development of abilities are not limited to schooling and job experience. Individuals gain idiosyncratic knowledge particular to the circumstance of being in a place and time (Hayek, 1945). For instance: individuals exposed to co-workers with previous self-employment experience receive valuable information about entrepreneurship (Nanda and Sorensen, 2010). Similarly, individuals working in smaller enterprises might be exposed to doing a more diverse range of activities that enhances their multi-tasking skills (Elfenbien, 2010). Such knowledge and skills could lead to subjective judgments of ability which in turn could influence the choice of entrepreneurship over organizational employment (Townsend et al., 2010).

1.3 Subjectivity and the role of ability judgment

Many scholars have argued that judgments are an integral part of entrepreneurial decision making (Foss et al., 2008; Casson, 2010). These judgments involve decision making in the absence of correct model or decision rule or when relevant data is unreliable or incomplete (Casson, 2005). Knight (1921) associated entrepreneurship with judgmental decision making under uncertainty. Echoing Knight (1921), Foss et al.,(2007) emphasizes the importance of judgment in business decision making when the range of possible outcome and the likelihood of individual outcomes is unknown. Casson, (2005) argues that specialization in judgmental decision making is the defining

characteristic of the entrepreneur. Judgmental decision making involves the use of perceptions (Kruger, 2005). Perception is a specific type of cognition, the latter referring to “*all processes by which sensory input is transformed, reduced, elaborated, stored, recovered and used*” (Neisser, 1967). Literally, perception is the act of apprehending by means of the senses (physiological) or the mind (cognition). Several studies have identified the role of perceptions in opportunity identification (Kirzner, 1979; Shaver and Scott, 1991) and risk assessment (Simon et al., 2000; Forlani et al., 2000; Douglas, 2006). Kruger and Carsud (1993) have shown that the antecedent of entrepreneurial intent is the perception of feasibility and perception of desirability of entrepreneurship. In a similar way perceptions of entrepreneurial ability could precede the decision to initiate nascent entrepreneurial activities. Perceived entrepreneurial ability is how individuals judge their entrepreneurial abilities and is an important component of the entrepreneur’s cognitive make-up (Mitchell et al., 2000; Kruger, 2005; Kickul et al., 2007). Previous studies show that such perceptions could be positive or negative (Arenius and Minniti, 2005; Reynolds et al., 2005; Townsend et al., 2010). Those who perceive their entrepreneurial abilities positively are more likely to develop the self-confidence to initiate actions towards creating a new venture (Bandura, 1977; Benabou and Tirole, 2002; Townsend et al., 2010). In other words self-confidence based on one’s ability encourages some individuals to take entrepreneurial action. Consequently, because individuals with high actual ability are more likely to pursue innovative and growth-oriented new ventures, positive perceptions of entrepreneurial ability among individuals with high ability could lead to an improvement in the quality of entrepreneurship. As argued by several authors quality entrepreneurship is necessary for increasing the impact of entrepreneurship (Blanchflower, 2004; Shane, 2009; Vivarelli, 2013). However, while examining the subjective ability judgments that lead to the

decision to initiate nascent entrepreneurial activity it is important to compare it with actual abilities of aspiring entrepreneurs. This is because individuals could also be encouraged by misplaced perception of entrepreneurial ability. If this is true, than an economy with a lower match between perceived entrepreneurial ability and actual ability could see low quality entrepreneurship. This means that a higher rate of entrepreneurship (quantity entrepreneurship) would not necessarily be converted into greater impact. On the contract an economy with greater match between perceived and actual entrepreneurial ability could reap the real benefits of entrepreneurship through innovative and growth oriented new ventures, the type of entrepreneurial are considered quality entrepreneurship

1.4 Research objectives

Therefore, considering the importance of subjective ability judgment in influencing the rate of entrepreneurship and actual ability in quality entrepreneurship, this dissertation aims to examine the relative role of subjective ability judgment in the form of perceived entrepreneurial ability and actual ability in influencing the decision to initiate nascent entrepreneurial activities and the moderating role of perceived entrepreneurial ability in influencing the form of entrepreneurship by individuals with high actual ability. Previous studies that have examined the role of ability had focused either on subjective ability judgment or objective ability. For instance, in one of the first empirical studies on this topic Arenius and Minniti (2005) did a multi-country comparison of several perceptual variables (including perceived entrepreneurial ability) viz.-a-viz. several micro level objectives measures. Although this study established the importance of perceived entrepreneurial ability it did so in a way that is exploratory in nature.

Townsend et al., (2010) tested the role of perceived entrepreneurial ability by disentangling the self efficacy belief into its constituent parts i.e. the ability to perform the task related to new venture creation versus the ability to be successful in that task. However, the study did not reveal whether those who are influenced by positive perceptions of entrepreneurial ability have the actual ability to become successful entrepreneurs. As studies on the human capital of entrepreneurs show entrepreneurial success often depends of actual ability (Unger et al., 2011). Other studies that have examined perceived entrepreneurial ability have looked at perceptual entrepreneurial ability differences across gender (Driga et al., 2009) and among entrepreneurs at different stages of the entrepreneurial process (Koellinger et al., 2007). An important finding from the study by Koellinger et al., (2007) revealed that perceived entrepreneurial ability are often misplaced especially among those in the early stages of entrepreneurship. However, no studies have focused on the direct effect of perceived entrepreneurial ability and high actual ability simultaneously, as well as the role played by perceived entrepreneurial ability in moderating the influence of actual ability in the decision to initiate entrepreneurial activities. Moreover, no studies have examined the joint effect of perceived entrepreneurial ability and high actual ability in influencing the nature of entrepreneurial activities initiated in an economy. Therefore, this dissertation addresses four research questions related to the association between perceived entrepreneurship ability and actual ability in influencing entrepreneurial behavior. First: does perceived entrepreneurial ability influence the decision to initiate nascent entrepreneurial activities and is the impact of perceived entrepreneurial ability greater than high actual ability? Second, is the effect of perceived entrepreneurial ability and high actual ability on entrepreneurship systematic across economies? Third, what are the antecedents of perceived entrepreneurial ability? Fourth, are individuals with both

perceived entrepreneurial ability and high actual ability more likely to pursue innovative entrepreneurship compared to those without either of these two ability dimensions?

To address the above research questions, the specific objectives of this dissertation are as follows:

R1: To examine the direct and interaction effect of perceived entrepreneurial ability and high actual ability on the decision to initiate nascent entrepreneurial activities.

R2: To examine the influence of perceived entrepreneurial ability and high actual ability on entrepreneurial activities across economies at different stages of economic development.

R3: To identify the antecedents of perceived entrepreneurial ability.

R4: To examine the nature of entrepreneurship pursued by individuals with both high actual ability and perceived entrepreneurial ability.

1.5 Conceptual framework

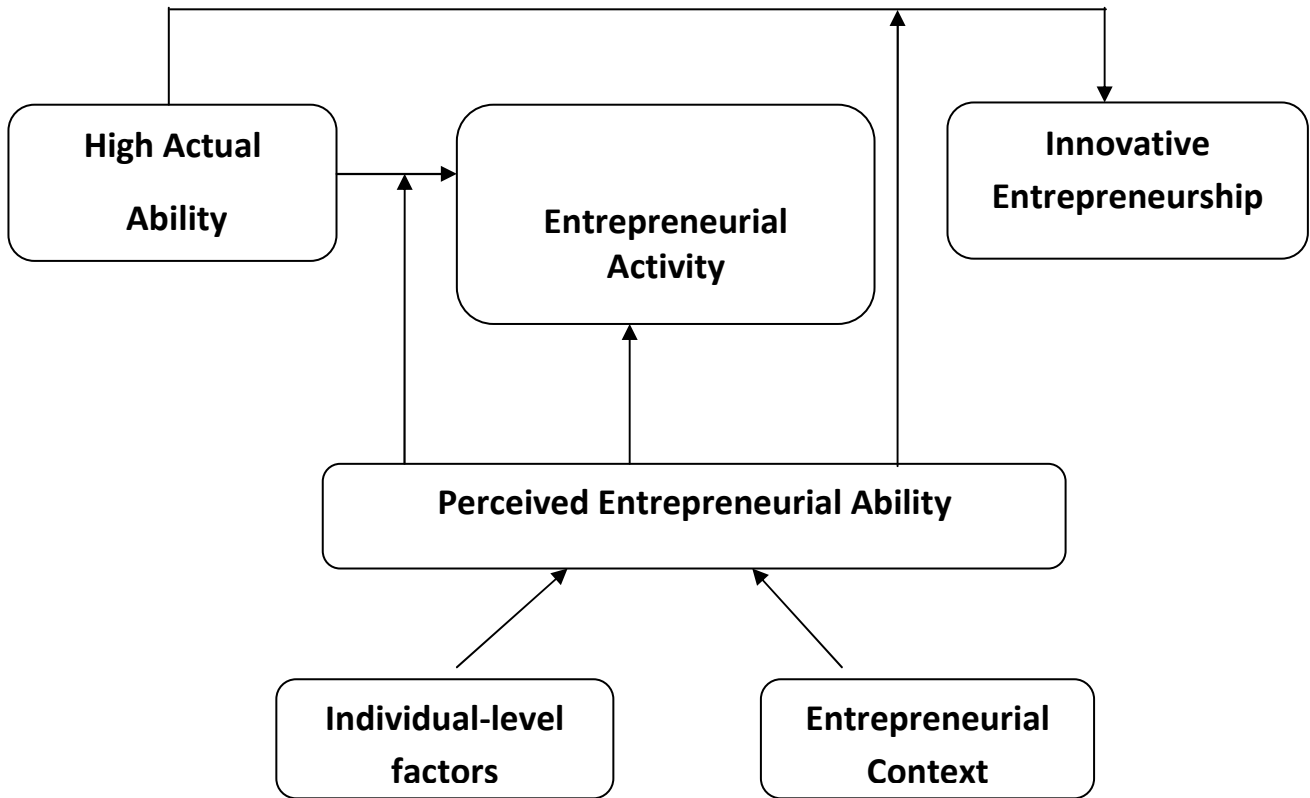
Considering that ability judgment could be central to our understanding of the quality and quantity of entrepreneurship the human capital theory is a suitable departure point to understand why some individuals decide to become entrepreneurs while others do not. The human capital theory argues that abilities result from formal education and training. Furthermore, the abilities that result from a formal learning process is an investment decision in which individuals expect to reap the outcome of learning to enhance their economic well-being (Becker, 1993). Therefore, in making such investment decisions individuals take into account the future returns that a higher level

of education and training could provide (Blaug, 1976). As such the acquisition of human capital is planned behavior in which individuals choose the education and training activities that enhance their future income. One implication of this decision is that individuals would refrain from education and training that do not have a future labor market. So, if the intention of human capital acquisition is personal economic well-being, then individuals are less likely to choose education and training that do not have a clear potential as a future source of income. Entrepreneurship is one occupation which does not have a labor market. This constrains the choice of education and training related to entrepreneurship. At the same time entrepreneurship is a planned behavior in which individuals develop entrepreneurial intentions over time before making the entry decision (Bird, 1988; Kruger and Carsrud, 1993). The antecedents of such intention is individual's attitude towards entrepreneurship (positive or negative) and social norms (how significant others perceive entrepreneurship). In the intention based model of entrepreneurial behavior entrepreneurial intent combined with perceptions of behavioral control (task difficulty) determine entrepreneurial action (Kruger and Carsrud, 1993; Kruger et al., 2000). According to Kruger and Carsrud, (1993), attitude and social norms reflect perceived desirability while task difficulty reflects perceived feasibility of entrepreneurship. The intention based model of entrepreneurial behavior suggests that although a positive attitude and favorable social norm is a necessary condition for developing intent, difficult task are acted upon only when they are thought to be feasible or under volitional control of the individual. While the intention based model of entrepreneurial behavior limits itself to factors that activate human agency, the theory of self-efficacy relates agency with performance through self-confidence by suggesting that individuals are more likely to execute a given behavior when they develop confidence in their ability to execute the tasks related to that behavior as well as the

confidence that they can obtain the desired results (Bandura, 1977). In other words, self-efficacy is associated with two contiguous but different ability beliefs (McGee et al., 2009). The first is ability to execute the given behavior while the second is the ability to derive a successful outcome. Regarding the first, individuals may be drawn to entrepreneurship by their entrepreneurial self-confidence to undertake the diverse tasks related to new venture creation and management but successful outcome may be contingent on factors many of which are beyond the volitional control of the individual. For instance, on the demand side new venture founders are at the mercy of macro-environmental factors like customer preferences, competitor's actions, the state of technology and government rules and regulation. At the same time, on the supply side individuals have the liberty over who to choose as new venture partners and other important stakeholders (suppliers). In other words, although the task of new venture creation and management is subject to a number of external forces, some of these forces might be within the control of individuals. In this dissertation I argue that ability judgment related to one's perceived entrepreneurial ability results from the self-confidence to execute the role demands of entrepreneurship, a role that focuses on the supply side of entrepreneurship in the form of activities that are required to create and manage a new venture. The conceptual model used for this dissertation is depicted in figure 1. In this model entrepreneurial ability judgment is represented by perceived entrepreneurial ability. Perceived entrepreneurial ability has a positive influence (direct effect) on the decision to initiate nascent entrepreneurial activities as well as a moderating influence on those with high actual ability by raising their self-confidence of individuals to execute the role demands of entrepreneurship. As shown in the bottom of the figure, perceived entrepreneurial ability has individual level antecedents (education/ training, age and gender), and contingent factors in the form of the

entrepreneurial context. This follows the social cognition theory that suggests that personal factors, behavioral experiences and the external environment determine human agency (Bandura, 1977). The right hand side of the model shows the relationship between perceived entrepreneurial activities and the nature of these initiatives (innovative entrepreneurship) when individuals with both high actual ability and perceived entrepreneurial abilities become entrepreneurs.

Figure 1: Conceptual Framework



1.6 Research methodology

1.6.1. The database

This dissertation uses a large dataset collected through random sampling of respondents from the adult population across regions using a uniform sampling and data collection methodology. The choice of the database has been influenced by ease of access and to avoid one of the important limitations of empirical research in entrepreneurship. It is related to the long-standing debate on the definition of entrepreneurship (Gartner, 1989; Shane and Venkataraman, 2000). As discussed earlier, entrepreneurship has primarily been defined in terms of functions (Hébert and Link, 1989). Such functions can be carried out within corporate settings (Sharma and Chrisman, 1999) as well as through independent new ventures (Low and MacMillian, 1988). Since different scholars emphasize different functions in entrepreneurial behavior and the context in which such functions are carried out, Veciana (2007) suggests that to overcome the sterile debate on what constitutes entrepreneurship and which functions are more important than others there is a need to operationalize entrepreneurship in terms of an economic setting not addressed by other fields of study. Unlike Shane and Venkataraman (2000) but echoing the views of Low and MacMillian (1988) Veciana suggested new venture creation as one of the distinctive domains of entrepreneurship research. Following Veciana (2007) this dissertation considers entrepreneurship as new venture creation or the process that leads to the creation of new ventures by individuals acting either alone or in a group. The second limitation is related to external validity of empirical findings (Bruton et al., 2008). External validity is concerned with generalizability of causal relationship across time, space and methods.

The Global Entrepreneurship Monitor (GEM) dataset satisfies the definitional requirements of this dissertation. The GEM considers entrepreneurship as the creation of new venture that proceeds in distinct phases (Reynolds et al., 2005). It uses consistent set of factors and definition across multiple contexts that can be used to establish external validity of findings. The GEM research program is an annual assessment of the national levels of entrepreneurial activity. Initiated in 1999 it is the single largest study of entrepreneurial activity in the world involving 70 countries as of 2012. The main advantage of GEM database is the fairly large sample size, in addition to consistency in definition and measures across multiple contexts. Thus, in addition to its external validity the use of GEM dataset allows understanding how the similar factors influences entrepreneurial activity across regions and also allows inter-regional and international comparison of factors that influences entrepreneurial activities.

1.6.2. Research Instrument and Unit of Analysis

The two main research instrument of GEM data collection methodology is the adult population survey (APS) and the national expert survey (NES). This dissertation is based on the adult population survey (APS). The GEM APS questionnaire has been developed taking into consideration theoretical perspectives, previous empirical findings as well as practical considerations (Reynolds et al., 2005; Levie and Autio, 2008). The countries that participate in the GEM research project have a national team of researchers that oversee the work in their respective countries. This database has been extensively used by researchers across the world. The GEM database is considered suitable for this study because it contains all the variables relevant for analyzing the hypothesized relationships. The specific datasets used in this dissertation pertain to the

GEM APS of 2010 and 2012 for Spain, the global GEM APS for 2008 and the GEM APS for Catalonia in 2010.

1.6.3 Data collection

The data has been collected by a third part market research agency. The data collection for GEM in Spain is initiated with a sampling frame obtained from the annually updated telephone directory of fixed and mobile directory. The third party marketing research agency selected by the Global Entrepreneurship Research Association (GERA) which is the technical committee of GEM overseeing the Global GEM project, collects the data normally during May-July of each year as per the GEM guidelines. According to this guideline a minimum of 2000 respondents for each country (or region) must be collected by each participating team. Following the regionalization of the Spanish GEM consortium in 2003, the different regions of Spain collect approximately 2000 respondents³ for each autonomous region resulting in a fairly large dataset for Spain.

While conducting the survey, the market research agency contacts the respondent through telephone. The telephone numbers are randomly selected using the random digit dialing (RDD) technique. The birth method is used to select the within-household respondents. The selected respondent is asked four screening questions and depending on their response to these four questions, the respondents are further asked questions about their involvement in the type and nature of business activities. Finally, information on some profile variables is collected from all respondents. In case of non-response, the same telephone number is contacted again and this process is repeated until the suitable respondent is contacted. Once the data from the target number of

³ Based on the sampling weightage the sample size for some autonomous regions can be less than 2000.

selected respondents are obtained, the dataset is weighted by gender, age group and habitat (rural-urban). In this dissertation respondent within the working age population, between the ages 16-64 is used for analysis.

1.6.4. Scope and Delimitation

This dissertation uses individual level data from the working-age adult population. The focus of the study is on nascent entrepreneurial activities and its nature. This means that the study's scope is limited to the early part of the entrepreneurial process when individuals take tentative steps visible through actions like registering a firm, seeking investors etc. It should be noted that not all nascent entrepreneurial initiatives are converted into operating new ventures i.e. not all nascent entrepreneurial initiatives are successful. Therefore the result of this dissertation represents the choice of entrepreneurship by individuals from the population and not the final outcome in terms of an operating new venture. Many nascent entrepreneurs might give up on their nascent entrepreneurial effort to pursue other vocations. The study is limited to understanding the earliest behavioral stage of entrepreneurship without looking into the factors that leads to successful initiation of an operating new venture.

1.6.5. Variable(s)

There are three main dependent variables in this dissertation. The first dependent variable is nascent entrepreneurship⁴. Nascent entrepreneurial activities are those new

⁴ The GEM distinguishes the behavioral stages of entrepreneurship through two measures: Early stage entrepreneurship and established business ownership. Early stage entrepreneurship measured by TEA

venture creating activities that are initiated within the 12 months preceding the date of survey. Nascent entrepreneurial activities are identified by asking respondents if they either alone or in groups are in the process of creating a new venture which they will own or co-own. In case of successful completion of the venture creation process i.e. an operating new venture, the operating new venture must be paying wages to employees for less than 3 months⁵.

The second important dependent variable is perceived entrepreneurial ability⁶. It is a self-reported measure collected through respondent's answer to following question "Do you have the knowledge, skills and experience to start a new business?" Individuals who respond positively perceive that they have the entrepreneurial ability to pursue entrepreneurship⁷. The third important dependent variable is innovative entrepreneurship. This dissertation considers a market based definition of innovation (Koellinger, 2008). The independent and control variables used are discussed in the respective chapters.

1.6.6. Statistical Analysis.

Due to the nature of the dependent variables this dissertation utilizes the binary logistic regression technique for statistical analysis. The logistic regression technique is a

(Total entrepreneurial activity) takes into consideration nascent ventures as well as young businesses, those less than 42 months old (Reynolds et al., 2005).

⁵ The time it takes to conduct the survey. This is done to ensure uniformity in definition. For instance, two respondents, contacted in different points in time, one in early May when the survey work is initiated and the other during the end of the survey might be categorized differently although they are similar. If, the allowance of 3 months is not taken into consideration the second respondent will be incorrectly categorized as a young-business owner instead of being a nascent entrepreneur.

⁶ Perceived entrepreneurial ability is both a dependent variable and an independent variable, depending upon the research question being answered.

probability technique based on the cumulative logistic distribution function (Greene, 2003). Unlike linear regression that computes the conditional mean of the dependent variable, the dependent variable in logistic regression is expressed in terms of conditional probability that takes into account the fact that the rate of change of the dependent variable with respect to the independent variable is not constant as in linear probability models but follows the S-shape of a cumulative distribution function.

The intrinsic non-linearity of logistic regression requires analysis beyond what is provided by the model coefficients in linear probability models (Wiersema and Bowen, 2009). Because the marginal effect of each independent variable is not constant the interpretation of directional hypotheses in logistic regression requires estimating the marginal effect, standard error and z value for each observation. There are three suggested ways of estimating the marginal effect. 1) Estimating the value of the marginal effect of each observation for given values of other independent variables; 2) Estimating the value of the marginal effect of each observation keeping the rest of the variables constant at the means; 3) Estimating the value of the average marginal effect of the independent variable for given values of other independent variables (Wiersema and Bowen, 2009). This dissertation uses method 2 by carrying out post-hoc robustness tests, using latest development in statistical analysis to analyze and interpret the sign, value and statistical significance of the model coefficients. For instance the delta method developed by Ai and Norton (2003) is used to estimate the true marginal effect of the interaction terms. Secondly, the significance of estimated regression coefficients is determined by examining the marginal effects of all observations (Weirsema and Bowen, 2009).

1.7. Expected contribution.

Theoretical: Following the call by Casson (2010), Foss et al., (2007) and Schultz (1982) this dissertation identifies the role of entrepreneurial ability judgment and provide empirical evidence on how ability judgments influences entrepreneurial behavior. While explaining the cognitive differences between entrepreneurs and non-entrepreneurs, previous studies mostly focus on the cognitive attributes that result from the entrepreneurial experience (Baron, 1998; Grégoire et al., 2011). Therefore, an important gap in entrepreneurship cognition research is the identification of cognitive attribute(s) that individuals bring to the entrepreneurial process (Grégoire et al., 2011). This dissertation identifies self-confidence in terms of how individuals perceive their ability for the task of entrepreneurship as the cognitive attribute that individuals bring to the entrepreneurial process. Therefore this dissertation addresses the thinking-doing link in entrepreneurship cognitive research (Mitchell et al., 2007) by suggesting the moderating role of entrepreneurial self-confidence in influencing entrepreneurial action. Thus, the results of this dissertation advance our understanding of the relationship between subjective ability judgments and the decision to initiate entrepreneurial activities, as well as its influence on the nature of entrepreneurial pursuit of individuals. In the broader field of entrepreneurship research this dissertation explains why certain individuals and not others are willing to undertake the diverse tasks related to new venture creation and management (Lechmann and Schnabel, 2013). The results contribute to our understanding of the important role played by subjective ability judgments, often ignored in studies that examine the objective ability-related advantages on the decision to initiate entrepreneurial activities (Davidsson and Honig, 2003).

Methodical: The study uses both objective and subjective indicators of ability. Using subjective judgments of ability has the benefit of eliciting the respondents “state of ability” at a given point of time as the abilities indicated by objective measures may decay over time if it lies unutilized. Furthermore, the outcome of formal learning might be different amongst individuals even with the similar education and training because of individual’s absorptive capacity. Secondly, this study focuses on the nascent entrepreneurial stage of the entrepreneurial process. Using nascent entrepreneurs to investigate entrepreneurship has the effect of reducing the hindsight bias. Since the sample used in this study comes from the working age adult population, it enables us to distinguish potential entrepreneurs from non-entrepreneurs early in the entrepreneurial process. In addition, this study incorporates appropriate adjustment to traditional statistical analysis thereby improving interpretation of the statistical results (Ai and Norton, 2003; Weirsema and Bowen, 2009). This increases the explanatory power of the results of the study.

Policy and Practice: The results from this study can be used to aid policy making. For instance, policy makers have actively promoted entrepreneurship among the disadvantaged and the unrepresented groups, those who are less likely to pursue entrepreneurship (female, minority, youth etc) (European Commission, 2008; Kösters, 2010; OECD, 2010). Such a policy is justified by citing several benefits of entrepreneurship, for instance innovation (Schumpeter (1934; Drucker, 1985; OECD, 2010), job generation (Birch, 1979; Kirchoff and Phillips, 1988) and economic growth (Naudé, 2011). Our results suggest that such a policy might be misguided. We suggest several ways how policy making can be made more effective by balancing quantity versus quality of entrepreneurship.

1.8. Structure of the thesis.

This doctoral dissertation is structured around four academic papers (Chapter II-V) with each paper addressing one of the four research questions. The first paper examines the relationship between perceived entrepreneurial ability and actual ability on the decision to initiate entrepreneurial activities. This paper uses data from the GEM survey from Spain collected in the year 2010. The main proposition being tested is whether perceived entrepreneurial ability has a distinct positive influence on the decision to pursue nascent entrepreneurial activities and whether its impact on the entry decision is greater than actual ability. In addition, it also tests the interaction effect of high actual ability and perceived entrepreneurial ability on the decision to initiate nascent entrepreneurial activities. The second paper (Chapter- III) is intended to test the effect of the perceived entrepreneurial ability and high actual ability across economies at different stages of economic development. Paper three (Chapter IV) focuses on the antecedents of perceived entrepreneurial ability. Paper four (Chapter V) investigates the form of nascent entrepreneurial activities pursued by individuals with high actual ability and perceived entrepreneurial ability. Finally, chapter VI discusses the results and presents the theoretical, empirical and practical contributions of this dissertation.

Chapter II

Initiation of Nascent Entrepreneurial Activities: The Relative Role of Perceived Entrepreneurial Ability & Actual Ability

Abstract:

Purpose: This study examines the direct effect of two individual level resources, one subjective and the other objective, and their interaction in influencing the business entry decision.

Design/methodology/approach: By distinguishing perceived ability from actual ability and using theoretical underpinnings from the human capital theory, self-efficacy theory and role identity, the proposed hypotheses are tested on a rich dataset of 20046 respondents from the Adult population survey (APS) collected according to the Global Entrepreneurship Monitor (GEM) methodology. A logistic regression analysis controlling for robust interaction term is used to determine the impact of perceived entrepreneurial ability and high actual ability in influencing the decision to initiate nascent entrepreneurial activities.

Findings: The results reveal that perceived entrepreneurial ability has a distinct positive influence on the decision to initiate entrepreneurial activities and its impact is greater than that of actual abilities. Furthermore, we find evidence of a positive interaction effect suggesting that those with high ability are encouraged to initiate entrepreneurial activities due to positive perceptions of their entrepreneurial ability.

Originality/value: Extending previous studies that suggest a positive influence of perceived entrepreneurial ability in driving business entry decision our study enriches this stream of research by simultaneously examining both subjective (perceived) ability judgments and objective (actual) ability in influencing entrepreneurship behaviour. The results point towards a need to adopt a more holistic approach towards identifying pre-entry founding resources especially those that might be difficult to measure using traditional methods.

Keywords: Entrepreneurship, self-confidence, entrepreneurial ability.

Paper type: Research paper

2.1. Introduction

To pursue entrepreneurship individuals need to undertake a number of activities related to opportunity identification (Short et al., 2010), opportunity evaluation (Ardichvilli et al., 2003; Ucbasaran et al., 2008) and new venture creation (Lechmann and Schnabel, 2013). While opportunity identification and evaluation requires the capacity to process asymmetric, unreliable and uncertain information (Busenitz and Barney, 1997; Eckhardt and Shane, 2003), new venture creation requires the practical intelligence to execute the diverse tasks related to business creation (Sternberg, 2004; Lazear, 2005; Baum et al., 2011). Recent studies reveal that ability cognition also plays an important role in business entry decisions. For instance, several studies reveal that those who develop positive perceptions of entrepreneurial ability are more likely to initiate nascent entrepreneurial activities (Koellinger *et al.*, 2007; Lafuente et al., 2007; Townsend *et al.*, 2010; Clercq et al., 2011).

However, most individuals perceive their abilities inaccurately (Kruger and Dunning, 1999; Moore and Small, 2007). On the one hand favourable perceptions of one's entrepreneurial ability can lead to business entry by individuals with low ability (Hayward et al., 2006). On the other hand, individuals with high ability might refrain from entrepreneurship because of unfavourable perceptions of their entrepreneurial ability (Kruger and Dunning, 1999; Hartog et al., 2010). This poses an interesting research question: are individuals with high ability more likely to initiate nascent entrepreneurial activities when they develop positive perceptions of their entrepreneurial ability? In this paper we examine the distinctive role of perceived entrepreneurial ability, the relative impact of perceived entrepreneurial ability and

objective ability which we call actual ability, and the moderating role of perceived entrepreneurial ability in influencing the decision to initiate nascent entrepreneurial activities by individuals with high actual ability using a random sample of individuals from the adult population in Spain. Using a conceptual framework drawn from the theory of human capital (Becker, 1993), self-efficacy (Bandura, 1977) and role identity (Burke and Reitzes, 1981) we suggest that the decision to initiate nascent entrepreneurial activities could be the result of entrepreneurial confidence that arises from positive perceptions of one's ability to execute the role demands of entrepreneurship. We suggest that individuals with high actual ability initiate nascent entrepreneurial activities when they develop the confidence to leverage their ability related advantages in entrepreneurship as opposed to organizational employment.

The main contribution of our study is to highlight the role of subjective judgments of ability in influencing entrepreneurial behaviour. Understanding subjective ability judgments is important because unlike entrepreneurial success objective indicators of ability often do not predict the business entry decision (Dickson et al., 2008; Unger et al., 2011). Our study contributes to the literature by showing the relative importance of objective indicators of ability vis.-a-vis. subjective entrepreneurial ability judgments in business entry. Secondly, although previous studies have reported the importance of entrepreneurship specific ability on entrepreneurial entry, our study shows that irrespective of the level of such task specific abilities general abilities can explain entrepreneurial entry. This provides policy makers a wider pool of individuals to whom policy support can be directed. Thirdly, our study identifies potential sources of quality entrepreneurship (Baumol, 1996).

The document is organised as follows. In the following section we use the human capital theory to explain the employment choice decision followed by hypotheses in sub-section 2.1. The methodology used is explained in section 3 and results are presented in section 4. Finally, section 5 provides the conclusions and discusses the academic and policy implications of the study's results.

2.2. Human capital and entrepreneurship

The human capital theory provides a framework for understanding the choices that individuals make to improve their productivity. It considers education and (on-the-job) training as the source of productive ability that leads to long-term economic well-being of individuals. According to the human capital theory, the knowledge, skills and experience⁸ (abilities) are assets whose benefits accrue to the future (Mincer, 1958; Schultz, 1961; Becker, 1993). In the human capital view those who want to improve their economic well-being invest in education and training by spending monetary and time resources in formal education and (on-the-job) training. In making such investment individuals take into account the mobility of abilities across occupations, firms and industries (Becker, 1993). Those who want to acquire generic abilities that have mobility across occupations, firms and industries invest their own resources (monetary and time) in formal education while employers pay for the less mobile firm-specific abilities (Becker, 1993). Overall, the outcome of education and training are “actual” abilities because individuals learn by going to school and by working for/under others.

⁸ It should be noted that knowledge and skills are often used as synonyms for abilities. However, in this paper ability is used to suggest the application of knowledge, skills and experience to particular ends. i.e. ability in a particular domain is the use of knowledge, skills and experience to execute tasks related to that domain. For instance, when a medical student using his knowledge, skills and experience of medical science treats his patients he has the ability to make use of his knowledge, skills and experience acquired through medical education and training.

The human capital theory assumes that individuals who invest monetary and time resources in education and training do so because there is a market for such abilities (Blaug, 1976). One implication of this theory is that in the absence of a readily available market for entrepreneurs, individuals would not invest in acquiring entrepreneurship-specific abilities thereby lacking the diversity of abilities necessary to pursue entrepreneurship (Lazear, 2005; Lechmann and Schnabel, 2013). This can constrain the choice of entrepreneurship, especially among individuals with high ability whose training (labour market experience) combined with higher levels of education can constrain their job mobility (Becker, 1993). Therefore, why do some individuals with high ability still decide to become entrepreneurs?

The predominant view is that entrepreneurship is a consequence of opportunity identification (Shane, 2004; Short et al., 2010). However, considering opportunity identification as the antecedent of entrepreneurial behaviour ignores the role of necessity (Reynolds et al., 2005) and other non-pecuniary motives (Gimeno et al., 1997; Hamilton, 2000), for instance the desire for autonomy (Taylor, 1996; Raphael et al., 2001) and job dissatisfaction (Burke et al., 2002) in the decision to pursue entrepreneurship. Moreover, such a decision could precede opportunity identification (Bhave, 1994; Patel and Feit, 2009). In this regard most individuals end up starting their entrepreneurial ventures in the industry in which they have prior training (labour market experience) (Bhide, 2000; Shane, 2000; Klepper, 2002). This is surprising because instead of creating an independent new venture, opportunities can be pursued through corporate venturing (Sharma and Chrisman, 1999). Alternatively, individuals can bid their time before finding another job (Minniti and Koellinger, 2009). Job dissatisfaction

and desire of autonomy can be overcome by switching to another firm or by negotiating a better and more independent job profile (Witt, 1999; Croson and Minniti, 2012). In the presence of these alternatives the choice of entrepreneurship requires confidence that one has the ability to undertake the task of new venture creation and management (Bandura, 1977; Townsend et al., 2010). As we discuss in the next two sections, positive perceptions of entrepreneurial ability influences entrepreneurial entry through the development of entrepreneurial confidence followed by explanation on how positive perception of entrepreneurial ability lowers the ability related barriers to the choice of entrepreneurship viz.-a-viz. organizational employment for individuals with high actual ability.

2.3. Perceived entrepreneurial ability and nascent entrepreneurial activities

Among the perceptions considered important in human behaviour self-efficacy is used to explain why individuals initiate certain behaviours (Bandura, 1977). In entrepreneurship perceived self-efficacy influences the entry decision through self-confidence (McGee et al., 2009). It has been found that successful entrepreneurs are influenced by perceived entrepreneurial self-efficacy that not only increases their self-confidence but also make them put greater effort to derive a successful outcome (Chen *et al.*, 1998). In other words entrepreneurial self-efficacy has two distinct components; task specific ability i.e. the ability to perform the various task related to new venture creation, and the perceived ability to be successful in that effort in the form of being successful in creating and managing a new venture (Townsend et al., 2010). The latter is considered important because individuals seek utility or valence from partaking in a

given behaviour (Vroom, 1964). Surprisingly, Townsend's *et al.* (2010) study reveals that among those who initiate entrepreneurial activities the perception of successful outcome (i.e. will there be a successful new venture?) is less important than the perception of entrepreneurial ability (i.e. are they entrepreneurially able?). The former is related to the goal outcome while the latter is the goal effort. Among entrepreneurs, Sarasvathy (2001) showed that effectual reasoning that makes individuals focus on the goal effort takes precedence over causal reasoning. We suggest that individuals use a similar logic of reasoning when they evaluate their ability for the entrepreneurial task. This is because individuals associate a set of meanings, expectations and role demands for each role or task and develop definite role identities (Burke and Reitzes, 1981). An entrepreneurial role identity is the awareness about role demands of a founder (Hoang and Gimeno, 2010). Moreover, thinking in terms of roles produces awareness of what that role entails. Such awareness may not require direct experience in that role. For instance, individuals learn vicariously by being exposed to co-workers with previous self-employment experience (Nanda and Sorensen, 2010). Similarly, individuals working in smaller enterprises might be exposed to doing a more diverse range of activities that enhances their multi-tasking abilities (Wagner, 2004; Elfenbien *et al.*, 2010).

At the same time unlike many common and repetitive roles, individuals may lack complete information about a difficult role like entrepreneurship leading to the use of perceptions in inferring one's abilities to fulfil the role demands of entrepreneurship. Such perceptions could be positive or negative (Arenius and Minniti, 2005). We argue that those who perceive that they can execute the role demands of entrepreneurship

develop the confidence necessary for initiating entrepreneurial activities without concern for the outcome of such initiatives. Therefore we hypothesize that,

H1: Individuals who develop positive perceptions of their entrepreneurial ability are more likely to initiate nascent entrepreneurial activities than those who do not.

Several studies have shown that entrepreneurs tend to be overconfident (Forbes, 2005; Koellinger et al., 2007) and optimistic individuals (Cooper et al., 1988; Cassar, 2010).

Do such perceptions occur *a priori* i.e. before the entry decision is made? Among entrepreneurs, nascent entrepreneurs tend to exhibit higher level of confidence in their entrepreneurial abilities than entrepreneurs who are at a more advanced stage in the entrepreneurial process. Koellinger et al., (2007) showed that confidence in one's entrepreneurial abilities declines over time with entrepreneurial experience suggesting that entrepreneurial confidence could be at their highest before the entry decision is made. Considering that one does not know one's entrepreneurial abilities a priori, and the general tendency to perceive one's abilities favourably, we expect that the impact of perceived entrepreneurial ability on the decision to initiate nascent entrepreneurship is likely to be greater than actual ability.

H2: The impact of perceived entrepreneurial abilities on the decision to initiate nascent entrepreneurial activities is greater than actual ability.

2.4 The interaction effect of perceived entrepreneurial ability and high actual ability

Studies in social psychology reveal that individuals with high ability have a tendency to underestimate their abilities (Kruger and Dunning, 1999). This could be especially true in difficult tasks such as new venture creation that requires individuals to handle a diverse range of activities for which they might not be trained (Lazear, 2005).

At the same time there are several benefits of high abilities in entrepreneurship. First, high ability (specialized) can be leveraged through entrepreneurship to serve a bigger market for individuals who are limited by physical and personal factors related to abilities (Murphy et al., 1991; Van Praag and Cramer, 2001). Secondly, in addition to specialization in their respective knowledge domains high ability provides valuable non-cognitive skills useful in entrepreneurship (Hartog *et al.*, 2010). Third, social and professional networks developed through educational and professional associations could provide access to potential stakeholders (Delmar and Shane, 2006).

However, to leverage their ability-related advantages individuals with high ability need to develop entrepreneurial confidence, the confidence that they have the ability to pursue the different tasks related to new venture creation and management. Confidence in one's ability enables individuals with imperfect will power to undertake difficult tasks (Benabou and Tirole, 2002). Since, individuals with high ability are more likely to have lower will-power in leaving a set career path in organizational employment to pursue entrepreneurship (Raphael et al., 1995), we argue that individuals with high

actual ability initiate nascent entrepreneurial activities when they develop entrepreneurial confidence.

H3: Individuals with both perceived entrepreneurial ability and high actual ability are more likely to initiate nascent entrepreneurial activities compared to those who lack either or both these ability dimensions.

2.5. Methodology

2.5.1. Data Source

Our study uses data from an adult population survey (APS) conducted following the Global Entrepreneurship Monitor (GEM) methodology (Reynolds *et al.*, 2005; Levie and Autio, 2008). The GEM is a multi-country annual entrepreneurship observatory undertaken to study entrepreneurship (Refer Bosma *et al.*, 2012 for the detailed methodology). For the present study the data was collected by a professional marketing research agency selected and monitored by experts from the international GEM consortium (www.gemconsortium.org). A multi-stage sampling method was used to select the respondents. In the first stage a random sample of municipalities were selected based on population quotas. In the second stage fixed and mobile telephone numbers were randomly obtained from the updated directory of fixed and mobile telephone numbers. Finally, individuals between the ages of 18 to 64 inclusive were randomly selected using random digit dialling (RDD). This way, 26,388 observations were collected in Spain between May-July, 2010. A sample of 20046 respondents was

retained for analysis after removing data points with missing values and observations which were not relevant for this study (refer next section).

2.5.2. Variable(s)

In this study the dependent variable refers to nascent entrepreneurial activity. Following Reynolds *et al.* (2005), individuals are deemed entrepreneurially active or nascent entrepreneurs if they, alone or with others, are undertaking concrete actions towards creating a new venture. These activities are undertaken in the year preceding the GEM survey. Thus our sample can be divided into nascent entrepreneurs and the remaining observations who we will call ‘others’ for the sake of simplicity. The category nascent entrepreneurs include only those who reported their job status as working⁹. The dependent variable takes the value of one if the individual is a nascent entrepreneur and zero otherwise. Table 2.2 shows that the proportion of the adult population in our sample involved in entrepreneurial activities in 2010 is 1.27%.

As for the independent variables, following previous studies we measure perceived entrepreneurial ability using a dichotomous self-reported measure (Arenius and Minniti, 2005; Koellinger *et al.*, 2007; Lafuente *et al.*, 2007; Driga *et al.*, 2009; Clercq *et al.*, 2011). Respondents were asked “*Do you have the knowledge, skill and experience required to start a new business*”. According to Table 1, 92.54% of entrepreneurially active respondents have favourable perceptions of their entrepreneurial abilities, a

⁹ The exclusion of full time nascent entrepreneurs is to reduce survey bias. It should be noted that in the earliest phase of entrepreneurship many individuals tend to hold on to their paid employment.

proportion which is significantly greater than that shown by non-entrepreneurs in the sample (45.03%).

Two broad indicators were variables were used to measure the second independent variable that we call actual ability. Formal education and work experience commonly used indicator of abilities as per the human capital theory (Becker, 1993; Wößmann, 2003). In the original survey formal education is a categorical variable indicating completed levels of education divided into 4 categories: *Basic education, secondary education, post-secondary education and post graduate education*. We segment the 4 categories into high formal education and low formal education by using secondary education as the cut-off. This cut-off marks the end of compulsory education and also the level of education at which individuals become eligible for entering the labour market. Figures in Table 2.1 indicate that the proportion of individuals involved in nascent entrepreneurial activities with high formal education (62.35%) is significantly higher relative to the proportion of individuals with high formal education in the non-entrepreneurially active subsample (44.76%).

Work experience is measured through job status of respondents at the time of survey. In the original dataset job status can be divided into four categories: 1) existing entrepreneurs 2) those who are working full-time or part-time, 3) those looking for jobs and 4) all others who have kept themselves away from the job market (students, housewife, retired and disabled). However, having existing entrepreneurs (including nascent entrepreneurs who report their job status as self-employed) in the sample might bias the response by eliciting favourable response for one of the independent variable of

the study (perceived entrepreneurial ability). To overcome this bias we remove all respondents who reported their job status as self-employed (including full time nascent entrepreneurs and owner-manager of young and existing businesses) reducing our original dataset to 20046 observations. Thus the job status variable is converted into a dummy that comprises respondents who are working (those who have initiated nascent entrepreneurial activities without being full-time entrepreneurs) and others that include those who are looking for jobs, students, homemakers and retired or disabled individuals.

Using these two objective indicators of ability we created a composite measure called high actual ability taking high formal education and positive job status as the indicator of high actual ability. Therefore, in this study respondent have high actual ability if his or her high education (formal education) is complimented by work experience at the time of survey. Individuals lacking either of the two components are categorised as respondents with low actual ability. In our final sample 48.62% of nascent entrepreneurs have high actual ability, whereas the value for this measure stands at 30.79% among the remaining observations.

Table 2.1. Descriptive statistics of the selected variables

	Nascent Entrepreneurs	Others	Overall	Chi square
Age (years)	39.8549 (9.8571)	44.1632(12.5285)	44.1084(12.5072)	5.4696+***
Gender (1 for male)	0.6549 (0.4763)	0.4860(0.4998)	0.4882 (0.4999)	28.713***
Fear of failure	0.2862(0.4529)	0.4700 (0.4991)	0.4677(0.4990)	34.157***
Personal knowledge of other entrepreneurs (1 for yes)	0.6313 (0.4529)	0.2855 (0.4516)	0.2899(0.4537)	146.256***
Perceived opportunity (1 for yes)	0.4156(0.4938)	0.1701(0.3757)	0.1733(0.3785)	105.907***
Entrepreneurship training (1 for yes)	0.5137(0.5007)	0.2418(0.4282)	0.2453(0.4302)	100.484***
High actual ability	0.48620.5008	0.3079(0.4616)	0.3102(0.4626)	37.398***
High education (1 for high)	0.6235(0.4854)	0.4476(0.4972)	0.4498(0.4974)	31.477***
Job status (1 for employed)	0.7176(0.4510)	0.5415(0.4982)	0.5437(0.4980)	31.479***
Perceived entrepreneurial ability (1 for yes)	0.9254 (0.2631)	0.4503(0.4975)	0.4564(0.4981)	229.069***
Number of Observations	255	19791	20046	

*** = Significant at the 0.01 level.

+ T-statistic

As shown in table 2.1, 71.76% of respondents who are pursuing nascent entrepreneurial activities are working at the time of the survey and this proportion is significantly different from those who have not initiated any nascent entrepreneurial activity (54.15%).

Additional descriptive statistics in Table 2.2 shows the nascent entrepreneurial activity levels of the sample according to the respondent’s perceived entrepreneurial ability and high actual ability. It can be seen that the nascent entrepreneurial activity among respondents who have high actual ability is 1.99% (row I, column I), whereas the level of nascent entrepreneurial activity is 2.57% for those with perceived entrepreneurial ability (row III, column I).

Table 2.2 Nascent entrepreneurial activity according to perceived entrepreneurial ability and high actual ability

	Perceived entrepreneurial ability (I)	No Perceived entrepreneurial ability (II)	Total (III)
High Actual Ability (I)	0.03466(0.1829)	0.0021(0.0461)	0.0199(0.1398)
Low Actual ability (II)	0.0205(0.1418)	0.0016(0.04007)	0.0094(0.0968)
Total (III)	0.0257(0.1585)	0.0017(0.0417)	0.0127(0.1120)

Standard deviation is presented in brackets.

More importantly, the highest level of nascent entrepreneurial activity is reported amongst respondents with both perceived entrepreneurial ability and high actual ability (3.46%) (Row I, column I). Respondents with low actual ability and with negative perceptions of their entrepreneurial ability are those that have lowest level of nascent entrepreneurial activity (0.16%) in the sample (row II, column II). This indicates the importance of abilities (of both dimension) when it comes to nascent entrepreneurship.

In addition to the two ability measures, we control for several variables like age, gender, fear of failure, personal knowledge of other entrepreneurs, perceived opportunity and entrepreneurship training, those that has been found to influence nascent entrepreneurial activities. The effect of gender is reflected through lower participation of women in nascent entrepreneurial activities (Driga *et al.*, 2009). Considering the fact that the greater propensity for men towards entrepreneurial activities compared to women may persist even with increase in actual ability and perceived entrepreneurial ability, we control for the impact of gender through a dummy variable in our analysis. Similarly, age can affect entry into entrepreneurship (Langowitz and Minniti, 2007). The propensity of choosing an entrepreneurial career early in life is higher and it can vary by gender (Blanchflower and Meyer, 1994). Furthermore, while on the one hand individuals who perceive a fear of failure are less likely to initiate nascent entrepreneurial activities (Vaillant and Lafuente, 2007), while on the other hand those who have personal knowledge of other entrepreneurs are more likely to initiate nascent entrepreneurial activities (Lafuente *et al.*, 2007; Bosma *et al.*, 2012). Similarly, individuals who discover opportunities are more likely to initiate nascent entrepreneurial activities (Shane, 2000; Short *et al.*, 2010) while those with entrepreneurship training are more likely to become nascent entrepreneurs (Rodrigues *et al.*, 2010).

2.5.3 Method

To measure the influence and impact of our ability dimensions on nascent entrepreneurial activity we use logistic regression analysis (Greene, 2003). In our logit

model, the probability of initiating nascent entrepreneurial activity ($\Pr(Y_i = 1) = \hat{p}_i$) is modelled as a function of the aforementioned set of independent variables (X_i), where \hat{p}_i is expressed as $\hat{p}_i = e^{X_i\beta_j} / 1 + e^{X_i\beta_j}$, and parameters (β_j) are estimated by maximum likelihood method. The magnitude of impact of the independent variables is determined by the first difference (marginal effect). However, unlike linear models first differences apply only in the case of individual independent variables. In non-linear models the interaction effect, i.e., the change in both interacted variables with respect to the dependent variable is not equal to the marginal effect of changing just the interaction term. In addition, in the case of the interaction of two dummy variables in non-linear models, the interaction effect may have different signs for different values of the covariates. Thus, the parameter estimate of the interaction term in non-linear models does not necessarily indicate the sign of the interaction effect. Since in this study we examine the influence of perceived entrepreneurial ability and high actual ability on nascent entrepreneurial activities, an estimation of the direct marginal effect of the interaction term will provide misleading results. Thus, to corroborate our model and to identify the influence of our ability measures on nascent entrepreneurial activity we use the method proposed by Ai and Norton (2003). Through this procedure we obtain robust interaction effects for the two independent (dummy) variables (x_1, x_2) in which the change in the predicted probability to initiate nascent entrepreneurial activity results from the discrete double difference with respect to x_1 and x_2 , i.e., $\gamma_x = \frac{\Delta^2 F(X, \beta)}{\Delta x_1 \Delta x_2}$, where $X = x_1, x_2$. This double discrete difference indicates the strength (stronger or weaker) of the effect of the independent variables on the probability of initiating nascent entrepreneurial activities compared to the rest of the population. The procedure

developed by Ai and Norton (2003) also allows us to test whether the real magnitude of the interaction term is different from zero, $\gamma_x \neq 0$, even if the coefficient obtained from the logistic model is not statistically significant.

To examine the influence of perceived entrepreneurial ability and high actual ability on nascent entrepreneurial activity we use the following model:

Entrepreneurial

$$\begin{aligned} \text{Activity}_i : & \beta_0 + \beta_1 \text{Control variables}_i + \beta_2 \text{High actual ability}_i \\ & + \beta_3 \text{Perceived entrepreneurial ability}_i \\ & + \beta_{23} \text{High actual ability}_i \times \text{Perceived entrepreneurial ability}_i + \varepsilon_i \end{aligned} \quad (1)$$

In equation (1) ε_i is the logistic distributed error term for the *ith* cases. Control variables correspond to the entrepreneur's profile, namely, gender and age. In terms of our hypotheses, we expect that $\beta_3 > 0$, meaning that individuals with perceived entrepreneurial ability are more likely to pursue nascent entrepreneurial activities (**H1**). According to **H2**, we expect that $\beta_3 - \beta_2 > 0$ and $\beta_3 > 0$, indicating that perceived entrepreneurial abilities positively impacts nascent entrepreneurial activities to a greater extent compared to the positive effect that high actual ability have on nascent entrepreneurship. As for our third hypothesis we expect (**H3**: $\beta_{23} > 0$), i.e., individuals with high actual ability and perceived entrepreneurial ability are more likely to initiate nascent entrepreneurial activities.

Finally, we calculate the proportion of correctly classified (predicted) observations as an additional measure of goodness of fit. This is done for the full sample as well as for those individuals that are nascent entrepreneurs and those that are not.

2.6. Results

The results of our logistic regression are shown in Tables 2.3 and 2.4. Table 2.3 gives the results of the proposed logit model on the full sample, whereas Table 2.4 shows the results of the marginal effect i.e. change in the probability of initiating nascent entrepreneurial activities for the all the variables in the model.

The results of the control variables included in the model indicate except fear of failure which is negative and significant ($p < 0.05$) all other control variable have a highly significant ($p < 0.01$) positive effect on nascent entrepreneurship. Results in specification 1 of Table 2.4 reveal that the probability of males initiating nascent entrepreneurial activities is 0.148 percentage points higher than that female. The greater proportion of males pursuing nascent entrepreneurial activities is similar to previous studies showing a higher participation of men in nascent entrepreneurial activities compared to women (Driga *et al.*, 2009; Verheul *et al.*, 2012). Similar to previous studies reporting a lower mean age for individuals who pursue entrepreneurial activities (Fairlie, 2004), we find that the probability of individuals initiating nascent entrepreneurial activities decreases as they become older. Personal knowledge of other entrepreneurs increases nascent entrepreneurial activities by 0.462 percentage points while perceived opportunity

increases nascent entrepreneurial activity by 0.481 percentage points (specification 1 of table 2.4). When analysing the effects of the key independent variables, we find that $\beta_3 > 0$, indicating that perceived entrepreneurial ability has a significantly positive influence on nascent entrepreneurial activities (specification 1 of Tables 2.3 and 2.4). In terms of magnitude holding the other independent variables constant at their means, results in Table 2.4 show that regardless the level of actual ability, the probability of an

Table 2.3 Logit results: The relationship between nascent entrepreneurial activity, perceived entrepreneurial ability and high actual ability.

	Specification 1	Specification 2
Age (years)	-0.0177***(.0045)	-0.0177***(.0045)
Gender (1 for male)	0.3369**(0.13402)	0.3368**(0.1340)
Fear of failure	-0.54296***(.1408)	-0.5428***(.1408)
Personal knowledge of other entrepreneurs	0.8615***(.1346)	0.8614***(.1347)
Perceived opportunity(1for yes)	0.8241***(.1317)	0.8239***(.1317)
Entrepreneurship training(for yes)	0.3965***(.1322)	0.3957***(.1324)
High actual ability	0.3351***(.1280)	0.1531(0.4936)
Perceived entrepreneurial ability	2.2590***(.2469)	2.1913***(.2973)
High actual ability X Perceived entrepreneurial ability		0.1957(0.5128)
Intercept	-6.1810***(.3157)	-6.1204***(.3460)
Pseudo R ²	0.1598	0.1598
Log Likelihood	-1147.991	-1147.917
LR (chi2)	303.21(8)	306.45(9)
Correctly predicted	0.9873	0.9873
Number of observations	20046	20046

Robust standard errors are presented in brackets. Dependent variable: One if the respondent is involved in nascent entrepreneurial activities. *, **, *** = Significant at the 0.10, 0.05 and, 0.01 level, respectively (two tailed).

individual with perceived entrepreneurial ability initiating nascent entrepreneurial activities is 1.32 percentage points higher compared to the probability of individuals without perceived entrepreneurial ability (specification 1 in Table 2.4). Since the nascent entrepreneurial activity in the sample is 1.27% this means that having perceived entrepreneurial ability increases the probability of initiating nascent entrepreneurial activities by $(1.32/1.27) + 1 = 2.03$ times. This finding is similar to Townsend *et al.* (2010). Given this, hypothesis one (**H1**) which states that individuals with perceived entrepreneurial abilities are more likely to initiate nascent entrepreneurial activities is supported.

Similarly, the influence of high actual ability is positive and statistically significant (specification 1 of table 2.3). Results of the marginal effect (specification 1 of Table 2.4) indicate that, in our sample, the probability of nascent entrepreneurial activities by individuals with high actual ability rises by 0.15 percentage points, compared to the probability of individuals with low actual ability. Since the nascent entrepreneurial activity in the full sample is 1.27% this means that high actual ability increases the probability of initiating nascent entrepreneurial activity by $(0.156/1.27)+1 = 1.12$ times. Again if we look at the marginal effects of our ability dimensions (specification 1 of Table 2.4), it is seen that $\beta_2 > 0$ and $\beta_3 > 0$ and the effect of high actual ability on nascent entrepreneurial activities is lower than that of perceived entrepreneurial ability. To test the robustness of this result we tested if $\beta_3 - \beta_2 > 0$. For specification 1 the result of the chi2 test (92.11 and *p-value* < 0.000) corroborates that, in our sample, the positive effect of perceived entrepreneurial abilities on nascent entrepreneurial activities

is higher compared to the positive effect of high actual ability. These results are in accordance with our second hypothesis (**H2**).

To test our third hypothesis, the moderating effect of perceived entrepreneurial ability on nascent entrepreneurial activity of individuals with high actual ability the interaction term in specification 2 of Tables 2.3 and 2.4 has been estimated using the Ai and Norton (2003). The coefficient of the interaction term in (specification 2 of table 2.3) is the incorrect standard logit out while specification 2 of table 2.4 is the average (true) interaction effect. The result of the robust interaction effect in specification 2 of Table 2.4 ($\gamma_{23} = 0.00786$) reveals that, in our sample, individuals with high actual ability and perceived entrepreneurial ability are on average 0.7 percentage points more likely to initiate nascent entrepreneurial activities compared to those who lack these ability dimensions or those who have only one of these ability dimensions but not the other. This is equivalent to $(0.7/1.27)+1 = 1.55$ times increase in nascent entrepreneurial activity for individuals with both high actual ability and perceived entrepreneurial ability. To corroborate the true interaction effect we can look at the marginal effect of the interaction term for all observations (true marginal effect) in the sample and its significance through the z-value of each observation as shown in figure 1 and figure 2 (Wiersema and Bowen, 2009). The figures show that even though the magnitude of the interaction effect varies by observation, the interaction effect is positive and statistically significant for all observations in the sample.

At this point an important consideration is in order. The inclusion of the interaction term in specification two implies a very careful interpretation of the empirical results

presented in specification 2 of Table 2.4. In the case of high actual ability, the result of the marginal effect ($\gamma_2 = 0.00069$) indicates that for individuals with high actual ability who lack perceived entrepreneurial ability, the probability of nascent entrepreneurship rises by 0.069.

Table 2.4 Logit results: Marginal effects of the change in the probability of nascent entrepreneurial activities

	Specification 1 dy/dx	Specification 2 dy/dx
Age (years)	-0.00007***	-0.00007***
Gender (1 for male)	0.00148**	0.00149**
Fear of failure	-0.00235***	-0.00236***
Personal knowledge of other entrepreneurs	0.00462***	0.00465***
Perceived opportunity(1for yes)	0.00481***	0.00484***
Entrepreneurship training(for yes)	0.00192**	0.00193**
High actual ability	0.00156**	0.00069
Perceived entrepreneurial ability	0.01321***	0.01273***
High actual ability X Perceived entrepreneurial ability		0.00786**
Number of observations	20046	20046

In the case of dummy variable, the marginal effect represents the change in the probability as a result of a discrete change from zero to one in the independent variable, i.e., $\gamma_x = \Pr(Y = 1|X = 1) - \Pr(Y = 1|X = 0)$. The first difference of the interaction term for

changes in the two dummy variables (x_1, x_2) is estimated by $\gamma_{x_1, x_2} = \frac{\Delta^2 F(X, \beta)}{\Delta x_1 \Delta x_2}$,

where $X = x_1, x_2$. *, **, *** = Significant at the 0.10, 0.05 and, 0.01 level, respectively.

percentage points relative to the probability of individuals who lack perceived entrepreneurial ability and have low actual ability. This result is consistent with the

figures presented in Table 2.2. Similarly, the result for perceived entrepreneurial ability indicates that in the absence of high actual ability, the probability of initiating nascent entrepreneurial activities by individuals with perceived entrepreneurial ability increases by 1.27 percentage points compared to the probability of individuals without perceived entrepreneurial ability. By construction, the relevant effect is the sum of the two terms ($\gamma_3 + \gamma_{23} = 0.0205$), which means that for individuals with perceived entrepreneurial ability high actual ability acts as a catalyst for initiating nascent entrepreneurial activities in a significant way. Once more, this finding is in line with the descriptive statistics presented in Table 2.2 that shows that the entrepreneurial activity level of those with both high actual ability and perceived entrepreneurial ability is more than double (3.46%) the average of the sample (1.27%). This further supports the double positive effect of high actual ability and perceived entrepreneurial ability on nascent entrepreneurial activities. Therefore, we find support for our third hypothesis (**H3**) that proposed that individuals with both perceived entrepreneurial ability and high actual ability are most likely to initiate nascent entrepreneurial activities.

2.7. Discussion and Implications

The role of perception finds recurrent mention in entrepreneurship research. For instance, studies have shown that it is actually the risk perception rather than risk propensity that influences entrepreneurial behaviour (Forlani and Mullins, 2000; Simon *et al.*, 2000). Researchers focusing on the role of entrepreneurial opportunity suggest that opportunity identification or discovery results of differences in perceptions (Kirzner, 1979; Shane and Venkataraman, 2000; Krueger, 2005). Similarly, Arenius and

Minniti's (2005) study show the predominance of perceptual factors like perceived entrepreneurial ability over demographic and economic factors to explain entrepreneurial activity.

While acknowledging the existence of perceptions and its importance in individual behaviour, researchers adopting the cognitive approach have attributed such perceptions to the way individuals think. They suggest that entrepreneurs think differently from non-entrepreneurs (Busenitz and Barney, 1997; Baron, 1998; Mitchell *et al.*, 2007). These differences in cognition in turn lead individuals to perceive situations differently (Simon *et al.*, 2000). For instance, entrepreneurs tend to exhibit greater levels of certain cognitive attributes like optimism (Cooper *et al.*, 1988), confidence (Hayward *et al.*, 2006) and self-efficacy (Chen *et al.*, 1998). Yet, most studies focus on existing entrepreneurs, i.e. those who have an operating business and therefore likely to contain substantial hindsight bias. In other words, it is not clear if differences in perceptions result from entrepreneurial experience or exist *a priori*. As shown by Koellinger *et al.* (2007) nascent entrepreneurs tend to have significantly greater levels of perceived entrepreneurial abilities compared to entrepreneurs with established new ventures, suggesting that these abilities might still be high before the new venture entry decision is made. Our results show that perceived entrepreneurial abilities could influence entrepreneurial entry, i.e. some individuals have the cognitive ability to assess their entrepreneurial abilities and a positive self-assessment make them more likely to initiate nascent entrepreneurial activities. Since perceptions originate in individual's mind they are subjective and quite different from what is visible from their objective ability credentials. It is true that subjective judgments may not always be accurate or realistic,

yet it could induce individuals take concrete actions towards initiating entrepreneurship rather than limit to the entrepreneurial intent.

Such actions that lead to the initiation of nascent entrepreneurial activities are necessary to enhance the rate of entrepreneurship in an economy. However, it must be noted that not all nascent entrepreneurial activities may lead to successful new venture creation (Van Gelderen et al., 2005). At the same time the positive effect of our interaction term is an indication that those with high actual ability who assess their entrepreneurial ability favourably may potentially pursue productive entrepreneurial initiatives compared to those with low actual ability (Koellinger, 2008; Haynie *et al.*, 2009). Such high actual ability need not be entrepreneurship-specific as long as individuals develop positive perceptions of their entrepreneurial ability. Obviously, often individuals are the best judge of how and where they can deploy their abilities.

2.7.1. Implications for research

Researchers examining the role of founder's ability have often used objective measures developed by human capital theorists. The economics oriented human capital theory has no place for perceptions. Furthermore it considers that similar human capital investments (schooling and training) would lead to uniform human capital outputs (abilities). However, a number of external factors could influence the outcome of schooling and training, for instance the quality of schooling or the absorptive capacity of the individual. Our result suggests that entrepreneurship requires not just actual ability but also positive perception of entrepreneurial ability. The later provides the

confidence to execute the role demands of an entrepreneur. Thus, to account for the entry decision entrepreneurship researchers have to take into consideration subjective judgments of entrepreneurial ability when they examine ability related influences of entrepreneurial behaviour. Therefore, our study opens up new avenues for extending ability based research in entrepreneurship without limiting oneself to objective (observable) measures of ability.

2.7.2. Implications for practice

The implications for practitioners mainly come from the finding that it is possible to influence nascent entrepreneurial activities in an economy if entrepreneurial confidence can be increased. Therefore, if policy makers are focused on increasing the rate of nascent entrepreneurial activities they can use measures that increase entrepreneurial confidence among the population. However, this may induce necessity entrepreneurship or entrepreneurship by those who are attracted by favourable policy measures (Kösters, 2010). Although the former can be effective especially in economies where employment opportunities are limited, we suggest that entrepreneurial policy can have greater impact if policy measures support those who not only have the confidence to be entrepreneurs but also the competence to successfully pursue this quest. This can be done by targeting policy support for those with high actual ability who have already initiated nascent entrepreneurial activities thereby signalling that they have developed the confidence to pursue entrepreneurship.

2.8. Conclusions, limitations and future research

The results of our study show that perceived entrepreneurial ability has a significantly positive influence on nascent entrepreneurship and its impact is much greater than high actual ability. Secondly, we found that individuals with high actual ability who develop positive perceptions of their entrepreneurial ability are more likely to initiate nascent entrepreneurial activities. Previously, although high actual ability was found to influence new venture performance, its influence on entrepreneurial entry was inconclusive (Dickson et al. 2008). This could be because while high actual ability is important for new venture performance, it may not lead to the entry decision in the absence of positive perceptions of one's entrepreneurial ability. Our results suggest that perceived entrepreneurial ability play a critical role in driving individuals towards initiating nascent entrepreneurial activities.

Based on the results of our study, we caution the merits of entrepreneurship promotion policies that specifically target the unrepresented to start their own businesses and adopt an entrepreneurial career without first contemplating how confident they are of their entrepreneurial abilities. After all entrepreneurship requires spontaneous effort and this spontaneity comes from entrepreneurial confidence. Similarly, encouraging individuals with high actual ability to become entrepreneurs could lead to the underutilisation of human capital resources in the economy if these initiatives are not spontaneously driven. For instance, with greater emphasis on entrepreneurship promotion in universities and research centres together with the increasing social status and recognition given to entrepreneurs, many individuals with high actual ability may be

lured towards entrepreneurship. But without the spontaneity that come from positive perceptions of entrepreneurial ability entrepreneurial efforts could degenerate into low-value added new ventures (Serarols *et al.*, 2009). Those with high actual ability but without having positive perceptions of their entrepreneurial abilities can make greater social and economic contribution by remaining in active employment.

We also caution that although perceived entrepreneurial ability greatly increases the rate of nascent entrepreneurship, it might not lead to high impact entrepreneurship. This might be because most new ventures are initiated by individuals who are attracted to entrepreneurship because of reasons other than their entrepreneurial abilities or because of ability perceptions that later turn out to be inaccurate (Hayward *et al.*, 2006).

The positive interaction effect of high actual ability and perceived entrepreneurial ability suggests that in the population of individuals who initiate nascent entrepreneurial activities there is a sub-group of individuals who can contribute to the quality entrepreneurship in an economy. This follows previous studies that shows the importance of actual ability (human capital) in new venture success (Unger *et al.*, 2011) i.e. the ability advantages accorded by education and experience could lead individuals to pursue growth-oriented (Barringer *et al.*, 2005) and innovative new ventures (Marvel and Lumpkin, 2007), the type of entrepreneurship has a greater economic impact among all forms of entrepreneurship (Shane, 2009)

Finally, our study gives prominence to perceived ability over other perceptual influences. Future studies can explore how perceptual entrepreneurial ability is related to perceptions of feasibility and desirability. Secondly, we use a single item measure of perceived entrepreneurial ability. Future studies can use multi-item constructs that provides more precision to the measurement of perceived entrepreneurial ability. In addition, future studies can examine the determinants of perceived entrepreneurial ability.

Figure 2.1. Interaction (perceived entrepreneurial ability and high actual ability) as a function of the predicted probability of entrepreneurship

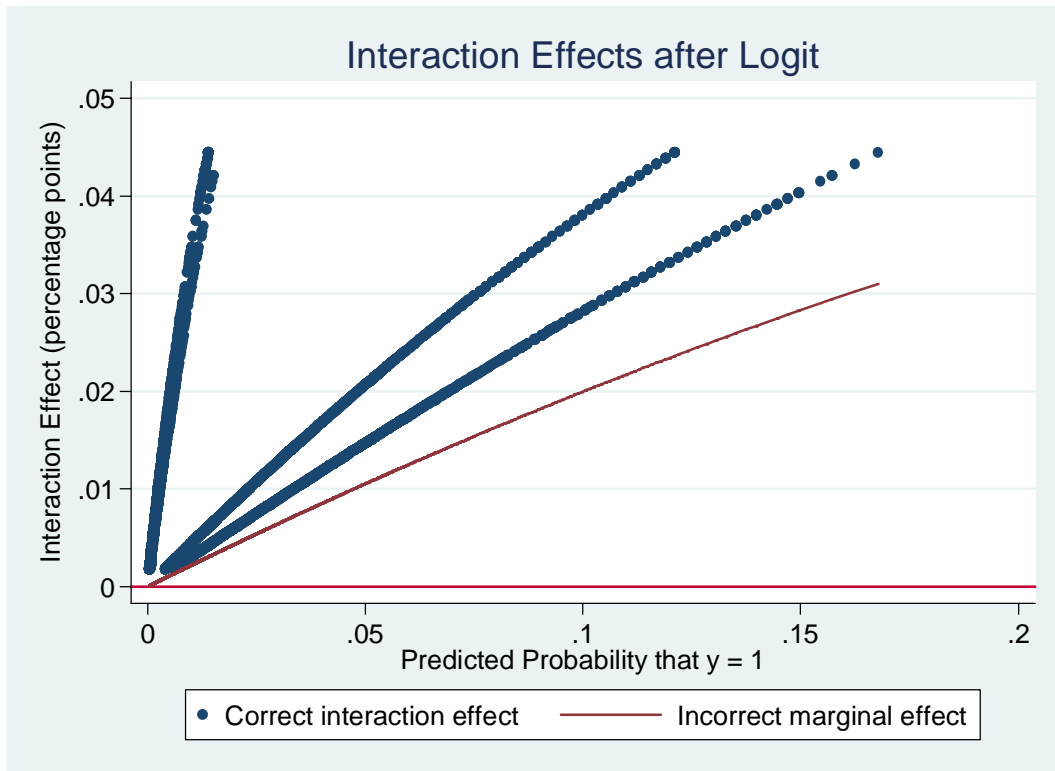
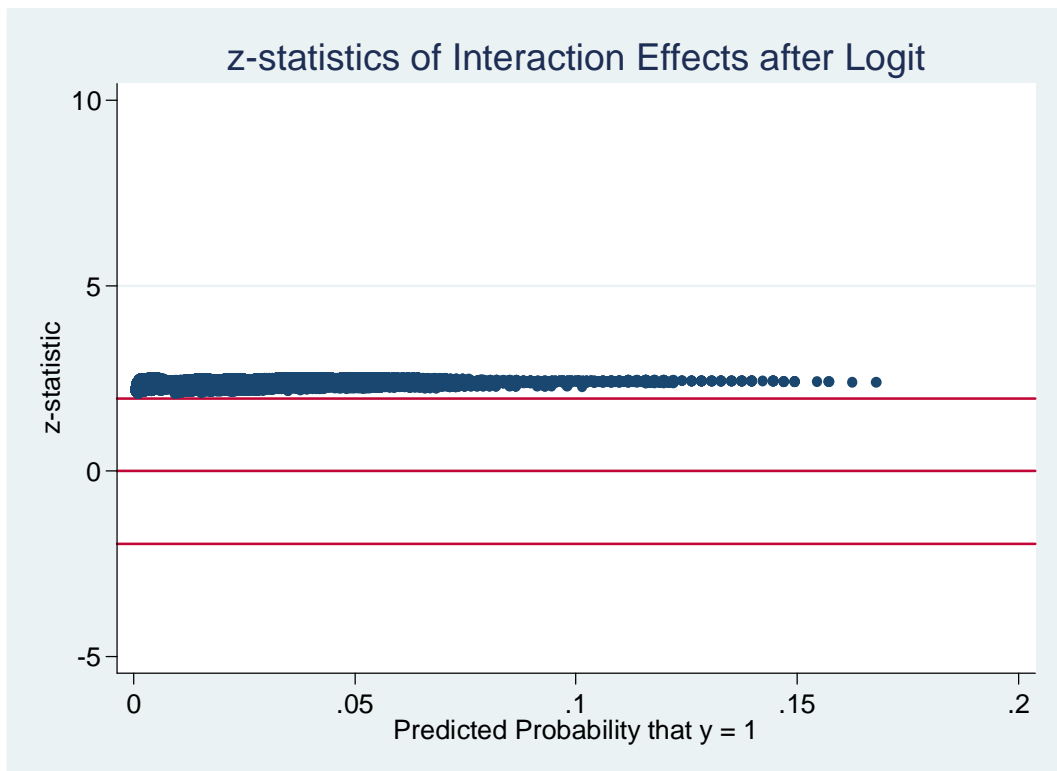


Figure 2.2. Z-Statistic as a function of the predicted probability



Chapter III

International variations in the impact of perceived entrepreneurial ability and high actual ability on entrepreneurial activities

Purpose: In this paper we examine the influence and impact of perceived entrepreneurial ability and high actual ability on the decision to initiate entrepreneurial activities and whether these factors have a systematic impact across economies at different stages of development.

Design/methodology/approach: The study is designed to analyze the influence and impact of two ability dimensions using a global dataset, and later in three specific groups of economies by dividing the dataset into factor-driven, efficiency-driven and innovation-driven economies. To facilitate our analysis a dataset comprising 96,416 respondents collected from 42 economies using Global Entrepreneurship Monitor (GEM) methodology is used. A logistic regression analysis controlling for robust interaction term is employed to determine the impact of perceived entrepreneurial ability and high actual ability in influencing the decision to initiate nascent entrepreneurial activities.

Findings: The results suggest that perceived entrepreneurial ability and high actual ability has a positive influence on the decision to initiate entrepreneurial activities. We also find a complementary effect between these dimensions of ability, and this complimentary effect is higher in economies that are more developed suggesting that perceived entrepreneurial ability and high actual ability are significant drivers of entrepreneurship in innovation driven economies. Our results suggest the importance of ability judgments and the need to adopt a targeted approach in designing entrepreneurship policy attuned to the specific needs of economies.

Originality/value: We make two important contributions. First this study provides new evidence on the interaction effect of two ability dimensions, one objective and the other subjective in driving business entry decisions of individuals. Secondly, we provide new empirical evidence on how such ability dimensions differ across economies at different stages of development by simultaneously examining both subjective (perceived) ability judgments and objective (actual) ability. Our results provide direction to entrepreneurship policy making that points towards the need to adopt a more holistic approach towards identifying pre-entry founding resources that influences business entry decisions.

Keywords: perceived entrepreneurial ability, human capital, GEM, Stage of Development

Paper type: Research paper

3.1 Introduction

Entrepreneurship is increasingly recognized as a fundamental component of economic growth, employment generation, innovation as well as socio-economic development (Henkerson and Stenkula, 2010; OECD, 2010). Globally there exists a strong correlation between business start-up and economic growth (Kelley et al., 2010). As a result business creation is being given a top priority, and different policies encompass entrepreneurship as an instrument for the economic and social revitalization of territories (European Commission, 2008 and 2012; OECD, 2010; UNCTAD, 2012). In this effort, some scholars have suggested a selective orientation geared towards specific targets, for instance supporting productive individuals rather than disadvantaged groups or all individuals in general (Shane, 2009; Henkerson and Stenkula, 2010). This suggestion follows empirical evidence which indicates that human capital could be one of the most important founding resources for potential entrepreneurs (Lazear, 2005; Sarasvathy, 2008; Lechmann and Schnabel, 2013).

Recent evidence suggests that subjective judgments of entrepreneurial ability, for instance the way individuals perceive their entrepreneurial ability also influences the decision to pursue entrepreneurship (Koellinger et al., 2007; Lafuente et al., 2007; Townsend et al., 2010; Hogarth and Karelaia, 2012). This raises the question: if individuals are influenced by their perceived entrepreneurial ability, how does such subjective judgments compare with objective or “actual abilities”? Positive perceptions of one’s entrepreneurial ability could be hubris (Hayward et al., 2006) or a reflection of overconfidence (Koellinger et al., 2007; Hogarth and Karelaia, 2012). A mismatch between one’s actual and perceived ability can have negative repercussions at the

individual level by lowering the economic gains from the choice of entrepreneurship (Hamilton , 2000). Moreover, it may encourage entrepreneurship among those who might not be equipped to handle the risks and uncertainties of entrepreneurship thereby increasing new venture failure rates. At the societal level such failure rates may discourage potential entrepreneurs or individuals with entrepreneurial intentions from initiating entrepreneurial activities. Considering the importance of entrepreneurship and the ability of individuals to initiate and profitably manage the entrepreneurial activities in this paper we examine the role of the two dimensions of ability, perceived entrepreneurial ability and high actual ability, separately as well as jointly in influencing the decision to initiate entrepreneurial activities. As far as we know no studies have simultaneously examined the distinctive role of perceived entrepreneurial ability and high actual ability and their interaction on the decision to initiate nascent entrepreneurial activities. We suggest that although both perceived entrepreneurial ability and high actual ability have an independent influence on the decision to initiate entrepreneurial activities and successful pursuit of entrepreneurship is more likely to emerge from the matching of perceived entrepreneurial ability with objective or high “actual” ability. We suggest that while the former raises the entrepreneurial confidence of individuals to take the first steps of entrepreneurship, the later provides the critical productivity enhancing effects (Becker, 1993), first by raising individual’s intrinsic abilities and second by increasing the extrinsic value of individual’s abilities through a signalling mechanism (Backes-Gellner and Werner, 2007; Levie and Gimmon, 2009; Connelly et al., 2011).

Our second research objective is to examine the impact of perceived entrepreneurial ability and high actual ability across economies at different stages of economic

development. Recent data reported by the Global Entrepreneurship Monitor indicate that entrepreneurial activity is more intense in emerging and less developed economies (Kelley et al., 2012). However, its impact on economic growth is considerably lower than the more developed economies (Wennekers et al., 2005). This could be due to higher participation in entrepreneurial activities by individuals whose perceived entrepreneurial ability is not matched by actual ability, resulting in low impact entrepreneurship. On the contrary, lack of perceived entrepreneurial ability could be an explanation for the lower rate of entrepreneurship in developed economies (Stenholm et al., 2013). Considering the differences in the stock of actual ability across economies (Barro, 1991), and given the relevance of perceived entrepreneurial ability we examine whether the direct and interaction effect of perceived entrepreneurial ability and high actual ability is related to the stage of development of an economy (Audretsch and Thurik, 2001).

To facilitate our analysis we use a random sample of the working age adult population comprising 96,416 respondents from 42 countries that took part in the Global Entrepreneurship Monitor (GEM) project in 2008. Following the classification by Porter et al., (2002) and Porter et al., (2008), we test our hypotheses across the three classifications of economies: Factor-driven, Efficiency-driven and Innovation-driven.

The contribution of our study is twofold. First, we highlight the distinctive role of perceived entrepreneurial ability and actual ability in influencing the nascent entrepreneurship across a large set of economies. Second, by identifying the differential impact of perceived entrepreneurial ability and actual ability across economies we

provide new insights into how subjective judgments of entrepreneurial ability in conjunction with objective (high actual) ability could differentiate quantity and quality of entrepreneurship across economies.

The paper is organized as follows. Section 2 we first distinguish perceived entrepreneurial ability from actual ability followed by specific hypotheses. The methodology used to reach the objectives of the paper is explained in section 3 and section 4 presents the results. Finally, section 5 provides the conclusions and discusses the academic and policy implications of the study's results.

3.2. Literature review and hypotheses

Abilities, also known as human capital has been defined as the *resources in individuals* that increase lead to improvements in productivity (Becker, 1993). These resources are acquired through education and training. Education and training leads to general as well as specific abilities (Becker, 1993). In the human capital theory the acquisition of abilities through education and training is considered an investment decision in which individuals spend time and monetary resources with an expectation of future income (Becker, 1993). Furthermore, those who make greater investments in acquiring abilities, for instance, by having greater level of education and training expect higher income from their chosen occupation.

However, abilities as commonly measured through education and training do not reveal unobservable abilities. Moreover innate abilities may mask the motivation for acquiring

higher levels of abilities. Therefore, although education and training can be considered objective indicators of ability, perceived ability reflects the unobservable abilities of individuals, for instance the tacit knowledge of individuals (Davidsson and Honig, 2003). Recently, Unger et al., (2011) have suggested that actual ability that results from formal learning are human capital investment while individual's perceived abilities are outcomes that reflect both acquired abilities and unobserved learning of individuals. In the presence of the latter an individual's perceived ability for creating and managing new ventures thereby may or may not be related to his or her education and level of training.

3.2.1. High actual ability and entrepreneurial activities.

Empirical evidence on the relationship between high actual ability and entrepreneurship is lacking. However, Raphael et al., (1995) found that low paid workers have a greater propensity to leave their jobs to pursue entrepreneurial activities. This is an indication that opportunity cost acts as a barrier to entrepreneurship especially by individuals with high actual ability. The question therefore is can the high opportunity cost be lowered through entrepreneurship? Several studies have suggested that by pursuing growth oriented and innovative entrepreneurial ventures, talented individuals, constrained by time and physical limitations can spread their ability advantages to appropriate higher returns through entrepreneurship compared to organizational employment (Murphy et al., 1991; Lazear, 2005; Autio and Acs, 2010). Evidence also suggests that high actual ability eases the process of new venture creation, for instance, by attracting employees and investors to the new venture (Beckes-Gelner and Warner, 2007; Colombo and Grilli, 2010; Pickernell et al., 2011). Moreover, individuals with high actual ability have recourse to the labor market in case of less than expected outcome. This offers

flexibility and lessens the personal risk arising from the occupation choice decisions (Kaiser and Malchow-Møller, 2011). This is contrary to individuals with low actual ability who are less likely to benefit from signaling effect of abilities (Weiss, 1995). Moreover, individuals with low lack the cognitive and non-cognitive abilities for pursuing entrepreneurship (Hartog et al., 2010).

Considering the combined effect of real productivity from their cognitive and non-cognitive ability (the greater ability to perform a task of risky and uncertain nature) and signaled productivity (that attracts potential resource suppliers), we argue that individuals with high actual ability more likely to initiate nascent entrepreneurial activities. Therefore, we hypothesize that,

H1a: Individuals with high actual ability are more likely to initiate nascent entrepreneurial activities.

The economic development of nations depends to a large extent on the quality of human capital resources and could influence economic growth (Romer, 1990). However, the stock of human capital is not uniformly distributed across economies (Barro, 1991). Such differences could be related to the relative demand and importance of productive (human, technical and material) resources in an economy (Audretsch and Thurik, 2001). According to Porter et al., (2002) economies require limited knowledge based productive resources (high actual ability) when an economy is based on extraction and processing of raw materials such as those that exists in factor-driven economies. As a consequence there is a general lack of demand for higher education and training, those that lead to high actual ability in factor-driven economies. Under such circumstances

low (actual) ability individuals dominate the stock of human capital resources in the economy. Moreover, in factors-driven economies those who want to acquire higher abilities may not have the supporting infrastructures (Dias and McDermott, 2006; Stenholm et al., 2013). Consequently, the relative scarcity of high actual ability in factor-driven economies increases the bargaining power of individuals with high actual ability, and raises the opportunity cost of entrepreneurship.

On the other hand when economic development is based on knowledge and innovation, economies require higher levels of actual ability (Audretsch and Thurik, 2001). In such a context the greater use of individual's ability (knowledge and intellectual ability) as factor inputs provides an opportunity to appropriate higher income through ownership of firms. In other words, entrepreneurship becomes attractive for individuals with high actual ability in more developed economies. Therefore, we hypothesize that,

H1b: The positive impact of high actual ability on nascent entrepreneurial activities is relatively higher in innovation driven countries compared to factor driven economies.

3.2.2. Perceived entrepreneurial abilities and entrepreneurship

Studies on the use of subjective judgments have demonstrated that 'perception' has a significant influence on actual behavior (Kickul et al., 2009). The intention based models in entrepreneurship emphasizes perceptual attributes in the form of perceived feasibility and perceived desirability as critical precursor of entrepreneurial behavior (Krueger and Carsrud 1993). Several studies have revealed the role of perceptions in

opportunity identification and business creation processes (Kirzner, 1979; Sarasvathy et al., 2005; Hogarth and Karelaia, 2012). Perceptions of entrepreneurial ability could be a sign of confidence. Such confidence promotes trust on incomplete and uncertain information (Akerloff and Shiller 2009). This is most likely when individual's entrepreneurial abilities are not known a priori. Confidence has the motivation effect in affecting behavior (Benabou and Tirole, 2002) and it often works in conjunction with optimism (Hogarth and Karelaia, 2012). We argue that positive perceptions about one's entrepreneurial abilities give rise to entrepreneurial confidence, and individuals are more likely to be driven initiate nascent entrepreneurial activities due to their perception that they have the abilities required to engage in entrepreneurship. Therefore,

H2a: Individuals with perceived entrepreneurial ability are more likely to pursue entrepreneurial activities.

Arenius and Minniti (2005) found that the positive correlation between perceived entrepreneurial ability and entrepreneurial entry is consistent across economies. However, there is a wide variation in the rate of entrepreneurial activities across economies (Kelley et al., 2012). A number of contingent factors could explain the differential impact of perceived entrepreneurial ability on entrepreneurial activities across economies. First, high regulatory burden (World Bank, 2011) and institutional weakness (Dias and McDermott, 2006; Clercq et al., 2011) could discourage business entry even though individuals are confident of their entrepreneurial ability because one's energy can be dissipated in overcoming structural obstacles that are otherwise taken for granted. For instance factor-driven economies are characterized by severe

institutional deficiencies and weaker informal structures that make entrepreneurship more risky and/or complex.

Secondly, the business environment in the form of the limited opportunities for pursuing sustainable entrepreneurship could dampen the choice of entrepreneurial activities (Stenholm et al., 2013). Thirdly, perceived social norms (Ajzen, 1987), for instance the social attitude and reward towards entrepreneurship could limit the choice of entrepreneurship compared to other professions. These conditions are more likely to be prevalent in factor-driven economies than economies at a higher stage of economic development.

On the other hand, the relative ease of business entry due to a more efficient institutional arrangement (World Bank, 2011), business opportunities from knowledge spillovers (Acs et al., 2012) and the existence of a social security net in innovation driven economies could encourage business entry by enhancing individuals' perception that their entrepreneurial abilities could be more fruitfully utilized through entrepreneurship. This leads us to hypothesize that,

H2b: The positive impact of perceived entrepreneurial ability on entrepreneurial activities is likely to be relatively higher in innovation driven economies.

3.2.3. Interaction effect of high actual ability and perceived entrepreneurial ability

In addition to high opportunity cost that discourages individuals from pursuing entrepreneurship, findings from social psychology reveal that individuals with high

actual ability are also more likely to underestimate their abilities (Kruger and Dunning, 1999). This is especially true when individuals assess their abilities for difficult tasks and uncommon abilities (Moore, 2007). To the contrary, individuals with low actual ability perceive that they are more competent than they actually are and consequently attempt difficult tasks that require a higher level of abilities (Hayward et al., 2006; Kruger and Dunning, 2009; Hogarth and Karelaia, 2012). Although such perceptions can lead to an action-orientation, for instance individuals with perceived entrepreneurial ability might be encouraged to engage in entrepreneurship the probability of unfavorable outcome rises if their perceived entrepreneurial ability is not supported by high actual ability (Hmieleski and Baron, 2009). Thus, individuals with perceived entrepreneurial ability alone might have the will but lack the actual abilities to successfully launch a new venture and pursue an entrepreneurial career. Entrepreneurial attempts by such individuals are less likely to culminate into new enterprises, and if they do, they are more likely to be marginal businesses with minimal prospect for growth or job creation (Bhide, 2000).

However, if perceived entrepreneurial ability is supported by high actual ability, individuals not only have the will but also the ability to pursue entrepreneurship (Unger et al., 2011). We argue that when such individuals pursue entrepreneurial activities, perceived entrepreneurial ability provides the motivation for pursuing as well as sustaining in the effort while high actual ability provide the cognitive and non-cognitive ability to perform the various tasks related to venture creation as well as attract resource suppliers. Therefore, we hypothesize,

H3a: Individuals with high actual ability who develop positive perceptions of their entrepreneurial ability are more likely to initiate entrepreneurial activities.

Unlike factor-driven economies in which the opportunity cost of high actual ability results of scarcity, the abundance of individuals with high actual ability in innovation-driven economies combined with the greater demand for such individuals in the labor market can result in high opportunity cost in entrepreneurship vis-à-vis wage employment (Autio and Acs, 2010). This is because it is easier for individuals with high actual ability to find wage employment in knowledge-based oriented industries. At the same time a greater maturity of the labor market might allow individuals to exercise greater option in using their ability advantages in career choice decisions. For instance, individuals in innovation-driven economies might be able to drop out of the labor market to pursue entrepreneurship or other vocations without affecting subsequent re-entry to the labor market.

However, because of the relative stability of institutions in innovation-driven economies long-term gains from wage employment are relatively easier to estimate. As a result, jumping off a set career path and adopting an entrepreneurial career requires entrepreneurial self-confidence or the perception that one's abilities can be exploited through entrepreneurship. This leads us to hypothesize that individuals with high actual ability are more likely to initiate entrepreneurial activities in innovation-driven countries when they develop positive perceptions of their entrepreneurial ability.

H3b: The positive interaction effect of high actual ability and perceived human capital is relatively higher in innovation driven countries.

3.3. Data and Method

The data used for the study is taken from the 2008 adult population survey of the Global Entrepreneurship Monitor (GEM) containing information from 134,990 respondents. In the interest of following a rigorous methodology, we consider only those respondents for whom a complete dataset of the dependent and independent variables are available which results in 96,416 respondents from 42 countries. The first set of analysis (H1a, H2a and H3a) is done using this sample while the remaining hypotheses are analyzed by dividing the full dataset into three sub-samples. The classification of the sub-samples is based on a scheme originally proposed by Porter et al. (2002). In Porter et al.'s (2002) methodology, economies are divided into three distinct groups based on the stage of economic development. In this paper, we do not aim at examining the methodology proposed by Porter et al. (2002) but only use it to categorize economies for the purpose of analysis. We briefly present the main characteristics of economies according to their stage of development. According to Porter et al., (2002) the stage of economic development is related to factor endowments, institutions and economic infrastructure in the economy. At the lower end of development whose economic structure is dominated by primary resources and weak institutions. Also known as factor driven economies they exhibit a high rate of entrepreneurial activities (Xavier et al., 2012). At the other extreme are Innovation driven economies with comparatively lower rate of entrepreneurship but correspondingly higher impact (Xavier et al., 2012). These economies are characterized by knowledge-intensive services sectors, strong institutions and a population with high levels of human capital (Xavier et al., 2012). In between there are efficiency driven economies with an industrial infrastructure dominated by efficiency oriented manufacturing. They tend to have the lowest rate of entrepreneurship

across all economies (Van Stel et al., 2005). The 42 countries which took part in the GEM survey in the year 2008 were classified according to their stage of development proposed by Porter et al. (2008) for the year 2008.

3.3.1. Variable definition

The dependent variable used in this study is nascent entrepreneurial activity. Individuals are said to be pursuing nascent entrepreneurial activities if they have undertaken any concrete action in the 12 months preceding the survey which is aimed at creating a new venture. This dummy variable takes the value of one if the individual have initiated entrepreneurship (respondents who are nascent entrepreneurs) and zero otherwise. As shown in Table 3.1, the number of individuals pursuing entrepreneurial activities in our full sample is 6.33%.

The explanatory variables used are level of educational attainment, job market status, and entrepreneurial background or training as proxies for measuring actual ability. Actual ability acquired through formal or compulsory schooling has been found to influence entrepreneurial entry (Robinson and Sexton, 1994; Block et al., 2009). Formal education lends credence to individual's potential productive ability, and this helps in attracting resource suppliers (Lazear, 2005; Kim et al., 2006). In this study, education is divided into two categories separating basic education from higher education (post-secondary and above). As shown in Table 3.2, the proportion of nascent entrepreneurs with higher education (40.71%) is significantly high compared to respondents who are not involved in nascent entrepreneurial activities (39.06%).

Table 3.1 Entrepreneurial Activity around the World (2008)

Country	Mean value	Std. Dev.	Observations
Angola	0.2623	0.4401	934
Argentina	0.1097	0.3127	1,367
Belgium	0.0356	0.1853	1,125
Bolivia	0.2010	0.4009	1,597
Bosnia and Herzegovina	0.0845	0.2783	1,124
Brazil	0.0347	0.1830	1,558
Chile	0.0942	0.2923	1,443
Colombia	0.1652	0.3715	1,628
Croatia	0.0658	0.2481	1,246
Denmark	0.0239	0.1526	1,928
Dominican Republic	0.1271	0.3332	1,487
Egypt	0.1034	0.3046	1,982
Equator	0.0967	0.2956	1,696
Finland	0.0595	0.2366	1,311
Germany	0.0498	0.2176	2,749
Greece	0.0695	0.2545	1,366
Hungary	0.0640	0.2449	1,234
Iceland	0.0933	0.2909	1,340
India	0.1018	0.3024	1,533
Iran	0.0786	0.2691	2,304
Ireland	0.0445	0.2063	1,168
Israel	0.0512	0.2206	1,210
Italy	0.0243	0.1541	1,850
Jamaica	0.0935	0.2912	2,000
Japan	0.0501	0.2183	1,177
Latvia	0.0622	0.2417	1,109
Macedonia	0.0794	0.2705	1,410
Mexico	0.1043	0.3057	2,272
Netherlands	0.0331	0.1790	2,023
Norway	0.0603	0.2382	1,144
Peru	0.2512	0.4338	1,501
Romania	0.0191	0.1370	1,829
Russia	0.0246	0.1549	814
Serbia	0.0431	0.2031	1,393
Slovenia	0.0590	0.2357	1,813
South Africa	0.0759	0.2650	1,962
South Korea	0.0503	0.2187	1,311
Spain	0.0321	0.1762	29,074
Turkey	0.0439	0.2049	1,527
United Kingdom	0.0347	0.1830	4,614
United States	0.0699	0.2550	2,961
Uruguay	0.0929	0.2905	1,302
Worldwide entrepreneurial activity	0.0633	0.2436	96,416

Job status is a dummy variable that takes into account whether the respondent is working at the time of the survey or non-working. It is a proxy indicator reflecting the value of one's ability, because individuals with positive job status possess the abilities valued by the labor market. Labor experience not only helps in acquiring procedural task related knowledge and skills but also helps in developing tacit knowledge (Davidsson and Honig, 2003). The latter assists in identifying markets for products and services (Shane, 2000). Labor market experience also helps in the development of professional network through which resources for new ventures can be accessed (Delmar and Shane, 2006). We also consider two specific measures of abilities, entrepreneurship training or prior self-employment to enhance the accuracy of the analysis.

Based on these three factors we create a new variable called high actual ability which is the sum of formal education, job market status, and either past entrepreneurial experience or entrepreneurship training. Individuals who have completed higher education and are currently employed are considered individuals with high actual human capital if they have some type of entrepreneurship related experience. Consequently, those who either lack positive job status, higher education or entrepreneurship specific experience are considered to be respondents with low actual ability. In our full sample, 10.13% of individuals have high actual ability. This percentage rises to 17.91% in the case of entrepreneurially active individuals (Table 3.2).

Table 3.2 Descriptive statistics for the selected variables

	Entrepreneurially active		Non-entrepreneurially active		Overall	
	Mean (Std. Dev.)	Obs.	Mean (Std. Dev.)	Obs.	Mean (Std. Dev.)	Obs.
Entrepreneurial activity	1.0000	6,107	0.0000	90,309	0.0633 (0.2436)	96,416
Gender (male)	0.5882*** (0.4922)	6,107	0.4795 (0.4996)	90,309	0.4864 (0.4998)	96,416
Age (years)	38.06*** (12.08)	6,107	42.21 (14.39)	90,309	41.95 (14.29)	96,416
Personal knowledge of recent entrepreneur (1 if positive, 0 otherwise)	0.6701*** (0.4702)	6,107	0.4129 (0.4924)	90,309	0.4292 (0.4950)	96,416
Perceived entrepreneurial ability	0.8649*** (0.3418)	6,107	0.5159 (0.4997)	90,309	0.5380 (0.4986)	96,416
High actual ability	0.1791*** (0.3835)	6,107	0.0961 (0.2947)	90,309	0.1013 (0.3018)	96,416
Past entrepreneurial Experience	0.3011*** (0.4588)	6,107	0.1300 (0.3363)	90,309	0.1409 (0.3479)	96,416
Entrepreneurial Training	0.3244*** (0.4682)	6,107	0.1960 (0.3970)	90,309	0.2041 (0.4031)	96,416
High education (1 for tertiary education)	0.4071** (0.4913)	6,107	0.3906 (0.4879)	90,309	0.3917 (0.4881)	96,416
Labour status (1 for employed, 0 otherwise)	0.6753*** (0.4683)	6,107	0.6066 (0.4885)	90,309	0.6110 (0.4875)	96,416

Standard deviation is presented in brackets. *, **, *** indicates that the difference between entrepreneurially and non-entrepreneurially active individuals is statistically significant at the 10%, 5%, and 1% level, respectively (Kruskal-Wallis test).

For measuring perceived entrepreneurial ability, we use a self-reported measure which is a part of the GEM adult population survey. This questionnaire item enquires respondents whether they consider that they have the skills, knowledge and experience required for pursuing entrepreneurial activities. This measure has been used in previous studies to assess the perceived entrepreneurial skills of respondents (Arenius and Minniti, 2005; Driga et al., 2009; Lafuente et al., 2007). In our full sample (Table 3.2), 53.80% of the respondents have positive perceptions of their entrepreneurial ability, and

the proportion of entrepreneurially active individuals with perceived entrepreneurial ability (86.49%) is significantly higher than that of the non-entrepreneurs (51.59%).

Additional statistics in Table 3.3 shows the prevalence of nascent entrepreneurial activity in the full sample (Panel A) as well as for the sub-samples that distinguish between factor-driven, efficiency-driven, and innovation-driven economies (Panels B, C, D respectively). Each panel presents the rate of entrepreneurial activity according to perceived entrepreneurial ability and the high actual ability. It can be seen in Panel A that the proportion of the adult population in the overall sample involved in nascent entrepreneurial activities in 2008 is 6.33% (bottom, right-hand). This can be interpreted as the expected entrepreneurial activity level for the full sample. When we compare this expected level with the entrepreneurial activity of those respondents with low actual ability and no perceived entrepreneurial ability (1.76%), we can see the importance of our ability dimensions in explaining individual's propensity to initiate nascent entrepreneurial activities. This finding is consistent across all panels, indicating that no matter the degree of economic development exhibited by the economy, individuals lacking both high actual ability and perceived entrepreneurial ability are less likely to engage in nascent entrepreneurial activities (Table 3.3), whereas nascent entrepreneurial activity is most prevalent in the sub-groups in which individuals have both perceived

Table 3.3 Entrepreneurial Activity according to perceived entrepreneurial ability and actual ability

	Perceived entrepreneurial ability		Not-Perceived entrepreneurial ability		Overall	
	Mean (Std. Dev.)	Obs.	Mean (Std. Dev.)	Obs.	Mean (Std. Dev.)	Obs.
1. Panel A: Full sample						
High actual ability	0.1356 (0.3424)	7,478	0.0349 (0.1836)	2,292	0.1120 (0.3154)	9,770
Low actual ability	0.0961 (0.2948)	44,395	0.0176 (0.1316)	42,251	0.0579 (0.2335)	86,646
Overall	0.1028 (0.3024)	51,873	0.0185 (0.1348)	44,543	0.0633 (0.2436)	96,416
2. Panel B: Factor driven countries						
High actual ability	0.1963 (0.3976)	545	0.1121 (0.3170)	107	0.1825 (0.3866)	652
Low actual ability	0.1607 (0.3673)	5,153	0.0633 (0.2435)	2,545	0.1285 (0.3346)	7,698
Overall	0.1641 (0.3704)	5,698	0.0625 (0.2470)	2,652	0.1327 (0.3393)	8,350
3. Panel C: Efficiency driven countries						
High actual ability	0.1901 (0.3925)	1,925	0.0818 (0.2744)	318	0.1748 (0.3799)	2,243
Low actual ability	0.1233 (0.3288)	15,934	0.0252 (0.1566)	11,725	0.0817 (0.2739)	27,659
Overall	0.1305 (0.3369)	17,859	0.0267 (0.1611)	12,043	0.0887 (0.2843)	29,902
4. Panel D: Innovation driven countries						
High actual ability	0.1080 (0.3104)	5,008	0.0225 (0.1483)	1,867	0.0848 (0.2786)	6,875
Low actual ability	0.0633 (0.2435)	23,308	0.0103 (0.1011)	27,981	0.0344 (0.1822)	51,289
Overall	0.0712 (0.2572)	28,316	0.0111 (0.1047)	29,848	0.0404 (0.1968)	58,164

entrepreneurial ability and high actual ability. For instance, in panel A in table 3.3 entrepreneurial activities reaches 13.56%, far above the expected nascent entrepreneurial activity level (6.33%). This result is consistent across economies and, from a purely descriptive perspective it suggests that nascent entrepreneurial activity is

much more intense among individuals with both perceived entrepreneurial ability and high actual ability compared to those with only one, or none, of these dimensions.

Finally, we use gender, age and entrepreneurial role models as control variables. Previous studies have reported a differential effect of gender on entrepreneurial behavior with males being more likely to initiate nascent entrepreneurial activities compared to females (Reynolds et al., 2004; Driga et al., 2009). We control for the impact of gender through a dummy variable in our model. Similarly, the influence of age on entrepreneurial behavior is demonstrated through individuals choosing to pursue entrepreneurial activities early in life (Blanchflower and Meyer, 1994). Entrepreneurial role model is included in our model as it can influence the choice of entrepreneurship (Lafuente et al., 2007; Bosma et al., 2012).

3.3.2. Method

To test the impact of our ability dimensions on nascent entrepreneurial activity we use a logistic regression model (Greene, 2003).¹ This way, the probability to initiate nascent entrepreneurial activity ($\Pr(Y_i = 1) = \hat{p}_i$) is modeled as a function of the aforementioned set of explanatory variables (X_i), where \hat{p}_i is expressed as $\hat{p}_i = e^{X_i\beta_j} / 1 + e^{X_i\beta_j}$, and parameters (β_j) are estimated by maximum likelihood method. To test our hypotheses relating actual and perceived entrepreneurial ability to nascent entrepreneurial activity we analyze the following model:

Entrepreneurial

$$\begin{aligned} \text{Activity}_i = & \beta_0 + \beta_1 \text{Control variables}_i + \beta_2 \text{High actual ability}_i \\ & + \beta_3 \text{Perceived entrepreneurial ability}_i \\ & + \beta_{23} \text{High actual ability}_i \times \text{Perceived entrepreneurial ability}_i + \varepsilon_i \end{aligned} \quad (1)$$

where β_0 is the constant term, β_j corresponds to the vector of parameters to be estimated for the j th independent variable, and ε_i is the logistically distributed error term for the i th observation. In equation (1) control variables correspond to gender, age, entrepreneurial role-models and country dummy variables. We assess the goodness of fit of the model specifications using Wald statistics, the McFadden's pseudo R2, and the proportion of correctly classified cases based on the observed rate of nascent entrepreneurial activity.

However, parameters estimated from the logit model only indicate the direction of the effect of each explanatory variable on the response probability. To obtain a better understanding of the results, we also calculate the predicted change in the probability to become entrepreneurially active (marginal effect), which is the change in the probability as a function of a specific change in a variable holding the rest of variables constant at their means. Marginal effects apply in case of individual independent variables. Unlike linear models, the interaction effect in non-linear models of a change in both interacted variables does not equal to the marginal effect of changing just the interaction term. In addition, in the case of the interaction of two dummy variables in non-linear models, the interaction effect may have different signs for different values of covariates. In such a case the parameter estimate of the interaction term does not necessarily indicate the sign of the interaction effect.

Considering that we examine the influence of perceived entrepreneurial ability and high actual ability on entrepreneurial activities, an estimation of the direct marginal effect of the interaction term will provide misleading results. Thus, to corroborate our framework we adopt the method proposed by Ai and Norton (2003). Through this procedure we obtain robust interaction effects for the variables of interest, where in the case of two dummy variables (x_1, x_2) , the predicted change in the probability to become an nascent entrepreneur results from the double discrete difference with respect to x_1 and x_2 , i.e.,

$$\gamma_x = \frac{\Delta^2 F(X, \beta)}{\Delta x_1 \Delta x_2}, \text{ where } X = x_1, x_2. \text{ This procedure also allows us to obtain the}$$

magnitude for interaction term that is different to zero, $\gamma_x \neq 0$, even if the coefficient obtained from the logistic model is not statistically significant.

As for the hypotheses to be tested, we expect that $\gamma_2 > 0$, meaning that individuals with high actual ability are more likely to initiate nascent entrepreneurial activity (**H1a**). Also, we expect that γ_2 have a higher magnitude in innovation-driven economies (**H1b**). For hypothesis two, a positive result in the marginal effect linked to the perceived entrepreneurial ability variable ($\gamma_3 > 0$) would indicate that this factor has a positive impact on nascent entrepreneurial activity (**H2a**), and the consistency of this effect will also be tested for the economies at different stages of economic development to corroborate whether this effect is greater in innovation-driven economies (**H2b**). Finally, we expect that $\gamma_{23} > 0$, indicating that for individuals with high actual ability the presence of perceived entrepreneurial ability is an important stimuli for engaging in entrepreneurship (**H3a**). The consistency in the effect of these dimensions will be analyzed across economies in order to test our hypothesis **H3b**.

3.4. Empirical findings

To results of the logit analysis are shown in Tables 3.4 and 3.5. Table 3.4 presents the results for the full sample whereas the results for the sub-samples of economies are presented in Table 3.5. It should be noted that Tables 3.4 and 3.5 report the estimated change in the probability of pursuing entrepreneurial activities. Within the tables, specification 1 presents the results when all the variables are introduced in an individual fashion. Specification 2 gives the direct effect of perceived entrepreneurial ability and high actual ability on the probability of pursuing entrepreneurial activities. Specification 3 introduces an interaction term between perceived entrepreneurial ability and high actual ability to test the joint impact of these variables on entrepreneurship.

The assumption that supports the analysis in Table 3.5 relies on the presence of systematic differences in economic development. To justify the use of sub-samples to scrutinize the specific impact of perceived entrepreneurial ability and high actual ability analyzed on entrepreneurial activities from a statistical point of view, a Chow-type test can be designed for nonlinear models in which the null hypothesis assumes that there is no systematic difference between the vectors of parameters obtained from the different regressions that differentiate economies based on their stage of development (Andrews and Fair, 1988). To do this, the strategy is to fit the unrestricted model and the restricted model for each type of economy and confirm the presence of structural change through a likelihood ratio test. The results for the Chow test are significant at the 1% level (specification 1: 303.61, specification 2: 829.48, specification 3: 835.32) indicating the presence of structural change, that is, coefficients obtained from the different groups of economies are systematically different.

The results of the control variables included in the model indicate that gender is a significant variable influencing entrepreneurial activity. According to the results of the full model (specification 3 of Table 3.4), the probability of being involved in entrepreneurial activities rises by 0.8250 percentage points for men, compared to the probability of women. This result is in line with previous studies (Driga et al., 2009). Similar results are found in the sub-samples. In factor-driven economies, men are 2.66 percentage points more likely to initiate entrepreneurial activities, relative to the probability of women (specification 3 of Table 3.5). In efficiency and innovation-driven economies the probability of men initiating entrepreneurial activities increases by 1.50 and 0.43 percentage points respectively relative to that of women (Table 3.5, specification 3). This finding suggests that as a country grows economically, the gap between men and women in their propensity of pursuing entrepreneurial career is narrowed.

As regards age, our results suggest an inverse relationship (Table 3.4). This result is similar to previous studies reporting a lower mean age for individuals who pursue entrepreneurship (Fairlie, 2004). For the different sub-samples, it can be seen that the probability of entrepreneurial activities decreases as individuals become older (Table 3.5) and its impact is less pronounced as economies develop (larger decrease with age in factor-driven economies than in innovation-driven ones). With respect to entrepreneurial role models, our results in specification 3 of Table 3.4 indicate that the probability to engage in entrepreneurial activities increases significantly by 2.57 percentage points if an individual personally knows other entrepreneurs, relative to the probability of individuals who do not. This supports previous findings by Bosma et al.

(2012), Lafuente et al. (2007), and Vaillant and Lafuente (2007). This impact is greatest among factor-driven economies and its impact is diluted as economies grow.

As for the key variables of the study, the overall results for the ability dimensions indicate that individuals with high actual ability are 2.06 percentage points more likely to be involved in entrepreneurial activities, compared to those with low actual ability (specification 2 of Table 3.4). This is in accordance with our hypothesis **H1a** which states that individuals with high actual ability are more likely to initiate entrepreneurial activities.

The results in specification 2 of Table 3.4 indicate that the probability of being involved in entrepreneurial activities is 5.86 percentage points greater for individuals with perceived entrepreneurial ability, compared to the probability of those without perceived entrepreneurial ability. This is as per our argument that perceptions of entrepreneurial ability matters when it comes to entrepreneurial action. Given our results, hypothesis **H2a** which hypothesized that individuals with perceived entrepreneurial ability are more likely to pursue entrepreneurial activities is supported. In specification 3 we introduced an interaction term between high actual ability and perceived entrepreneurial ability. To corroborate the robustness of specification 3 of Table 3.4, we tested the null hypothesis that the interaction term does not improve estimation accuracy. The result of the likelihood ratio test (LR: 3.84 and significant at

Table 3.4 Marginal effects from the Logit Model: Predicted change in the probability to pursue Entrepreneurial Activities (Full Sample)

Independent Variables	1	2	3
Gender (1 for man, 0 otherwise)	0.00583 ***	0.00828 ***	0.00825 ***
Age (years)	-0.00057 ***	-0.00050 ***	-0.00049 ***
Personal knowledge of a recent entrepreneur (1 if positive, 0 otherwise)	0.02288 ***	0.02576 ***	0.02567 ***
High actual ability		0.02056 ***	0.03423 ***
Past entrepreneurial experience	0.03281 ***		
Entrepreneurial training	0.01373 ***		
High education (1 for tertiary)	0.00038		
Labour status (1 for employed, 0 otherwise)	0.00978 ***		
Perceived entrepreneurial ability	0.05159 ***	0.05864 ***	0.05951 ***
High actual ability × Perceived entrepreneurial ability			0.01847 ***
Factor driven countries	0.05579 ***	0.05460 ***	0.05443 ***
Efficiency driven countries	0.02839 ***	0.02991 ***	0.02986 ***
Country dummies	Yes	Yes	Yes
Pseudo R2	0.1228	0.1115	0.1116
Log Likelihood	-19,964.83	-20,222.30	-20,220.38
LR (chi2)	5,176.34 ***	4,473.69 ***	4,430.38 ***
Correctly predicted (Entrepreneurs)	0.7482	0.7606	0.7614
Correctly predicted (Non-entrepreneurs)	0.6525	0.6301	0.6294
Correctly predicted (Full Sample)	0.6585	0.6383	0.6378
Number of cases	96,416	96,416	96,416

The first difference of the interaction term for changes in the two dummy variables (x_1, x_2) is estimated

by $\hat{\gamma}_{x_1, x_2} = \frac{\Delta^2 F(X, \hat{\beta})}{\Delta x_1 \Delta x_2}$, where $X = x_1, x_2$. *, **, *** = Significant at the 0.1, 0.05 and, 0.01 level, respectively (two tailed).

the 5% level) rejects the null of no estimation improvement. Thus, our approach to entrepreneurial activity is robust and adding the interaction term of perceived entrepreneurial ability and high actual human capital significantly improves the model's goodness of fit, relative to specification 2.

Table 3.5 Marginal effects from the Logit Model: Predicted change in the probability to pursue Entrepreneurial Activities (at different stages of economic development)

1. Independent Variables	Factor driven countries			Efficiency driven countries			Innovation driven countries		
	1	2	3	1	2	3	1	2	3
Gender (1 for man, 0 otherwise)	0.03042***	0.02662***	0.02663***	0.01191***	0.01505***	0.01500***	0.00202**	0.00428***	0.00425***
Age (years)	-0.00150***	-0.00114***	-0.00114***	-0.00102***	-0.00095***	-0.00094***	-0.00025***	-0.00025***	-0.00025***
Personal knowledge of recent entrepreneur (1 if positive, 0 otherwise)	0.04388***	0.04770***	0.04761***	0.03251***	0.03823***	0.03794***	0.01568***	0.01882***	0.01876***
High actual ability		0.01586	0.05959		0.03147***	0.09334***		0.01504***	0.02039***
Past entrepreneurial experience	0.10191***			0.04976***			0.01735***		
Entrepreneurial training	0.00589			0.03252***			0.00641***		
High education (1 for tertiary education)	-0.01443**			0.00013			0.00219**		
Labour status (1 for employed, 0 otherwise)	-0.02092***			0.00683***			0.01868***		
Perceived entrepreneurial ability	0.07703***	0.08474***	0.08670***	0.07096***	0.08310***	0.08502***	0.03828***	0.04691***	0.04745***
High actual ability × Perceived entrepreneurial ability			-0.02418			-0.00212			0.02321***
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0584	0.0393	0.0395	0.1027	0.0867	0.0872	0.1153	0.0989	0.0990
Log Likelihood	-3,077.93	-3,140.21	-3,139.62	-8,035.67	-8,178.72	-8,175.05	-8,699.43	-8,860.45	-8,860.06
LR (chi2)	367.97***	223.92***	221.37***	1,641.65***	1,317.79***	1,283.77***	1,884.86***	1,586.66***	1,565.33***
Correctly predicted (Entrepreneurs)	0.6643	0.6895	0.6986	0.7293	0.7462	0.7538	0.7899	0.7844	0.7904
Correctly predicted (Non-entrepreneurs)	0.5993	0.5338	0.5289	0.6108	0.5779	0.5712	0.6353	0.6166	0.6115
Correctly predicted (Full Sample)	0.6079	0.5545	0.5514	0.6213	0.5929	0.5874	0.6415	0.6233	0.6187
Number of cases	8,350	8,350	8,350	29,902	29,902	29,902	58,164	58,164	58,164

The first difference of the interaction term for changes in the two dummy variables (x_1, x_2) is estimated by $\hat{\gamma}_{x_1, x_2} = \frac{\Delta^2 F(X, \hat{\beta})}{\Delta x_1 \Delta x_2}$, where $X = x_1, x_2$. *, **, *** = Significant at the 0.1, 0.05 and, 0.01 level, respectively (two tailed).

From the results presented in Table 3.4 it can be seen that the interaction effect between perceived entrepreneurial ability and high actual ability is positive and statistically significant. This implies that for individuals with high actual ability, the presence of perceived entrepreneurial ability raises the probability of entrepreneurship by 1.85 percentage points, relative to the probability of individuals who only have one of these dimensions. This result provides support to our hypothesis **H3a** which states that individuals with high actual ability who also have perceived entrepreneurial ability are more likely to initiate entrepreneurial activities.

If we look at the results for the different sub-samples of economies, it can be seen that high actual ability has a significantly positive influence on entrepreneurial activities in efficiency and innovation driven economies. However, high actual ability is not a significant driver for entrepreneurial activities in factor-driven economies (specification 2 of Table 3.5). The explanation for this can be deduced by observing the regression results of the components of high actual ability. Both higher education and labor experience have a significant negative impact on entrepreneurial activities in factor driven economies (specification 1 of Table 3.5). This is consistent with the argument presented in section 2 which proposed that individuals with these ability dimensions are less likely to find opportunities to exploit their human capital through entrepreneurial activities in factor-driven economies, and therefore are relatively more attracted towards the labor market. In addition, the impact of high actual ability on entrepreneurial activities is stronger in efficiency-driven economies. Whereas in efficiency-driven economies the probability of being involved in entrepreneurial activities rises 3.15 percentage points for individuals with high actual ability relative to the probability of individuals with low actual ability; the increase in the probability of engaging in

entrepreneurial activities stands at 1.50 percentage points in innovation-driven economies (specification 2 of Table 3.5). Given these results, we do not find support for our hypothesis **H1b** which proposes that the positive impact of high actual ability on entrepreneurial activities is relatively greater in innovation-driven countries.

Looking at the impact of perceived entrepreneurial ability on entrepreneurial activities in economies at different stages of economic development, our results suggest that subjective judgment has a significantly positive impact on entrepreneurial activities in all economies, regardless the stage of economic development. Yet, contrary to the hypothesized trend specification 2 of Table 3.5 shows how the effect of this perceived entrepreneurial ability is relatively lower in innovation-driven economies than in factor or efficiency driven countries. In factor-driven economies, individuals with perceived entrepreneurial ability are 8.47 percentage points more likely to initiate entrepreneurial activities than individual without perceived entrepreneurial ability. For individuals residing in efficiency-driven countries the change in this probability stands at 8.31 percentage points. The positive impact of this variable dilutes as we move towards innovation-driven economies, and the probability of initiating entrepreneurial activities rises by 4.69 percentage points for individuals with perceived entrepreneurial ability in these economies, relative to the probability of individuals without perceived entrepreneurial ability. Consequently, the results do not support our hypothesis **H2b** which states that the impact of perceived entrepreneurial ability on entrepreneurial activities is relatively greater in innovation-driven economies.

The results in Table 3.5 show that the joint impact of high actual ability and perceived entrepreneurial ability is not consistent across economies at different stages of economic

development. In factor and efficiency driven economies the interaction effect between these variables is not statistically significant for all observations in our sample (see Figures 1a and 1b in the Appendix). This implies that in these countries perceived entrepreneurial ability does not increase the probability of being involved in entrepreneurial activities among individuals with high actual ability.

To the contrary, the interaction effect between high actual ability and perceived entrepreneurial ability is positive for the sub-sample of individuals residing in innovation-driven countries. In these economies, the interaction term is statistically significant for all observations (see Figures 3a and 3b in the Appendix). The result in Table 3.5 (specification 3) indicates that for those individuals who have both perceived entrepreneurial ability and high actual ability, the probability of pursuing entrepreneurial activities rises by 2.32 percentage points, relative to the probability shown by those who only have one of these dimensions. This suggests that in innovation-driven economies, there is a double positive effect over entrepreneurial activities of having both perceived ability and actual ability, thus, indicating that perceived entrepreneurial ability provides the self-confidence for individuals with high actual ability to initiate entrepreneurial activities. Therefore, we find support for our hypothesis **H3b** which states that the joint impact of high actual ability and perceived entrepreneurial ability is relatively higher in innovation driven economies.²

3.5. Conclusions and Implications

Overall, our findings suggest that both high actual ability and perceived entrepreneurial ability are important because they have a positive impact on the decision to initiate

nascent entrepreneurial activities. Furthermore, high actual ability has the greatest impact on this decision when it is accompanied by perceived entrepreneurial ability. However, the interaction effect of perceived entrepreneurial ability and high actual ability is not systematic across economies. Unlike efficiency and innovation driven economies, high actual ability is not a significant factor in influencing the decision to initiate entrepreneurial activities in factor-driven economies. In addition, while the influence of perceived entrepreneurial ability is positive and significant throughout all economies, its impact is higher in factor-driven economies compared to efficiency and innovation-driven economies.

The results of our study highlight the importance in distinguishing perceived entrepreneurial ability from actual ability as the former has a distinct influence on the decision to initiate entrepreneurial activities and its impact is much higher than actual ability. This finding is in line with recent findings that suggest that the importance of judgmental decision making in entrepreneurship (Foss et al., 2007; Casson, 2010; Hogarth and Karelaia, 2012). As such using only objective indicators of ability may not reveal one of the fundamental motivators of entrepreneurial action. Therefore from a methodological point of research studies should not be limited objective ability but consider the impact of subjective perceptions as well. As entrepreneurship is an act of human volition in which individuals act as the prime mover, it is necessary to take into account the cognitive resources like perceived entrepreneurial ability that have an instrumental value in triggering entrepreneurial action (Grégoire et al., 2011).

Our findings have a clear implication for policy making. Perceived entrepreneurial ability is a manifestation of entrepreneurial confidence that influences entrepreneurial behavior and thus entrepreneurship support policies should balance formal education

and training with measures aimed at increasing entrepreneurial confidence through training programs. This way, under-confident individuals can improve their entrepreneurial abilities while overconfident actors can reduce potential assessment errors in the evaluation of their entrepreneurial abilities. Consequently, the human capital stock in the economy can be more efficiently optimized by letting individuals decide if they have the ability to pursue entrepreneurship or choose organizational employment. After-all entrepreneurship requires spontaneous effort and this is less likely to happen if individuals do not have confidence on their entrepreneurial abilities.

Considering that the impact of perceived entrepreneurial ability and high actual ability is not systematic across economies we suggest a different approach for each group of economies. For factor-driven economies, the focus should be on improving the general level of actual ability of those individuals who are confident of their entrepreneurial abilities. This policy measure should be long-term oriented and focus on training and capacity building activities, especially among individuals with past self-employment experience. In efficiency and innovation driven economies, the focus should be more on developing entrepreneurial confidence, especially among those with high actual ability. Focusing on entrepreneurial confidence in these economies has the effect of increasing both the quality and the quantity of entrepreneurial initiatives.

Therefore, quality and quantity of entrepreneurial activities can be influenced if policy makers take into consideration the relative stock and nature of human capital resources and entrepreneurial confidence. An underused stock of high actual ability in entrepreneurship would need policy measures that increase entrepreneurial confidence so that a greater number of entrepreneurial activities are initiated by individuals who potentially have the ability to pursue high impact entrepreneurial activities. On the other

hand, entrepreneurial activities by those with perceived entrepreneurial ability but without the underlying actual abilities would need intervention in capacity building at the micro-level. For the former, intervention might be required at a macro-level, measures that could lead to entrepreneurial confidence through improvement in entrepreneurial framework conditions (Reynolds et al., 2005).

Finally, our study is limited to examining the impact of perceived entrepreneurial and high actual ability on entrepreneurial activities. Future studies can explore the same relationship using different measures of actual ability and examine the determinants of perceived entrepreneurial ability. Such findings will greatly contribute in understanding the role and impact of subjective perceptions and actual ability in contributing to the quality and quantity of entrepreneurship.

ENDNOTES

1. Given the low proportion of nascent entrepreneurs in the sample ($p = 0.0633$), we could have used a rare events logit model as in Lafuente et al. (2007). King and Zeng (2001) show that, in the case of a model with a fixed independent variable, the underestimation bias in \hat{p}_i is approximately $(p - 0.50) / Np(1 - p)$. In the hypothetical case we estimate \hat{p}_i using one independent variable and a constant term, the result indicates that in our sample ($N = 96,416$), the average bias in the logit coefficient is approximately -0.000076 . Thus, in our case it becomes clear that sample size helps overcome the potential limitation of having a relatively low rate of nascent entrepreneurship and final estimations are based on the standard logit. For consistency purposes, we ran the rare events logit for our different model specifications and results do not qualitatively change.

2. It should be noted that results may be influenced by the relatively higher weight of innovation driven economies. This is especially true for Spain that represents 30.15% of the full sample. Thus, to ensure the robustness of our results, we excluded Spain from the sample and re-ran the logit models for the full sample and for the sub-sample of innovation driven economies. Results remain unchanged, confirming the consistency of our estimation.

Figure 3.1a Interaction term (high actual ability and perceived entrepreneurial ability) as a function of the predicted probability of entrepreneurial activity in factor driven economies

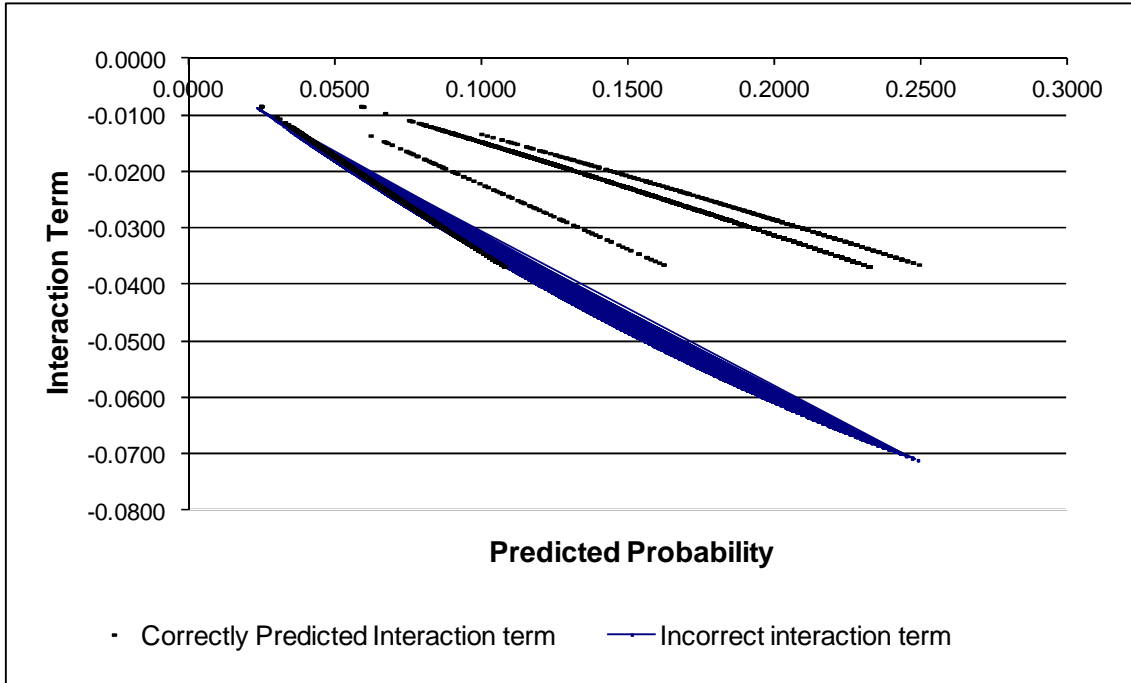


Figure 3.1b Statistic as a function of the predicted probability

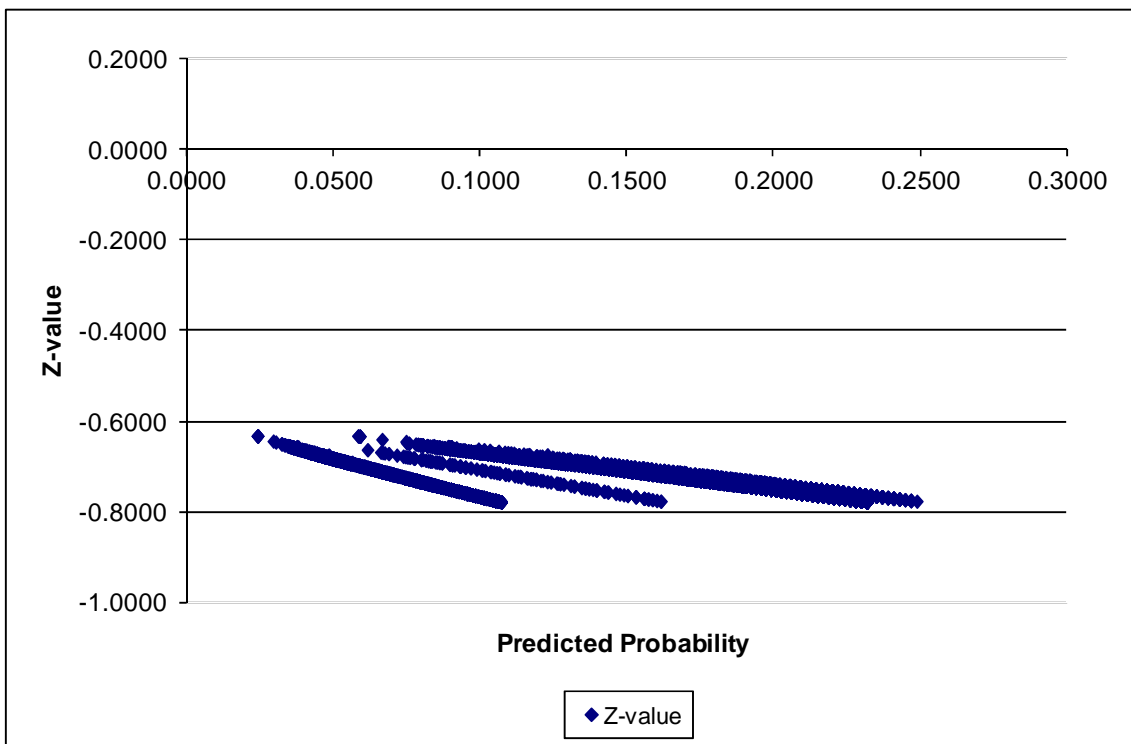


Figure 3.2a Interaction term (high actual ability and perceived entrepreneurial ability) as a function of the predicted probability of entrepreneurial activity in efficiency driven economies

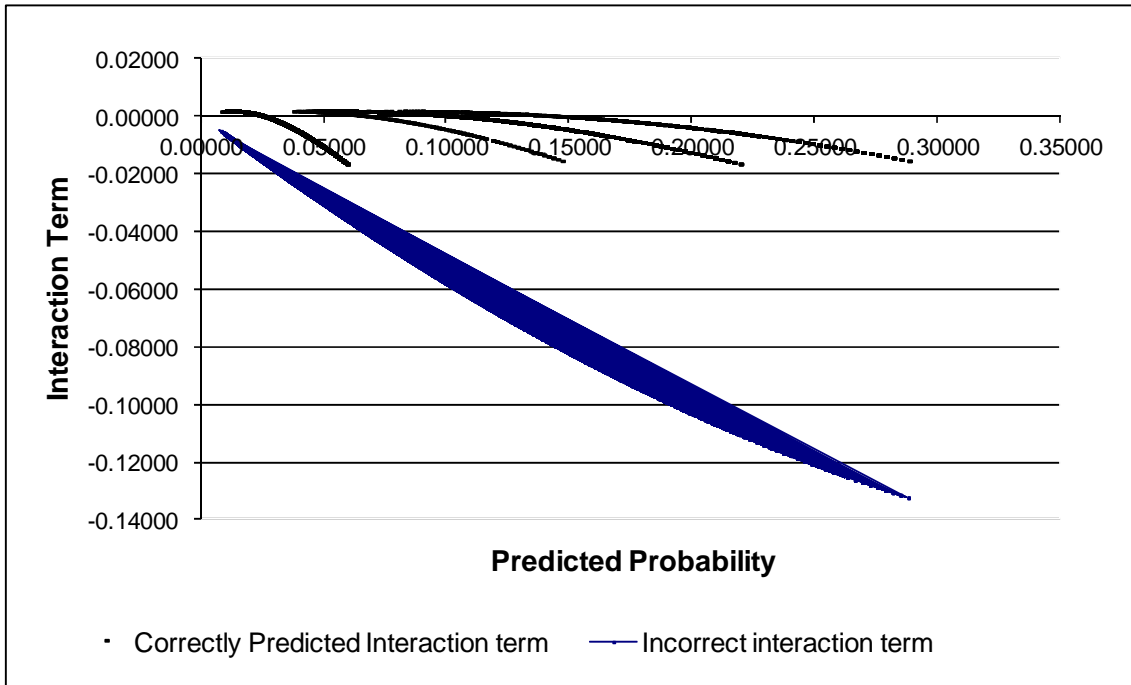


Figure 3.2b Statistic as a function of the predicted probability

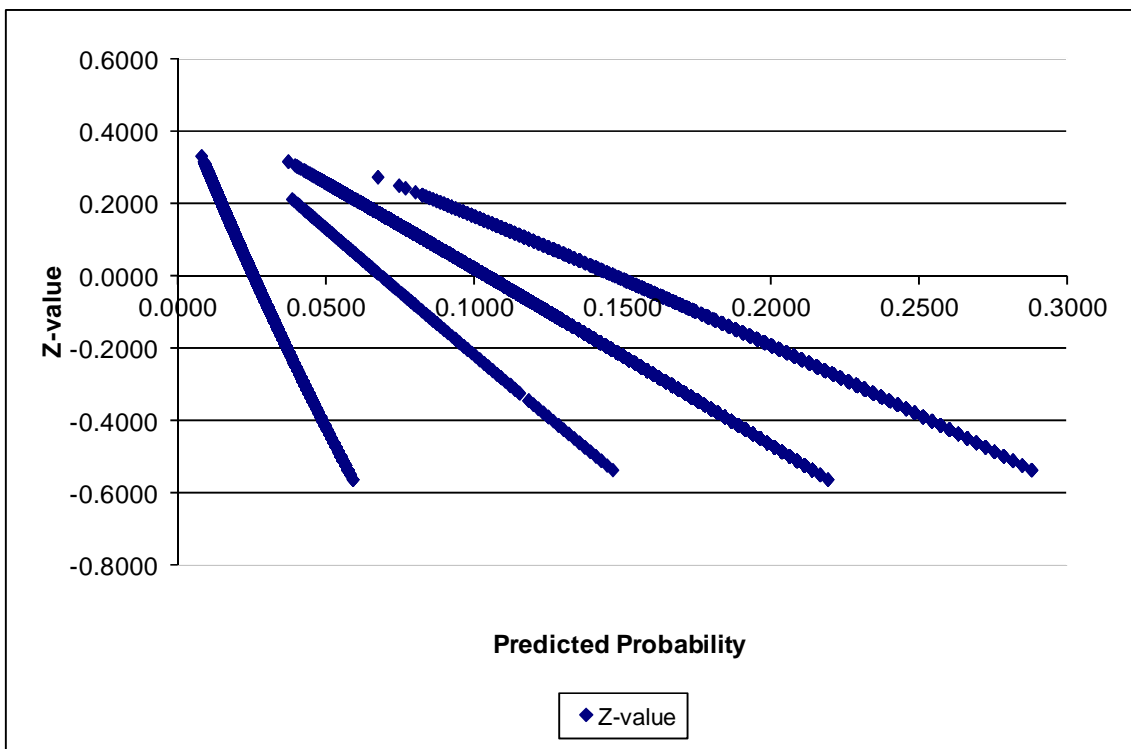


Figure 3.3a Interaction term (high actual ability and perceived entrepreneurial ability) as a function of the predicted probability of entrepreneurial activity in innovation driven economies

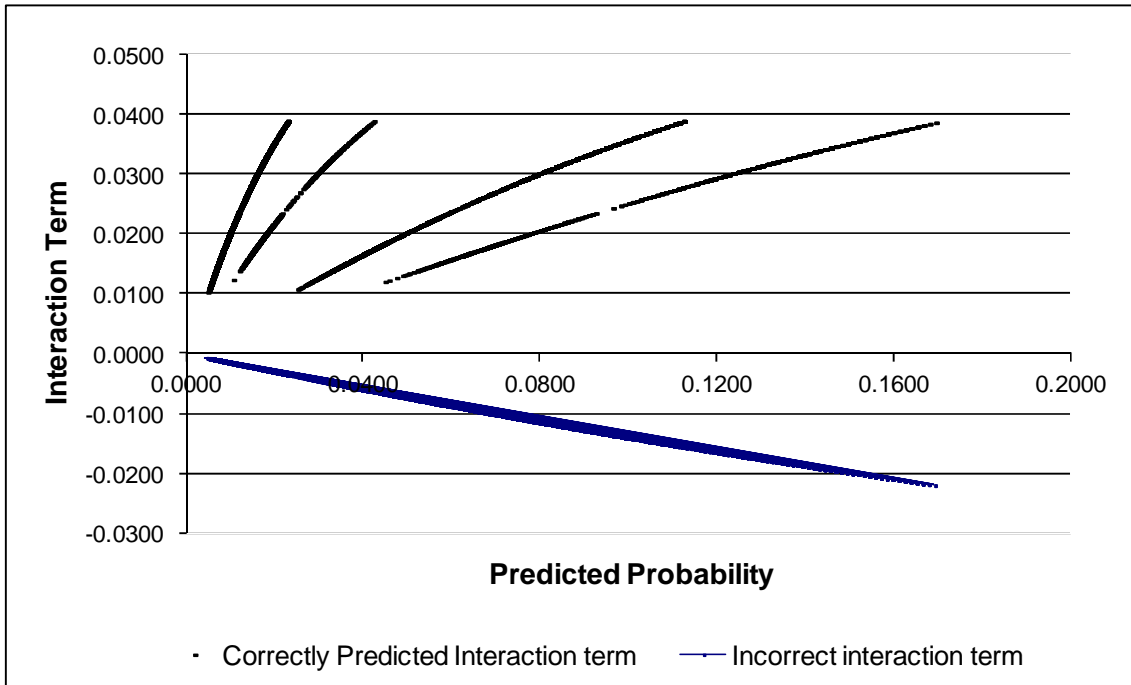
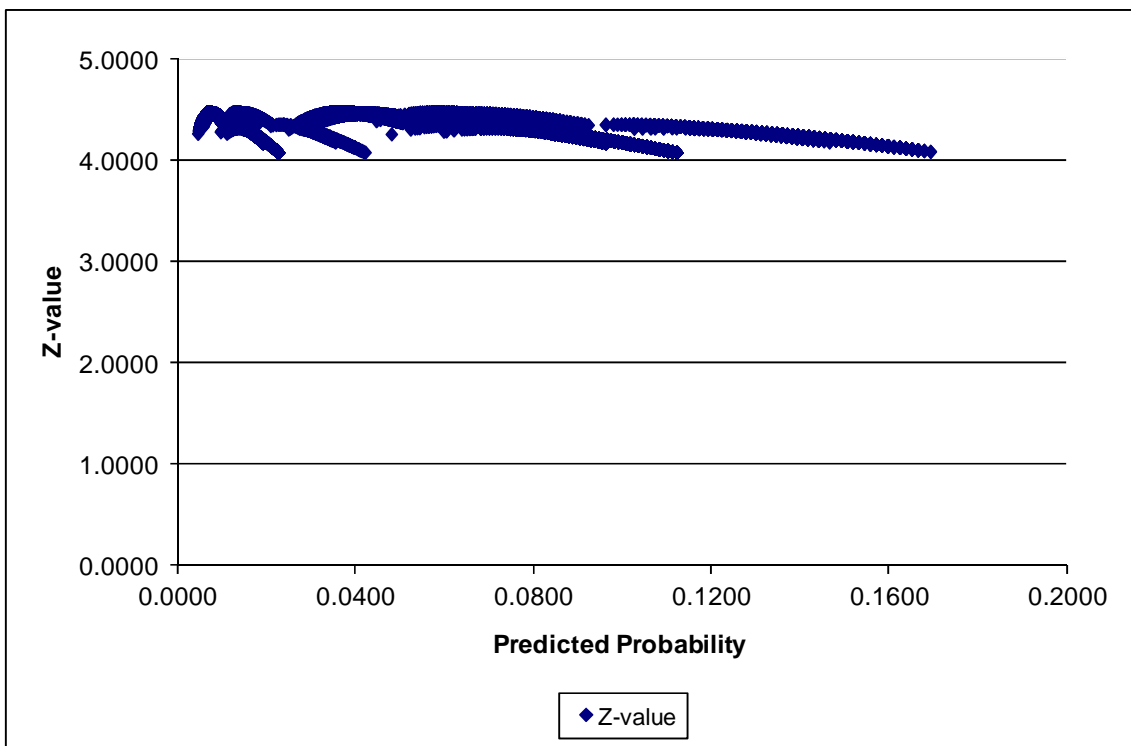


Figure 3.3b Statistic as a function of the predicted probability



Chapter IV

Antecedents of perceived entrepreneurial ability: The individual and the entrepreneurial context.

Abstract:

Purpose: The main purpose of this study is to examine the antecedents of perceived entrepreneurial ability.

Design/methodology/approach: Taking the cognitive approach we examine the role of individual-level factors and the entrepreneurial context in influencing positive perceptions of one's entrepreneurial ability. The proposed hypotheses are tested on a dataset of 1961 respondents randomly selected from the adult population in Catalonia region in Spain.

Findings: Our results reveal that among the individual level factors gender, positive job status, task specific education and experience are positively related to favorable perceptions of entrepreneurial ability. Similarly, the environmental context in the form of knowledge of other entrepreneurs has a significantly positive effect while territorial location does not influence perceived entrepreneurial ability.

Originality/value: Previous studies have reported that nascent entrepreneurs tend to have significantly positive perceptions of their entrepreneurial ability. In this study using the cognitive learning framework we examined the antecedents of such perceived entrepreneurial ability thereby extending the stream of studies that look at pr-entry factors that influences entrepreneurial cognitions which in turn could influence the decision to initiate nascent entrepreneurial activities.

Keywords: Entrepreneurship, human capital, perception, self-confidence.

Paper type: Research paper

JEL Classification: J24, L26

PsycINFO classification: 2320

4.1. Introduction

Recently, several recent studies has shown that individuals who hold favourable perceptions of their entrepreneurial ability are more likely to initiate nascent entrepreneurial activities (Koellinger et al., 2007; Lafuente et al., 2007; Townsend et al., 2010; Clercq et al., 2011). What are the antecedents of such perceptions? In this study we examine the factors that influence positive perceptions of one's entrepreneurial ability. We specifically test the role of individual-level factors and the entrepreneurial context in shaping positive perceptions of entrepreneurial ability. Previous studies have shown the importance of individual-level factors, for instance, human capital resources like education and training in influencing perceptions (Kruger and Dunning, 1999; Clark and Friesen, 2009). Other studies point to physiological factors like age and gender at the root of perceptual differences between individuals (Driga et al., 2009; Koellinger et al., 2013). In a similar way perceptual differences in entrepreneurial ability could be influenced by the entrepreneurial context, for instance personal knowledge of other entrepreneurs (Vaillant and Lafuente, 2007; Bosma et al., 2012) or information pertaining to entrepreneurship in a given territory (Florida, 1995; Lafuente et al., 2010). In this paper using the framework of social cognition theory, we suggest that positive perception of one's entrepreneurial ability is influenced by those individual-level factors that provide private information about one's entrepreneurial ability and task-relevant public information that individuals come across by being situated in an entrepreneurial context.

The main contribution of this paper is to highlight the combined role of individual level resources and the entrepreneurial context in influencing positive perceptions of entrepreneurial ability. By delineating the role of individual level resources and the

environmental context in the development of perceived entrepreneurial ability our study identifies the underlying causes of a cognitive resource that individuals bring to the entrepreneurial process thus contributing to the understanding the cognitive antecedents that could influence entrepreneurial behaviour (Grégoire et al., 2011). Considering that the choice of entrepreneurship is rare within any given population, an understanding of the factors that lead to positive perceptions of entrepreneurial ability could help in developing strategies that induces individuals to convert their positive entrepreneurial ability perceptions into entrepreneurial action.

The rest of the paper is organized as follows. In section 4.2 we discuss the theoretical framework, followed by specific hypotheses in section 4.3 and section 4.4. Section 4.5 discusses the data and method used for the study followed by results in section 4.6 while section 4.7 contains the discussion and implications of the study, section 4.8 the limitations and future studies.

4.2. Perception of entrepreneurial ability

Literally perception means the act or faculty of apprehending by means of the senses or the mind. Mental perceptions is a specific form of cognition, the later referring to all processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used (Neisser, 1967). Mental perceptions occur when individuals come across new information (Mitchell et al., 2011). The outcome of perception is a change in the mental state (Bandura, 1989). However, the new information and the way it is mentally represented or perceived do not necessarily lead to behaviour execution. The cognitive learning theory argues that the new mental state induced by perception may remain

dormant until signals in the form of information cues for behaviour execution are received (Bandura, 1989). The reciprocal causation model of behaviour Bandura (1989) suggests that the external environment, personal factors (cognition, affective and biological events) and previous behavioural experiences provide information cues that create heightened awareness or understanding of the information through perception (Pomerantz, 2003).

Of all perceptions entrepreneurial perception is related to mental representation of entrepreneurship or what individuals think about entrepreneurship (Palich and Bagby, 1995; Liñán et al., 2011). This mental representation could be related to the different aspects of the entrepreneurial process. For example consider opportunity discovery wherein individuals develop heightened awareness (“alertness”) of arbitrage situations for profit making (Kirzner, 1979; Sarasvathy et al., 2005). In a similar way while addressing the risks of venturing entrepreneurs tend to frame information in a way that tends to lower its magnitude that it actually is (Simon et al., 2000; Forlani and Mullins, 2000; Douglas, 2006). Kruger and Carsrud (1993) suggested that while developing entrepreneurial intentions individuals frame information about entrepreneurship in terms of feasibility and desirability of an entrepreneurial career (Krueger et al., 2000).

Considering the importance of information and information cues in triggering specific perceptions, individual’s prior as well as current information becomes important in the development of ability perceptions (Shane, 2000; Ucbasaran et al., 2008; Nanda and Sorensen, 2010). While education and training provides prior private information to compare one’s ability for the task of new venture creation, the external environment provides current information about the feasibility of task execution (Mitchell et al.,

2011). For instance, by observing others' behaviour, attitude and behavioural outcomes individuals obtain the information necessary for determining task feasibility (Bandura, 1977). This way the external environment represents a source of public information that could provide the information cues for the formation of specific perceptions. Therefore, one's prior information and an environment with thick information pertaining to entrepreneurship provide the base necessary for forming favourable or unfavourable perception of entrepreneurial ability.

4.3. Individual-level factors and perceived entrepreneurial ability.

Education and training are individual-level resources that provide access to private information. In general education prepares individuals with the information to perform a given behaviour. Such information can be used to develop abilities in different knowledge domains. Becker (1993) suggests that education provides knowledge and skills to develop two types of abilities, general ability and specific ability. General abilities are those that can be applied across tasks or knowledge domains. It enhances individual's cognitive abilities through declarative knowledge or "what to do" (Cauley, 1986). In addition, it helps in 1) the retention of information (Conway et al., 1991) 2) application of acquired information outside classroom situations (Cole et al., 1976) 3) the development of general problem solving capacity (Husen and Juijnman, 1991). One particular importance of higher education is its relationship with cognitive development. Higher level of formal education leads to greater cognitive abilities (Falch and Massih, 2011). Although formal education is often generic and declarative, higher levels of formal education could still lead individuals to narrow and specialized fields of expertise (Becker, 1993). On the contrary entrepreneurship requires broad and diverse

range of abilities to undertake the different functional requirements of new venture creation. Therefore, we suggest that:

H1: Individuals with higher levels of education are more likely to have negative perceptions of entrepreneurial ability compared to those with lower levels of education.

Unlike general ability acquired through formal education, specific abilities are acquired through job experience. Such experience provides individuals procedural information or “how to perform a given task” (Cauley, 1986). Procedural information facilitates learning by doing (Kolb, 1984). Furthermore, job experience provides access to tacit information (Davidsson and Honig, 2003). Moreover, it provides a reference point necessary for evaluation of one’s ability in occupations and whether those can be transferred to entrepreneurship (Nanda and Sorensen, 2010). For instance, individuals with multiple job roles are more likely to be equipped with a diversity of information that could be useful in entrepreneurship (Unger et al., 2011). Therefore, we suggest that,

H2: Individuals with job experience are more likely to have positive perceptions of their entrepreneurial ability than those who do not have job experience.

Although formal education and experience provide information to assess one’s entrepreneurial abilities to different degrees, entrepreneurship requires task specific abilities (Unger et al., 2011). For instance, individuals need to know about customers’ problems, about the way the market works, how to mobilize new venture resources and so on. Such task specific information can be obtained formally through entrepreneurship education. In addition to gaining declarative information about business activities,

participation in entrepreneurship education enables individuals to evaluate their entrepreneurial aptitude (Von Graevenitz et al., 2010). Entrepreneurship training improves entrepreneurial cognition (Dueing, 2008) and enhances favourable perception of one's entrepreneurial ability (Peterman and Kennedy, 2003). Such perceptions are further strengthened through direct exposure to venture creating experience, either through own effort or through family business (Dunn and Douglas, 2000). For instance, prior entrepreneurial experience helps in developing better judgments (Gruber et al., 2012). Better judgment make individuals more realistic (Koellinger et al., 2007), improves individual's predictive abilities (Cassar, 2013) and realism in comprehending the tasks related to new venture creation and management (Dimov, 2010). We suggest that individuals are more likely to develop positive perceptions about their entrepreneurial abilities when they have formal training in entrepreneurship or prior entrepreneurial experience.

H3a: Individuals with task-specific knowledge through entrepreneurship training are more likely to have positive perceptions of their entrepreneurial ability.

H3b: Individuals with task-specific knowledge through prior entrepreneurship experience are more likely to have positive perceptions of their entrepreneurial ability.

Gender can influence positive perceptions of entrepreneurial ability through several ways. First, by having lower preference for entrepreneurship as a career females are less inclined towards learning or observing information related to the task of entrepreneurship. This could result negative perception about their own ability to become entrepreneurs (Verhuel et al., 2012). Secondly, the lack of female role models

(Driga et al., 2009) lends credence to the perception of strong association between entrepreneurship and masculinity (Gupta et al., 2009). Thirdly, females are less to have positive perception of entrepreneurial ability because of under-confidence (Thébaud, 2010). Therefore we hypothesize that,

H4: Females are more likely to have negative perceptions of their entrepreneurial ability compared to males.

Age could influence perceived entrepreneurial ability through interpretation of received information. For instance, on the one hand low meta-cognitive ability due to inexperience could lead younger individuals to over-estimate their entrepreneurial and hence positive perception of their entrepreneurial abilities (Kruger and Dunning, 1999). On the other hand, uncertainty about one's entrepreneurial abilities because of lack of task related experience (prior entrepreneurship or entrepreneurship training) could lead to lack of perceived entrepreneurial ability among older individuals (Fraser and Greene, 2006). Therefore, we hypothesize that,

H5: Younger individuals are more likely to have positive perceptions of their entrepreneurial ability than older individuals.

4.4. The entrepreneurial context and perceived entrepreneurial ability

The entrepreneurial context can serve as a frame of reference for comparing entrepreneurial abilities and perceiving the feasibility of an entrepreneurial career. For instance, individuals who have personal information of other entrepreneurs might be

more aware of the role requirement of entrepreneurship. This facilitates the comparison of one's own ability for entrepreneurship. According to Bandura (1977) knowing other entrepreneurs not only provide a source of information for entrepreneurship but also substantiates the information already learnt through formal sources by providing real evidence. For instance, other entrepreneurs provide the evidence that entrepreneurship could be a viable career option (Vaillant and Lafuente, 2007). Bosma et al., (2012) suggest that information about other entrepreneurs as a source of observational learning perform four inter-related functions. They create awareness about the given behavior (Gibson, 2004), function as a source of inspiration and motivation for executing the given behavior (Lockwood et al., 2004), provide guidelines for action (Gibson, 2004) and are a possible source of support and guidance during behavior execution (Nauta and Kakoly, 2001). In addition, knowing other entrepreneurs changes attitudes and beliefs about a person's perceived ability to be successful in a new venture (Auken et al., 2006). As such those who have knowledge of other entrepreneurs are more likely to develop positive perception of entrepreneurial ability. Therefore we hypothesize that,

H6: Individuals who personally knows other entrepreneurs are more likely have positive perceptions of entrepreneurial ability.

In addition to observational learning from human actors, regions act as a source of information about entrepreneurship (Florida, 1995; Lambooy, 2002). Individuals are more likely to gain information related entrepreneurship when they reside in regions where entrepreneurship is considered a viable career option (Vaillant and Lafuente, 2007). In this regard, urban agglomerations provide ideal ground for accessing information related to entrepreneurship. For instance, information about other

entrepreneurs, about venture resource suppliers like venture capitalists and institutions that facilitate trade and commerce are easier to find in urban compared to rural regions (Florida, 2005). Secondly, employment opportunities in urban agglomerations provide a source of obtaining experiential learning (Gabe and Abel, 2011) that could be useful while pursuing entrepreneurship. We argue that because individuals also learn through behavioural modelling (Bandura, 1977), urban agglomerations provide the entrepreneurial context for perceptions. In such regions individuals not only have greater number of sources to acquire relevant information about entrepreneurship by direct participation but also reference points through the greater density of entrepreneurs and entrepreneurial framework conditions (Reynolds et al., 2005) to assess their entrepreneurial abilities. Therefore we hypothesize that,

H7: Individuals in urban regions are more likely to develop positive perceptions of their entrepreneurial ability.

4.5. Data and Method

The empirical estimation of the model is done using data from the Global entrepreneurship Monitor (GEM) database. The data used for this particular study was collected in the Catalonia autonomous region of Spain between the month May and July, 2010 through telephone surveys. After removing the missing values, from an initial sample of 2000 randomly selected individuals between the age group of 18-64 years the final sample used for this study contains 1961 respondents.

Perceived entrepreneurial ability, the dependent variable in this study is a self-reported dichotomous measure in which the independent random sample of working age adults was asked “*Do you have the knowledge, skills and experience to start a new business*”. It must be noted that the measure of perceived entrepreneurial ability used in this study is different from entrepreneurial self-efficacy. While entrepreneurial self-efficacy measures both perception of entrepreneurial ability and the perception of entrepreneurial success (McGee et al., 2009), our measure captures only one aspect of this construct, namely the perception or self-confidence in one’s entrepreneurial ability (Townsend et al., 2010). In our sample 53.9% of the respondents have positive perception of their entrepreneurial ability. Such high level of perceived entrepreneurial ability when dealing with complex tasks like new venture creation may seem surprising. However, this could be an indication of espoused value rather than theories-in-use (Argyris, 1991).

Independent variables: Education is measured using respondent’s completed level of formal education divided into four categories: Basic education (Education below secondary level), secondary education, post-secondary education and graduate studies. Previous studies has used similar indicator to measure general ability (Davidsson and Honig, 2003; Vaillant and Lafuente, 2007). From Table 4.1 it can be seen that on the one hand the proportion of respondents with basic education who have positive perception of their entrepreneurial ability (39.07%) is significantly lower than those who report lacking entrepreneurial ability (51.88%). On the other hand, the proportion of respondents with post-secondary education (48.53%) who have positive perceptions of their entrepreneurial ability is significantly higher than those without perceived entrepreneurial ability (36.06%). It should be noted that the mean difference between

those who have positive perceptions of entrepreneurial ability and those who do not for the remaining categories of education (secondary education and graduate studies) is not significant.

Table 4.1. Descriptive statistics of the determinants of perceived entrepreneurial ability.

	Perceived entrepreneurial ability	Without perceived entrepreneurial ability	Overall	Kruskal-Wallis chi square
Age (in years)	43.7691 (11.3976)	44.0685 (12.9383)	43.9071 (12.1299)	0.5448+
Gender (1 for female)	0.4314 (0.4955)	0.5608 (0.4965)	0.4910 (0.5000)	32.645 ***
Basic education	0.3907 (0.4881)	0.5188 (0.4999)	0.4497 (0.4975)	32.282 ***
Secondary education	0.1050 (.3067)	0.1073 (0.3096)	0.1060 (0.3080)	0.026
Post secondary education	0.4853 (0.5000)	0.3606 (0.4804)	0.4278 (0.4948)	30.945***
Graduate	0.0189 (0.1363)	0.0132 (0.1145)	0.0163 (0.1267)	0.968
Working (full time or part-time)	0.7398 (0.4389)	0.5387 (0.4987)	0.6471 (0.4779)	86.261***
Unemployed	0.1854 (0.3888)	0.3019 (0.4593)	0.2391 (0.4266)	36.363***
Not Working (Students, retired, disabled etc)	0.0747 (0.2630)	0.1592 (0.3661)	0.1137 (0.3175)	34.546***
Entrepreneurship education	0.3680 (0.4825)	0.1084 (0.3111)	0.2483 (0.4322)	175.847 ***
Prior entrepreneurship	0.2668 (0.4425)	0.1029 (0.304)	0.1912 (0.3934)	84.608 ***
Knowledge of other entrepreneurs	0.3907 (0.4881)	0.2223 (0.4161)	0.3131 (0.4639)	64.204 ***
Territory (1 for urban)	0.8061 (0.3956)	0.8197 (0.3847)	0.8123 (0.3905)	0.594
Number of cases	1057	904	1961	

Standard deviation is presented in brackets. *, **, *** = significant at the 10%, 5 % and 1% respectively.
+ T-statistic

Job experience is nominal variable measured through job status at the time of survey. This variable comprises 1) those who are working 2) unemployed (looking for employment) 3) Not working because they are students, retired or disabled. Table 1

show that the proportion of respondents working at the time of survey who have positive perceptions of their entrepreneurial ability (73.98%) is significantly higher than those without perceived entrepreneurial ability (53.87%). Interestingly, for respondents in the other categories of job experience the mean value of those with positive perceptions of entrepreneurial ability is lower compared to those who lack perceived entrepreneurial ability and this difference is significant for both the job categories.

Task specific ability is measured using entrepreneurship related training and prior experience in creating a new venture. In the sample, the proportion of respondents with entrepreneurship education or prior entrepreneurship experience is significantly higher among individuals with perceived entrepreneurial ability (Table 4.1).

The entrepreneurial context is measured by asking respondents whether they “*know someone personally who started a business in the past two years*”. To measure the influence of territorial location on perceived entrepreneurial ability a dummy variable taking the value of one for individuals residing in urban areas is used. From Table 4.1 it can be seen that the proportion of respondents with perceived entrepreneurial ability who personally know other entrepreneurs (39.07%) is significantly higher than the figure observed for the sub-sample of individuals without perceived entrepreneurial ability (22.23%).

To examine the influence of the proposed explanatory variables on perceived entrepreneurial ability a logit regression model is used (Greene, 2003). In this model the dependent variable is determined in terms of probability. As such the probability of perceived entrepreneurial ability ($\Pr(Y_i = 1) = \hat{p}_i$) is modeled as a function of the

aforementioned set of explanatory variables (X_i), where \hat{p}_i is expressed as $\hat{p}_i = e^{X_i\beta_j} / 1 + e^{X_i\beta_j}$, and parameters (β_j) are estimated by maximum likelihood method. The full model to be estimated has the following form:

Perceived Entrepreneurial Ability_i

$$= \beta_0 + \beta_1 \text{education}_i + \beta_2 \text{experience}_i + \beta_3 \text{Entrepreneurship training}_i + \beta_4 \text{epriorentrepreneurship}_i + \beta_5 \text{gender}_i + \beta_6 \text{Age}_i + \beta_7 \text{role model}_i + \beta_8 \text{territory}_i + \varepsilon_i$$

In Equation (1) β_0 is the constant term, β_j is the vector of parameter estimates for the j th independent variables, and ε_i is the logistic distributed disturbance term for the i th individual. The magnitude of the effect of the independent variables on perceptions of entrepreneurial ability is determined by the marginal effect (γ_x).

4.6. Results

The results of the different applications of the logit model to explain positive perceptions of entrepreneurial ability in presented in table 4.2. Model 1 in Table 4.2 shows the results for individual level factors only. Model 2 considers variables related to the entrepreneurial context. Finally, model 3 presents the results for the full model. The nested models, model 1 and 2 allow us to test whether the less restrictive model (model 3) improves statistical fit over the more restrictive models (model 1 and model 2). Table 4.3 shows the corresponding marginal effect or the magnitude of the impact of the different independent variables on the dependent variable.

Among the three models we find that model fit in terms of overall correct classification of cases (count R^2) improves from 67.47% in model 1 to 70.17% in model 3 (table 4.2)

when both individual-level and contextual factors are present in the model while the fit is lowest when only the entrepreneurial context is considered in the model (52.91% in

Table 4.2 Logistic Regression of perceived entrepreneurial ability

	Coefficient (Standard Error) Model: 1	Coefficient (Standard Error) Model: 2	Coefficient (Standard Error) Model:3
Individual-level factors			
Secondary education+	0.1684(0.1709)		0.1824 (0.1756)
Post secondary education	0.2913*** (0.1109)		0.3067***(0.1122)
Graduate	0.0027(0.3807)		-0.0556 (0.4188)
Working++ (employed at the time of survey)	0.6338***(0.1224)		0.5961 ***(0.1239)
Not working (students, retired)	-0.4952***(0.1838)		-0.4949***(0.1884)
Entrepreneurship training	1.5016***(0.1330)		1.474***(0.1333)
Prior entrepreneurship	1.0940***(0.1419)		1.0202***(0.1419)
Age (in years)	0.0057(0.0043)		0.0084*(0.0044)
Gender (1 for female)	-0.4584***(0.1025)		-0.4504***(0.1031)
Entrepreneurial context			
Knowledge of other entrepreneurs		0.8070***(0.1018)	0.6108***(0.1125)
Territory (1 for urban)		-0.0798(0.1170)	-0.0873(0.1302)
<i>Constant</i>	<i>-0.8832***(0.2423)</i>	<i>-0.0225(0.1099)</i>	<i>-1.0821***(0.2730)</i>
<i>Pseudo R2</i>	<i>0.1357</i>	<i>0.0243</i>	<i>0.1470</i>
<i>Log Likelihood</i>	<i>-1169.5884</i>	<i>-1320.3776</i>	<i>-1154.3209</i>
<i>LR chi2(d.f)</i>	<i>263.48(9)</i>	<i>63.62(2)</i>	<i>397.93***(11)</i>
<i>Correctly classified (perceived entrepreneurial ability)</i>	<i>69.71%</i>	<i>67.26%</i>	<i>72.82%</i>
<i>Correctly classified (no perceived entrepreneurial ability)</i>	<i>64.81%</i>	<i>52.19%</i>	<i>67.21%</i>
<i>Correctly classified (Full sample)</i>	<i>67.47%</i>	<i>56.91%</i>	<i>70.17%</i>
<i>Number of cases</i>	<i>1961</i>	<i>1961</i>	<i>1961</i>

*, **, *** = significant at the 10%, 5 % and 1% respectively; +Basic education is the reference category, ++ Unemployed is the reference category for this variable.

Table 4.3. Logistic Regression: Marginal effect of the determinants of Perceived entrepreneurial ability.

	dy/dx ⁺⁺ Model:1	dy/dx Model:2	dy/dx Model:3
Individual-level factors			
Secondary education+	0.0412		0.0445
Post secondary education	0.0716***		0.0753***
Graduate	0.0006		-0.0137
Working (employed at the time of survey)	0.1565***		0.1472***
Not working (looking for employment)	-0.1231***		-0.1230***
Entrepreneurship training	0.3319***		0.3262***
Prior entrepreneurship	0.2483***		0.2330***
Age (in years)	0.0014		0.0020*
Gender (1 for female)	-0.1127***		-0.1107***
Entrepreneurial context			
Knowledge of other entrepreneurs		0.1943***	0.1472***
Territory (1 for urban)		-0.0197	-0.0214

⁺⁺dy/dx: for discrete variables dy/dx is the change from X=0 to X=1

model 2 of table 4.2). Furthermore the Log likelihood ratio test (LR) between model 1 and model 3 suggests that including the variables related to entrepreneurial context results in statistically significantly improvement in model fit ($\chi^2(2) = 30.53, p < 0.0000$). Similarly, including the individual-level factors in model 2 significantly improves the statistical fit ($\chi^2(9) = 332.11, p < 0.0000$) of the model that contains both entrepreneurial context and individual-level factors (model 3).

As for the findings related to the individual variables we find that among the education variables secondary education and post secondary education have a positive effect on perceived entrepreneurial ability while graduate studies have a negative influence with respect to the reference category of basic education. However, the positive effect of secondary education and the negative influence of graduate studies are not significant. Thus the results are contrary to our hypothesis H1 which suggested that high formal education is more likely to lead to negative perceptions of entrepreneurial ability. It must be mentioned that overall education has a positive influence on perceived entrepreneurial ability but is not highly significant (chi-square=7.77, $p < 0.0511$).

Among the job categories individuals with positive job market status (working at the time of survey) are significantly more likely to develop positive perception of entrepreneurial ability ($\beta_2 = 0.1565$, $p < 0.0000$) compared to those who are unemployed. This result supports hypothesis H2 as it indicates that job experience has a positive impact on perceived entrepreneurial ability. Interestingly those without work (students, retired and disabled individuals) are significantly less likely to develop positive perception of their entrepreneurial ability ($\beta_2 = -0.1231$, $p < 0.0000$) compared to those who are unemployed. In fact in terms of magnitude holding other variables constant at their means, on the one hand the probability of developing positive perceptions of entrepreneurial ability increases by 14.72 percentage points for employed individuals compared to the probability of those who are unemployed (model 3, Table 4.3), on the other hand the probability of developing positive perceptions of entrepreneurial ability decreases by 12.32 percentage points for those who are not-working (students, retired or disabled individuals) compared to the probability of those who are unemployed.

Also, results in model 3 of Table 4.2 corroborate that entrepreneurship training ($\beta_3 = 1.4740$, $p < 0.0000$) is positively related to perceived entrepreneurial ability and individuals with entrepreneurship training are 32.62 percentage points ($\gamma_3 = 0.3262$) more likely to develop positive perceptions of their entrepreneurial ability relative to the probability of those who do not have entrepreneurship training. This finding is in accordance with hypothesis H3a. Similarly, it can be seen that the probability of perceived entrepreneurial ability is significantly positive ($\beta_4 = 1.0202$, $p < 0.0000$) and increases by 23.30 percentage points ($\gamma_4 = 0.2330$) for those with prior entrepreneurship experience compared to those without prior entrepreneurship experience. Thus, hypothesis H3b that states that individuals with prior entrepreneurial experience are more likely to develop positive perceptions of their entrepreneurial ability is supported. As far as gender is considered females are more likely to develop negative perceptions of entrepreneurial ability compared to males ($\beta_5 = -0.4504$, $p < 0.0000$) and for females holding all other variables constant at their means the probability of developing positive perceptions of entrepreneurial ability decreases by 11.07 percentage points ($\gamma_5 = 0.1107$) compared to males. This finding supports hypothesis H4 and mirrors results obtained by Driga et al., (2009) and Gupta et al., (2009). Age, although is positively related to perceived entrepreneurial ability but is not highly significant ($\beta_6 = 0.0084$, $p < 0.058$).

Concerning the entrepreneurial context, results in model 3 of table 4.2 shows that knowing other entrepreneurs has a significantly positive impact on perceived entrepreneurial ability ($\beta_7 = 0.6108$, $p < 0.0000$). In terms of magnitude the probability of developing perceived entrepreneurial ability increases 14.72 percentage points ($\gamma_7 = 0.1472$) for individuals who personally know other entrepreneurs, compared to

the probability of individuals who do not. Thus hypothesis H6 is supported. To the contrary, the result of the influence of location (urban or rural) shows no statistical significance. This result is contrary to Lafuente et al., (2007) and in essence means that individuals in rural areas are no less likely to develop positive perceptions of entrepreneurial ability than those residing in urban areas. Thus H7 is not supported.

4.7. Discussion and Implications

The results of this study reveal that both individual-level factors and the entrepreneurial context lead to positive perception of entrepreneurial ability. However, contrary to our expectation all individual-level factors have a positive impact on perceived entrepreneurial ability. However, the positive effect of education is significant only for those with post secondary education. The lack of significance for the secondary education variable can be interpreted this way. Secondary education is compulsory and mostly concerned with theoretical or declarative knowledge it does not provide sufficient information for individuals to access their entrepreneurial abilities. However, once individuals choose their preferred choice of knowledge domain through post-secondary education individuals are more aware of their abilities. However, the positive perception of entrepreneurial ability could be exaggerated (Kruger and Dunning, 1999). A higher level of education does not lead to perceived entrepreneurial ability. This is somewhat surprising considering that individuals with high formal education are expected to have greater cognitive ability to perceive their abilities (Hartog et al., 2011). Similarly, the absence of territorial influence on positive perceptions of entrepreneurial ability is an indication that perceptual indicators of ability are more “individual-centered”.

Regarding the role of other individual level factors, the positive influence of experience on perceived entrepreneurial ability suggests that job experience is useful for developing procedural knowledge that could later be transferred to an entrepreneurial career (Shane, 2000; Klepper, 2002). Similarly, the significant impact of entrepreneurship training and previous entrepreneurship experience indicates the importance of entrepreneurship related training. However, the significantly positive relationship between personal knowledge of other entrepreneurs and perceived entrepreneurial ability must be interpreted cautiously. Personal knowledge of other entrepreneurs could promote the 'herd mentality', in which individuals choose a vocational path considered *in vogue* (Nanda and Sorensen, 2010).

The implication of our results from a policy point of view is that perceived entrepreneurial ability is important for creating a positive environment for entrepreneurship. In-fact, individuals should not be encouraged to take up entrepreneurship unless they develop positive perceptions of their entrepreneurial ability. This is because entrepreneurship is an act of human volition and requires spontaneous drive for problem solving and persistence. A lack of positive attitude about one's ability to solve these problems encountered during the new venture creation process could result in lack of persistence thereby undermining the entrepreneurial initiative. Worse is encouraging segments of the population with high formal education into entrepreneurship if they do not believe that they have the (entrepreneurial) ability to overcome the short-run obstacles of the venturing process. This would lead to under optimization of an individual's human capital and potentially lead to a net loss of human capital in the economy. Therefore, policy should be very cautious when promoting entrepreneurship among highly educated individuals.

Secondly, the positive impact of personal knowledge of other entrepreneurs reveals that the motivational impact of entrepreneurial role models is higher when individuals personally know other entrepreneurs. This suggests that promoting entrepreneurship using entrepreneurial role models is more useful when local instead of global entrepreneurs are projected as case studies of successful entrepreneurship.

For potential entrepreneurs, the results of our study imply that specific task specific abilities provide the base necessary for developing entrepreneurial self-confidence. At the same time it is necessary to seek out entrepreneurial role models so that vicarious experience can be obtained. For those with entrepreneurial intentions who undertake formal entrepreneurship training positive perception of entrepreneurial ability could provide the signal necessary to attract potential resources suppliers reading individual's motivation to pursue and persist with the entrepreneurial career and thus lower entry barriers to new venture creation.

4.8. Limitations and future studies

Although positive perceptions of entrepreneurial ability it could also be a manifestation of overconfidence. Although over-confidence is important in terms of driving action we caution that such attributes may not be beneficial in terms of individual's ability to pursue and sustain in a difficult task like entrepreneurship. This study is limited to identifying the antecedents of perceived entrepreneurial ability without examining whether they are symptoms of overconfidence or self-confidence. Secondly this study do not reveal whether positive perception actually lead to initiation of nascent entrepreneurial activities. Considering that others factors also influence the decision to

initiate nascent entrepreneurial activities it would be interesting to examine whether such factors influence the later directly or indirectly through perceived entrepreneurial ability. Thus, future studies should test whether perceived entrepreneurial ability moderates the other determinants of nascent entrepreneurial activities.

4.9. Conclusion

Perceptions of one's entrepreneurial ability have been found to have a significant influence on individual's decision to pursue nascent entrepreneurial activities. In this paper we examined the role of individual-level factors and the entrepreneurial context in influencing positive perceptions of entrepreneurial ability using a sample of 1961 randomly selected individuals from the working age population of Catalonia region of Spain. Following the cognitive learning theory we used personal factors like education and experience, age and gender to measure the influence of direct or participatory learning in the development of perceived entrepreneurial ability. We also hypothesized that an entrepreneurial context comprising knowledge about other entrepreneurs and territorial location would positively influence perceived entrepreneurial ability. Logistic regression technique was used to analyze the data. The results show that perceived entrepreneurial ability is more likely with experience, when individuals have task specific abilities like entrepreneurship training and previous entrepreneurial experience and when individuals are comparatively young. In addition, females are less likely to develop positive perceptions compared to males. The results of our study show that in the policy measures could be directed to those with positive perceptions of entrepreneurial ability so that perceptions are converted into actions.

Chapter V

High ability and innovative entrepreneurship: The moderating role of perceived entrepreneurial ability.

Abstract:

Purpose: The main objective of this study is to examine whether the choice of innovative entrepreneurship is moderated by perceived entrepreneurial ability among those with high ability. .

Design/methodology/approach: Several studies have identified the importance of perceived entrepreneurial ability in entrepreneurship. In this study we suggest in addition to influencing the decision to pursue entrepreneurship, perceived entrepreneurial ability also moderates the choice of innovative entrepreneurship by those with high ability. In this study we consider self-confidence as a manifestation of perceived entrepreneurial ability and suggest the mechanism through which such self-confidence lead to the choice of innovative entrepreneurship by individuals with high ability. We carry our analysis is carried on a dataset of 247 observations of nascent entrepreneurs collected from Spain in 2012 using the GEM methodology.

Findings: We find support for our hypotheses which indicates that individuals with high ability who develop entrepreneurial confidence are more likely to pursue innovative entrepreneurship.

Originality/value: Our study supports previous theories of entrepreneurial behaviour that focuses on opportunity based origins of entrepreneurship. We further extend this literature by showing that such opportunities are opportunities for innovation. Most importantly, our results reveal that individuals with high ability pursue innovative entrepreneurship when they develop entrepreneurial confidence. This way our study identifies a source of quality entrepreneurship by showing the relationship between objective human capital attribute and a subjective attribute in influencing innovative entrepreneurship.

Keywords: Innovation, self-confidence, entrepreneurial ability.

Paper type: Research paper

5.1. Introduction

An important concern for entrepreneurship researchers and policy makers is the job creation potential of new ventures (Fritsch et al., 2006; Haltiwanger et al., 2013). Recent evidence suggests that the job generation potential of majority of new ventures is rather limited (Henrekson and Johansson, 2010). One explanation for the relatively poor performance of new ventures (in terms of employment) is the fact that too many low-ability individuals choose entrepreneurship, thus leading to high rates of exit and low employment creation rates among new businesses (Evans and Leighton, 1989; Reynolds and Curtin, 2008; Deli, 2011). On the contrary evidence suggests that individuals with high ability tend to pursue growth-oriented entrepreneurship (Barringer et al., 2005; Colombo and Grilli, 2010), those that are more likely to generate jobs in an economy. In addition individuals with high ability are also more likely to become successful entrepreneurs by creating new ventures that outperform similar new ventures started by individuals with low ability (Unger et al., 2011). However, the choice of entrepreneurship by individuals with high ability involves high opportunity cost (Raphael et al., 1995). In addition growth-oriented entrepreneurship requires significant time commitment to organization building. Moreover, it can hardly be expected that the main objective of aspiring entrepreneurs is to create new jobs (Weitzel et al., 2010). The more pressing need for aspiring entrepreneurs is identify opportunities that enable them to survive and successfully compete in the chosen business sector.

Several studies have shown that innovation can improve the odds of new venture survival (Audretsch, 1991; Cefis and Marsili, 2006; Jensen et al., 2008; Rao et al., 2008; Helmers and Rogers, 2010). For aspiring entrepreneurs with high ability it also provides a way for compensating the high opportunity cost of entrepreneurship through higher profitability of innovating new venture (Audretsch, 1995; Colombelli et al., 2013). At

the same time in addition to requiring higher levels of knowledge, innovation is also fraught with significant risks of failure (McGrath, 1999; Farson and Reyes, 2003). What makes individuals with high ability choose such risky and uncertain form of entrepreneurship? In this paper we examine the role of entrepreneurial confidence in moderating the choice of innovative entrepreneurship by individuals with high ability. Several studies have shown that entrepreneurial confidence has a significant influence on entrepreneurship (Townsend et al., 2010; Clercq et al., 2013). However, there is a dearth of studies that have examined the role of entrepreneurial confidence in innovative entrepreneurship especially by individuals differing in their level of acquired abilities (human capital).

In this paper we suggest that the choice of innovative entrepreneurship is dictated by the need to overcome the short-run disadvantages of new ventures. Following previous studies we argue that that innovation allows new ventures to not only enter profitable business sectors but also provides a platform for future growth by overcoming the odds of failure. However, to undertake the risks and uncertainty of innovation individuals need entrepreneurial confidence. Entrepreneurial confidence helps alleviate the risks and uncertainty of innovation borne by aspiring entrepreneurs. Therefore, we argue that individuals with high ability choose innovative entrepreneurship only when they develop the confidence to manage the risks and uncertainty of innovation. We perform our analysis using a self-reported demand based definition of innovation and use nascent entrepreneurs as our unit of analysis. By focussing on the earliest stage of the entrepreneurial process our study provide insight into the mental process of aspiring entrepreneurs in terms of how they view two of most important elements of the action

phase of entrepreneurship: the nature of opportunity in entrepreneurial discovery and perceived ability in opportunity exploitation (Shane and Venkataraman, 2000).

The main contribution of our study is that we show the individual-level origins of innovative entrepreneurship. We provide answer to the following research question: who among the vast number of individuals initiating nascent entrepreneurial activities are more likely to choose innovative over imitative form of entrepreneurship and why. Secondly, we show the importance of considering both an observable (objective) resource (ability or human capital) and a cognitive resource in contributing to the quality of entrepreneurship. Although many studies have examined the former (refer to Unger et al., 2011) as far as we know no study has shown how entrepreneurial confidence influences the form of entrepreneurship in an economy. Thirdly, we provide empirical evidence on the relationship between entrepreneurship and innovation thus complimenting studies that focus on other indicators (like job creation and economic growth) to measure the quality of entrepreneurship.

The rest of the paper is as follows. In section 5.2 we discuss the importance of innovation for new ventures followed by hypotheses as to what makes individuals with high ability pursue innovative entrepreneurship. Section 5.3 discusses the methodology followed by results in section 5.4, implications and contribution in discussed in section 5.5 followed by conclusion in section 5.6.

5.2. Literature review

5.2.1. Innovation and Entrepreneurship

A question closely related to why some individuals decide to become entrepreneurs while others do not (Shane and Venkataraman, 2000) is why some aspiring entrepreneurs choose innovative entrepreneurial projects while others pursue imitative projects (Koellinger, 2008). Unlike imitative entrepreneurship the choice of innovative entrepreneurship is more risky because innovation appends business risk over and above the personal risk of entrepreneurship¹⁰. For instance, consider the creation of a future market for products/services (Shane and Venkataraman, 2000). Since the future cannot be predicted with certainty, innovation carries a market risk, the risk of less than expected product/service demand. Innovation has financial risk in terms of the upfront investments in research and development (R & D) or marketing activities (McGrath, 1999). Innovation also has project specific risks. For instance, innovation often require the development of new routines and capabilities which might be less transferable across projects (Teece, 2010), while non-innovative opportunities require replication of what already exists making it less costly to enter the market. As such innovation carries market-driven risks whose impact may differ from the initially predicted level, costly investments in R&D and marketing whose outcome is known only over time, and project specific risks that could result in sunk investments. On the contrary market risk is limited when product/service is already known to the customers, production process can be replicated or technology is easily available (Koellinger, 2008). This additional risk that comes from innovation is attractive if it allows new firms to enter, survive and

¹⁰ Business risks are those that arise from factors that are uncontrollable from the point of view of the individual while personal risks are controllable.

develop long term competitive advantages in the marketplace. Therefore, the question is what makes innovative entrepreneurship attractive considering the risks involved?

Innovation, the introduction of new product/service introductions (product/service innovation), new processes or raw materials (process innovation), discovery of new market (disruptive innovation), or new form of organization (business model innovation) has several advantages (Schumpeter, 1934; Utterback and Abernathy, 1975; Christiansen, 1997; Markides, 2006). Innovation can facilitate entry into profitable industry sectors. For instance, business model innovation can lower barriers to firm entry size to industry sectors and the cost of doing business for new entrants in existing industries (Markides, 2006). Secondly, innovation enhances new venture survival (Helmers and Rogers, 2010). For instance, through innovations in product/service niches new ventures avoid competitive retaliation from established (mass market) competitors (Aspelund et al., 2005). Furthermore, through innovation new firms can get a foothold in a segment ignored by more established firms thus providing the possibility of becoming the dominant firms in the future (Christiansen, 1997; Markides and Geroski, 2005). Thirdly, innovation can lead to first-mover advantages. By pre-empting competition new ventures can capture the economic rents that accrue to first mover firms (Lieberman and Montgomery, 1988). This in turn could lead to monopoly profit (at least temporary) that raises the future value of successful innovative new ventures (Sorescu and Spanjol, 2008). Last but not the least evidence also shows that innovative firms allows new venture to grow faster than non-innovative firms (Colombeli et al., 2013).

5.2.2. High ability, opportunity cost and innovative entrepreneurship

Individuals acquire abilities by going to school (formal education) and by working under others (job experience). The later is preceded by the former because most jobs require basic knowledge and skills such as those provided by compulsory schooling. According to the human capital theory wage income is related to the level of schooling and job experience of individuals (Becker, 1993). Those with higher level of schooling and job experience can be considered with high ability. At a point in time a positive job status irrespective of the level of schooling is an indication of high ability because such abilities are valued by the labour market. A positive job status in turn results in opportunity cost in terms of the wages that can be earned by staying in that job rather than pursuing entrepreneurship (Raphael et al., 1995). Moreover continued wage employment provides a stable source of income and lowers income risk due to its relative predictability. In addition to opportunity cost, entrepreneurship also involves the cost of personal assets such as founder's investment capital in their new ventures. Therefore for individuals with jobs the choice of entrepreneurship demands an outsized return that covers both the business and personal risk of venturing. Since innovative entrepreneurship can enable entry into profitable industry sectors, ensure survival and also can lead to competitive advantages it is more likely to compensate for the opportunity cost of entrepreneurship viz.-a-viz. imitative entrepreneurship (Cassar, 2006).

However, to undertake the additional risks of innovation individuals need entrepreneurial confidence (Koellinger, 2008). Entrepreneurial confidence arises from the perceived ability to perform the tasks of new venture creation and management

(Arenius and Minniti, 2005; Koellinger et al., 2007). Confidence in one's ability is often an antecedent of human action (Akerloff and Shiller, 2010). Benabou and Tirole, (2002) suggests that confidence in one's ability provides three functional utility to individuals with low will-power. First of all confidence in one's ability provide a consumption utility because by thinking well of their abilities individuals derive the utility of positive self-image. Secondly, by trusting oneself or believing rightly or wrongly that one possess certain abilities it is easier to convince others. Thirdly, confidence in one's abilities helps in undertaking ambitious goals and persists in the face of adversity. Following Benabou and Tirole (2002) we suggest that the three utility values of confidence, i.e. consumption utility, signalling and motivation utility influences the willingness to choose innovative entrepreneurship. Firstly, entrepreneurial confidence could lead to positive affect that in turn influences the ability to respond effectively in dynamic environments such as those encountered in innovative entrepreneurship (Baron, 2008). Secondly, entrepreneurial confidence attracts external stakeholders by signalling the unobservable abilities of founder(s), for instance the motivation and commitment to undertake the risks of innovative entrepreneurship (Connelley et al., 2011). Thirdly, entrepreneurial confidence could encourage individuals to pursue a more risky, time and resource intensive form of entrepreneurship (Benabou and Tirole, 2002). Therefore,

H1: Individuals with high ability who develop entrepreneurial confidence are more likely to pursue innovative entrepreneurship compared to those with low ability or those who lack entrepreneurial confidence.

5.3. Methodology

We use data from the GEM adult population survey (APS) from Spain for the year 2012. This survey designed by the Global Entrepreneurship Research Association (GERA), an international consortium of entrepreneurship researchers involves identifying a random sample of individuals from the working age adult population. The survey respondents are classified according their occupational status at the time of the survey. From the original survey we identify the subset of those who are classified as nascent entrepreneurs. These nascent entrepreneurs are those who have taken concrete steps towards creating a new firm twelve months preceding the survey (Reynolds et al., 2005). Some of these nascent entrepreneurs are working full-time on their nascent ventures and some others are moonlighting while keeping their jobs. We remove the nascent entrepreneurs who are pursuing nascent entrepreneurial activities full-time to reduce response bias for one of our independent variables and divide the rest of the sample into nascent entrepreneurs who are holding on to their jobs and those who do not have a job (i.e. neither employed or pursuing nascent entrepreneurship) at the time of the survey. Our final sample comprises 247 nascent entrepreneurs who have taken some steps towards creating a new venture while still in their jobs and those who are looking for jobs (unemployed).

The dependent variable in this study is innovative entrepreneurship¹¹. It is measured using a self-reported measure similar to Koellinger, (2008). In the survey respondents who were identified as nascent entrepreneurs were asked “do all, many or none of your

¹¹ Innovative entrepreneurship *refers to the nature of entrepreneurial activity and involves innovation*

customers consider the product/service new/unfamiliar”. In the absence of R&D expenses knowledge about customers can be considered an appropriate measure of innovative entrepreneurial opportunities (Shane, 2000). Moreover, the ability to identify unique customer need for products/services is one of the fundamental requirements of a business. In our sample, 48.58% of the respondents report innovative product/services for their target customers.

There are two main explanatory variables in this study. The first explanatory variable high ability takes into account job status of the respondents at the time of the survey. From a human capital perspective such individuals can be considered individuals with high ability because their abilities are valued by the labour market as opposed to those who are looking for jobs (unemployed). In our sample 50.60% of respondents have a job. The second explanatory measures entrepreneurial confidence by asking respondents if they have the knowledge, skills and experience to pursue entrepreneurship following previous studies (Koellinger et al., 2007; Lafuente et al., 2007; Driga et al., 2009; Townsend et al., 2010). In our sample 91.09% of the respondents have entrepreneurial confidence. We control for the age, entrepreneurship training and the completed level of formal education which we categorize as high education and low education.

Considering that our dependent variable is binary we test our hypothesis using a logit regression model in which the dependent variable is expressed as a probability and related to the explanatory variables in the form $Pr = \frac{\exp(\beta_0 + \sum_j \beta_j X_j)}{1 + \exp(\beta_0 + \sum_j \beta_j X_j)}$. The model used to test our hypothesis takes the following form,

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$$\begin{aligned} \text{Activity}_i = & \beta_0 + \beta_1 \text{Control variables}_i + \beta_2 \text{High ability}_i \\ & + \beta_3 \text{Entrepreneurial confidence}_i \\ & + \beta_{23} \text{High ability}_i \times \text{Entrepreneurial confidence}_i + \varepsilon_i \end{aligned} \quad (1)$$

In equation (1) ε_i is the logistic distributed error term for the *ith* cases. Control variables correspond to the respondent's age, entrepreneurship training and formal education. In terms of our hypotheses, we expect that (H1: $\beta_{23} > 0$), i.e., individuals with high ability (positive job status) who have entrepreneurial confidence are more to pursue innovative entrepreneurship.

Finally, we calculate the proportion of correctly classified (predicted) observations as an additional measure of goodness of fit. This is done for the full sample as well as for those individuals that are nascent entrepreneurs and those that are not.

5.4. Results

To test our hypothesis we use two models, first by introducing all explanatory variables and the control variable additively as shown in Table 5.1 while the results of the model containing the interaction term along with all the explanatory and control variables are shown in Table 5.2. Figure 5.1 to figure 5.2 is used to interpret the significance of the interaction term in model 2 (Table 5.2).

The values of the control variables show that on the one hand age have a negative impact on innovative entrepreneurship i.e. the partial regression co-efficient of age is negative at $p < 0.05$, on the other hand entrepreneurship training and education has significantly positive effect at $p < 0.10$ and $p < 0.01$ respectively, and the corresponding marginal effect are 12.57 and 20.69 percentage points respectively. Therefore, among the three control variables, the effect of education is most significant and its impact on innovative entrepreneurship is also the highest. However, as shown in table 1 high ability and entrepreneurial confidence has no effect on innovative entrepreneurship.

If we examine the variables in Table 5.2, we find that the effect of the control variables sustains. However, because of the inclusion of the binary interaction term the regression coefficient in column I of Table 5.2 cannot be used to determine the significance of the interaction term. The correct way to determine the magnitude and significance of the interaction term in a model with interaction term is to estimate of the marginal effect of each observation (247) in the sample¹² (Ai and Norton, 2003). The mean value of this marginal effect (dy/dx) is shown in column III of table 5.2. This dy/dx is the mean of the interaction effect of all observations in the sample estimated by keeping the values of all other explanatory variables constant at their mean. The estimates (dy/dx) of the interaction term for each observation and their corresponding Z-values are depicted graphically in Figure 5.1 and Figure 5.2. From Figure 5.1 it is seen that the interaction effect for all observations in the sample is positive and its value varies from 0.3042 to 0.4182 and the corresponding z-value varies between 1.44 to 2.022 with majority of observation (88.25%) have z-value significant at $p < 0.05$. If we compare the model in

¹² The partial regression coefficient and the standard error of the interaction term of high human capital with perceived entrepreneurial ability shown in table 2 is an incorrect estimate because it does not take into account the effect of second differentiation of the interaction term.

Table 5.1 without the interaction terms and the one in Table 5.2 we find that the addition of the interaction term makes the joint effect of high ability and entrepreneurial confidence significantly positive. This suggests that entrepreneurial confidence moderates the choice of innovative entrepreneurship by those with high ability. Considering that high ability has no direct effect on innovative entrepreneurship while its interaction effect is significant and positive, our study indicates that those whose human capital is still valued in the job market are more likely pursue a more ambitious form of entrepreneurship. We suggested that they do this to obtain higher returns from employment choice decision because of the need to balance their high opportunity cost in entrepreneurship vis.-a-viz. wage employment. One alternative explanation could be that the lack of support for innovative initiatives within corporations makes individuals leave their jobs to pursue entrepreneurship through their own new ventures (Acs et al., 2009).

Table 5.1. Logistic regression on Innovative entrepreneurship (Direct effect only)

	Co-efficient (Robust S.E)	Z	Dy/dx++	z-value
Age (in years)	-0.0281**(0.0130)	-2.16	-0.0070**	-2.16
Eship training	0.5063*(0.2660)	1.90	0.1257*	1.92
Education (1 for high)	0.8400***(0.2848)	2.95	0.2069***	3.04
High human capital	-0.2996 (0.2811)	-1.07	-0.0747	-1.07
Entrepreneurial confidence (EA)	0.1564(0(0.4563)	0.34	0.0389	0.34
<i>Constant</i>	0.4196(0.6865)	0.61		
<i>Model chi-square(d.f)</i>	17.64(5)			
<i>Log Likelihood</i>	-161.365			
<i>Pseudo R²</i>	0.0569			
<i>N</i>	247			

* , ** , *** Significant at 10%, 5%, 1% respectively; ++ dy/dx is the the marginal effect of each variable. It represents the change in the probability of the dependent variables due to one unit change in independent variable. For dummy variables dy/dx represents the discrete change from zero to one with other independent variables held constant at their means.

Table 5.2 Logistic regression on Innovative entrepreneurship (Full model)

	Co-efficient(Robust S.E)	Z	dy/dx++	z-value
	Column I	Column II	Column III	Column IV
Age (in years)	-0.0277**(0.0131)	-2.16	-0.0070**	-2.16
Eship training ⁺	0.4589*(0.2680)	1.90	0.1257***	1.92
Education (1 for high formal education) ⁺	0.8513***(0.2842)	2.95	0.2069*	3.04
High human capital ⁺	-1.9832(1.0188)	-1.07	-0.07471	-1.07
Entrepreneurial confidence (EA) ⁺	-1.0117(0.8732)	0.34	0.0389	0.34
High human capital X EA ⁺	1.8202(1.0550)	1.87	0.3930**	1.87+++
<i>Constant</i>	1.5262(0.9523)			
<i>Model chi-square(d.f)</i>	21.19(6)			
<i>Log Likelihood</i>	-159.779			
<i>Pseudo R²</i>	0.0662			
<i>N</i>	247			

(*, **, ***) Significant at 1%, 5% and 10% respectively

++ dy/dx is the the marginal effect of each variable. It represents the change in the probability of the dependent variable due to a unit change in independent variable. For dummy variables dy/dx represents the discrete change from zero to one with other independent variables held constant at their means. The marginal effect of the interaction term is the mean value of the marginal effect (AME) of each observation with all other variables in the regression model held constant at their means.

+++ Mean value of then z-statistic.

Figure 5. 1 Marginal effect of interaction term for each observation.

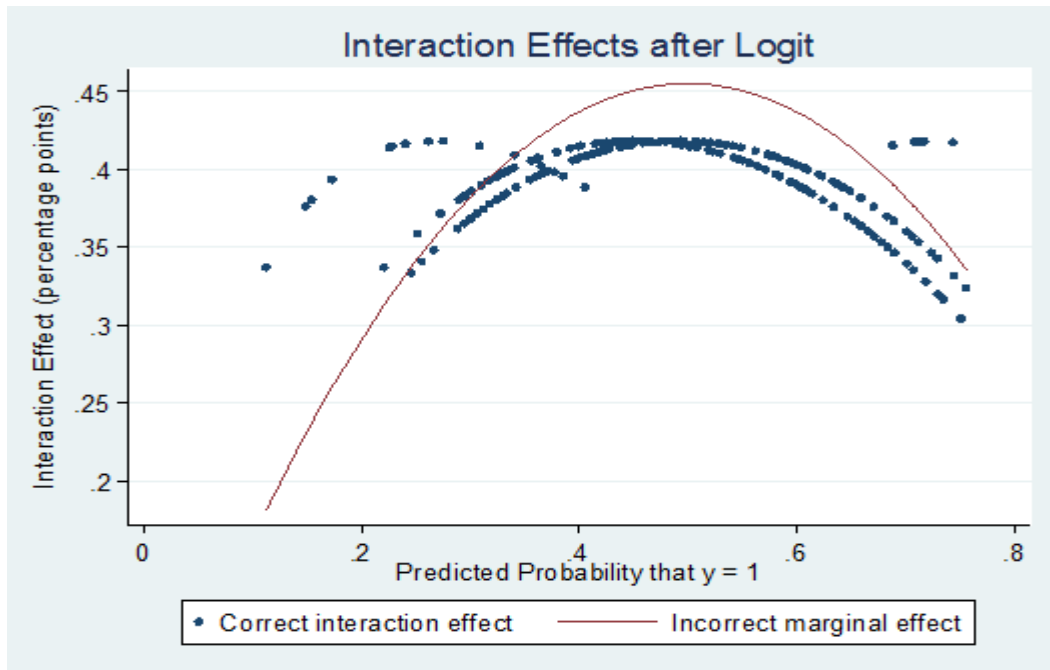
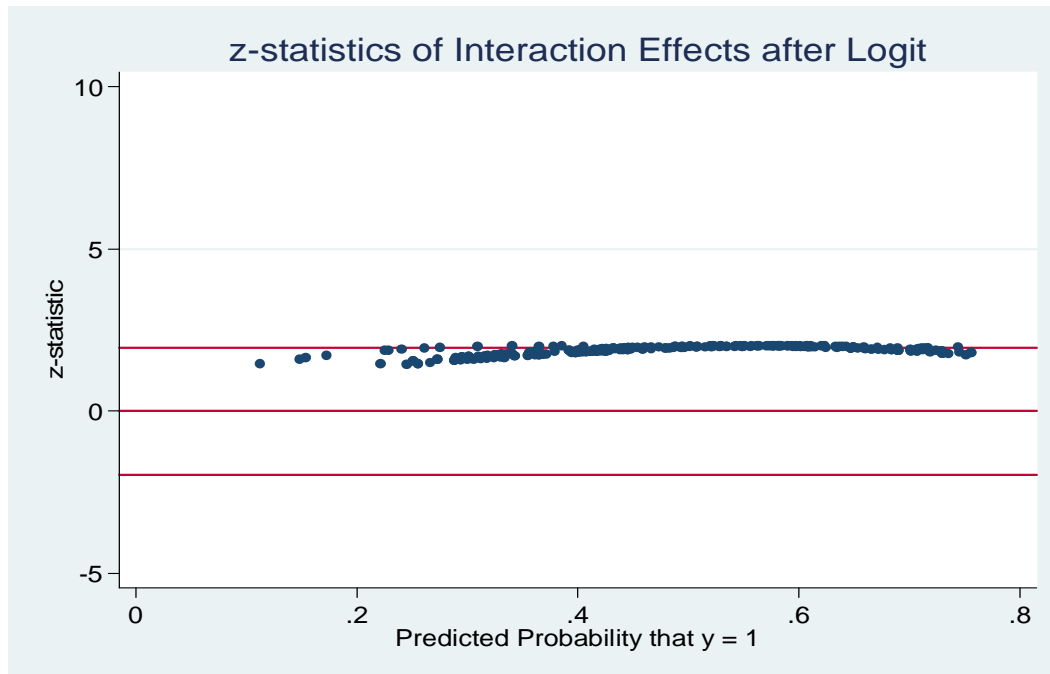


Figure 5.2 Z-value of the interaction term (marginal effect) for each observation.



Our finding is consistent with the previous evidence that most individuals leave their jobs to pursue entrepreneurship when they discover or identify opportunities (Bhide, 2000; Klepper, 2002). Our results lends supports the opportunity-based origin of entrepreneurship (Short et al., 2010) by providing evidence that opportunities are opportunities for innovation in the form of products/services which are perceived to be new to a given market. Assuming that such opportunities for innovations are based on private information, what provides the thrust to the new entry decision is the trust reposed on such information by the aspiring entrepreneurs as well as the confidence that they have the ability to execute the task of new venture creation and management. Thus entrepreneurial confidence among individuals with high ability leads to entrepreneurial action in a form that could be a source of quality entrepreneurship in an economy. Innovation is a source of quality entrepreneurship because helps in filling market gaps,

and as our results show individuals with high ability are more likely to be involved in such gap filling activities.

5.5. Implications and Contribution

The evidence that high ability leads to innovative entrepreneurship is encouraging. The implications of our finding on policy making is that it might not be necessary to direct support measures to individuals whose choice of entrepreneurship take advantage of his or her own productive ability. For such individuals the resource market has the ability to screen good entrepreneurs from the bad ones using observable characteristics like professional credentials. When such credentials are complimented by entrepreneurial confidence individuals pursue a form of entrepreneurship which although driven by private goals have the potential to improve the standard of living by making available products and services which have a demand in the market in which the business operate.

As regards the contribution of this study our study provides evidence of the important role of subjective judgement in entrepreneurship as noted by several authors. While some subjective judgements are well discussed in entrepreneurship literature, for instance opportunity perception (Sarasvathy et al., 2003) and risk assessment (Simon et al., 2000), the role of ability judgment is often ignored. Similarly, although studies based on Lazear's (2005) jack-of-all trade theory refer to the importance of diverse abilities in entrepreneurship, however they ignore the subjective ability judgment necessary for undertaking risky form of entrepreneurship (Lechmann and Schnabel,

2013). This study combines both objective ability and subjective ability to provide new insights into the role of observed and unobserved abilities in influencing quality entrepreneurship.

The second major contribution is the evidence on two of the most mentioned outcomes of entrepreneurship discussed in policy circles and academic research. By providing evidence on the nature of entrepreneurship pursued by individuals with high ability we contribute to the empirical literature on the sources of quality entrepreneurship i.e. who among the aspiring entrepreneurs are more likely to pursue innovative entrepreneurship.

Considering that our study is focussed on nascent entrepreneurs many of which may not be converted to operating new venture, future studies can examine the role of abilities (human capital) and innovativeness of nascent entrepreneurship in the emergence of new venture i.e. do such innovative initiatives end up in operating new ventures.

5.6. Conclusion

In this paper we examined the moderating role of entrepreneurial confidence is influencing the choice of innovative entrepreneurship by individuals with high ability using a dataset of 247 nascent entrepreneurs collected from Spain in 2012. Our results show that entrepreneurial confidence moderates the choice of innovative entrepreneurship by individuals with high ability. Our results reveal that individuals

with high ability are more likely to pursue innovative entrepreneurship when they develop entrepreneurial confidence. Thus the result of our study identifies potential sources of high impact (quality) entrepreneurship in an economy.

Chapter VI

Entrepreneurs as confident individuals who act upon their own judgment in the face of uncertainty (Knight, 1921)

6.1 Summary: The above quote from Knight (1921) emphasizes entrepreneurial judgment and confidence. Several studies suggest that such judgment is related to different aspects of the entrepreneurial process. This dissertation focuses on entrepreneurial ability judgment, and suggest that positive judgment of one's entrepreneurial ability could be a manifestation of entrepreneurial confidence. Such ability judgment could translate intent into entrepreneurial action. We further examined how such judgment of entrepreneurial ability compare with actual ability. A comparison between perceived entrepreneurial ability, a subjective judgment and actual or objective ability is necessary because of the inherent inaccuracy of subjective judgments. On the one hand inaccurate judgments without actual ability could result in wasted effort or entrepreneurial failure, on the other hand if ability judgment is supported by actual ability individuals might be able to create better performing new ventures. Comparing subjective ability judgment with actual ability enables the assessment of the importance of ability related factors in business entry decisions as well as their influence on the nature of nascent entrepreneurial activities pursued by aspiring entrepreneurs. The former could help in understanding why some economies have a high rate of entrepreneurship without having the corresponding impact on economic growth while the later enables the identification of the possible sources of quality entrepreneurship.

Therefore, keeping in view the importance of subjective ability judgments in motivating behavior that could lead to quantity entrepreneurship and actual ability in new venture

performance/success that in turn could lead to quality entrepreneurship this dissertation uses a large dataset collected using a random sample of working age adult population to examine the direct as well as the interaction effect of perceived entrepreneurial ability and actual ability on the decision to initiate entrepreneurial activities, the determinants of perceived entrepreneurial ability and the consequences of perceived entrepreneurial ability and high actual ability in influencing the nature of the entrepreneurial activities initiated. This dissertation examines the first research objective by using a single empirical setting (chapter II: Spain) and then using a larger dataset with observations from 42 different economies to test whether the ability dimensions identified in this study have a systemic effect across economies (Chapter III). The antecedents of perceived entrepreneurial ability is examined with a random sample generated from the working age population in the Catalonia region of Spain (Chapter IV) while consequences of having both perceived entrepreneurial ability and high actual ability on the nature of entrepreneurial activities in an economy is examined with similar sample collected from Spain (Chapter V). In testing the hypotheses, perceived entrepreneurial ability is measured through a single item self-reported item. Although there are constraints of single item as well as self-reported measures there are advantages as well. For instance, single measures are easy to measure especially in random survey of a large sample, reduces respondent's refusal especially when the construct is basic such as perception of one's entrepreneurial ability (Bergkvist and Rossiter, 2009). Moreover, as suggested by Verheul et al., (2012) maintaining consistency of constructs allows room to compare results with other studies using similar single item measures. As regards the self-report nature there could be a problem of response bias. In this dissertation where appropriate we minimize the response bias by excluding existing entrepreneurs, portfolio entrepreneurs and nascent entrepreneurs (who are working full time in creating

a new venture) from the dataset. Actual ability is measured using different proxy (objective) specifications of individual's general education and training.

By comparing perceived entrepreneurial ability with actual ability the contribution of this dissertation is to provide insights into the causes of quantity entrepreneurship and also the ability-related factors that influence the quality of entrepreneurship in an economy. Understanding the relative role of subjective ability judgment in entrepreneurial behavior is necessary because in the absence of a labor market for entrepreneurs individuals often do not undergo systematic training related to new venture creation and management. As a consequence, the objective indicators of ability used in extant research do not reveal the cognitive state that could precede entrepreneurial action. This cognitive state evident through perceived entrepreneurial ability could be one of the primary catalyst in inducing action . By explicitly recognizing the role of subjective ability judgment in the form of perceived entrepreneurial ability, irrespective of the level and nature of education and training it is possible to take into account the un-observable ability related factors that influence the decision to choose entrepreneurship. However, because individual's are prone to inaccuracy in ability judgments related to specific tasks it is necessary to take into account their actual ability. While the former leads to quantity entrepreneurship examining the later provides insights into the type of individuals who are being induced into entrepreneurship.

2) Secondly, by identifying the determinants of perceived entrepreneurial ability the results of this study gives insights into factors that could lead to spontaneous entrepreneurship. After-all entrepreneurship is an intense activity and requires

autonomous effort on the part of individuals to solve and overcome the different challenges of business ownership.

3) Thirdly, by understanding the moderating role of perceived entrepreneurial ability among those with high actual ability it is possible to identify sources of quality entrepreneurship. This assumes that productivity enhancing ability (human capital) resources of individuals, especially those with high actual ability (high human capital) have a similar effect in entrepreneurship i.e. high human capital can be leveraged to take advantage of one's abilities in pursuing the form of entrepreneurship that not only enhances personal goals but can also lead to positive social-equity. For instance, by pursuing risky but innovative forms of entrepreneurship individuals with high actual ability can not only earn positive economic surplus but such surpluses can raise the standard of living through new products and services introduced by these entrepreneurs.

The main results of this dissertation suggest that perceived entrepreneurial ability has a distinct influence on the decision to initiate nascent entrepreneurial activity. This influence is positive and its impact is greater than actual ability. This result highlights the importance of subjective ability judgment over objective abilities especially in the entrepreneurial entry decision. Although, in this dissertation high actual ability is construed as general ability (unlike the former) the results explains one of inconsistent findings with regard to the role of abilities (human capital) in entrepreneurial entry. For instance, several studies have pointed to the positive and significant influence of ability (human capital) related factors on new venture performance. However, often the influence of the same variables is non-significant as far as the new entry is concerned.

One possible explanation for this inconsistency is that the abilities that influence new venture performance could be different from the abilities that influence the entry decision. Considering that almost all studies focus on visible or objective abilities it is possible that subjective judgments of one's abilities rather than objective abilities are central to the decision to initiate nascent entrepreneurial activities. The results of this study suggest that by incorporating subjective judgment of one's entrepreneurial ability it is possible to examine the distinctiveness of ability related origins of entrepreneurial behavior.

The second important result of this dissertation (Chapter – III), unlike perceived entrepreneurial ability high actual ability is not a significant factor in the decision to initiate entrepreneurial activities in developing economies. The same cannot be said of the more developed economies. This result is similar to other studies that used objective (single or multiple) indicators of ability to examine the entry decision. However, the joint impact of perceived entrepreneurial ability and high actual ability is higher in develop economies (innovation-driven economies) compared to economies at lower stages of economic development (factor-driven and efficiency driven economies). One important implications of this result is that although ability judgments are important they might still not influence entrepreneurship in contexts where institutional framework conditions are weaker such as those that exists in factor driven and efficiency driven economies.

The third important finding is related to the antecedents of perceived entrepreneurial ability (Chapter- IV). Although intuitively it can be presumed that higher levels of education could lead to greater perceptual prowess, surprisingly the results suggests that

higher level of education has limited influence on perceived entrepreneurial ability. On the contrary, positive perception of entrepreneurial ability is more likely in the presence of tasks specific training and an environmental context where information about entrepreneurship is more readily available, for instance knowledge of other entrepreneurs. These results highlight the importance of not only task specific abilities but local role models (other entrepreneurs) in the development of positive perceptions of one's entrepreneurial ability.

The fourth important finding is that perceived entrepreneurial ability moderate the choice of innovative entrepreneurship by individuals with high ability (Chapter- V). This evidence suggests that out of all those who initiate nascent entrepreneurial activities in a region there is a subgroup of individuals who are more likely to pursue innovative forms of entrepreneurship. These individuals are those whose abilities are valued by the labor market (individuals with positive job status). Since such individuals are more productive than those with low actual ability, the evidence that productive individuals are more likely to be attracted to innovative entrepreneurship if they favorably perceive their entrepreneurial ability provides clues to policy measures that encourage entrepreneurship across a broader spectrum of individuals without being restricted to specific sectors or technology.

Overall- all, the results suggest that quantity of entrepreneurship in an economy can be increased if there is a way to enhance the entrepreneurial confidence of individuals. Policy making in such circumstances would require improving the entrepreneurial ecosystem, for instance the macro-economic environment that makes it easier to create and manage new ventures, without necessarily providing the targeted policy measures

currently in vogue. Intervention at the individual-level could be in terms of general policy making, one that is in consonance with policy instruments that focuses on improving the overall public infrastructure like education and industrial infrastructure as well as improving business specific rules and regulations.

6.2. Conclusion: The role demand perspective of entrepreneurial behavior.

New venture creation is an intense activity in which individuals have to carry out a number of tasks of diverse nature, akin to being Jack-of-all-trades (JAT) (Lazear, 2005; Lechmann and Schnabel, 2013). These abilities which can be called entrepreneurial involve pursuing a variety of courses during schooling or through multiple jobs as suggested by the JAT theory. From an economic perspective investment in schooling and training requires monetary and time investments in education and training. Such investments require a pay-off (future return). For an individual with higher levels of schooling and training pursuing entrepreneurship in the presence of labor market that compensates for their human capital investments is the less optimal choice. Moreover, in the absence of a labor market for entrepreneurs individuals are less likely to invest in acquiring abilities necessary for becoming entrepreneurs in the first place. Therefore, although entrepreneurship is a planned behavior in which individuals develop intentions towards the behavior (Kruger and Carsrud, 1993), the actual decision could be a consequence of entrepreneurial confidence triggered by positive perceptions of one's entrepreneurial ability.

Such a trigger is based on two assumptions. First, individuals can discriminate between different abilities. More importantly the technical abilities gained from schooling and

training and entrepreneurial abilities. Ability discrimination requires awareness about roles. Roles are an important input in the learning process because it provides information about role demands. Role demands are the activities that are required to perform a given role. For instance- the role of an actor requires distinct abilities such as the ability to express different emotions and dialogue delivery. The role of a worker demands specific tasks and responsibilities. Similarly, the role of the entrepreneur demands identification of a market for products/services, interaction with resources suppliers and organization of business activities and more. In environments where information about entrepreneurship is more readily available and accessible individuals develop awareness of the role demands of entrepreneurship. By being aware of the role demands of entrepreneurship, individuals discriminate between the role demands of entrepreneurship and wage employment. A positive perception of one's abilities for entrepreneurship provides the confidence to initiate nascent entrepreneurial activities.

The second assumption is related to individual's utility maximization goals from the chosen career. This involves aligning one's abilities to the business sector(s) in which an individual's wants to pursue an entrepreneurial career. This would mean pursuing entrepreneurial activities in sector(s) in which one has prior knowledge, skills and experience, thereby transferring accumulated learning and hence productivity from wage employment to entrepreneurship. For a medical doctor this would mean starting a new venture in the health sector rather than being a retailer of garments or restaurateur for example. The former is more easily transferable than the later. In addition it has the signaling benefits of task familiarity (to others) when individuals lack prior entrepreneurial experience.

Therefore, even though entrepreneurship is a planned behavior, such plans are not well-laid out because of the inherent need to acquire education and training as a matter of compulsion rather than choice. Moreover, the choice of entrepreneurship is exacerbated by the task difficulty of entrepreneurship. Hence, the decision to initiate entrepreneurial action requires self-confidence to execute the role demands of entrepreneurship. Those who perceive that they can perform the role of an entrepreneur develop the confidence to initiate nascent entrepreneurial activities and those who leverage their abilities learned through schooling and training can become successful entrepreneurs.

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