

Initiating nascent entrepreneurial activities: The Relative Role of Perceived and Actual Entrepreneurial Ability

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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. By distinguishing perceived ability from actual ability and using theoretical underpinnings from the human capital theory and self-efficacy, the proposed hypotheses are tested on a dataset comprising respondents from the adult population.

Methodology: Using 20046 observations 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 direct as well as the moderating effect 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 perceived entrepreneurial ability is key to encouraging nascent entrepreneurial initiatives among those with high ability.

Originality and Value: The main contribution of our study is to highlight the role of subjective judgments of ability in influencing entrepreneurial behaviour. Whereas prior research has found that high actual ability influences new venture performance, its influence on entrepreneurial entry was inconclusive. By adding perceived entrepreneurship to our model we not only establish a link between objective (observable) abilities and subjective (unobservable) abilities of individuals but also suggest the mechanism how such abilities drive the business entry decisions of individuals.

Keywords: Nascent Entrepreneurs, Ability, Start-ups, Perception, Self-efficacy

Paper type: Research paper

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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, 2014). While opportunity identification and evaluation requires the cognitive ability to process asymmetric, unreliable and uncertain information (Busenitz and Barney, 1997; Eckhardt and Shane, 2003), new venture creation also requires the practical intelligence to execute the diverse tasks related to new business creation (Baum *et al.*, 2011; Lazear, 2004; Sternberg, 2004). Recent studies suggest that cognition in the form of how individuals perceive their entrepreneurial ability also play a role in the later. For instance, those who develop positive perceptions about their entrepreneurial ability are more likely to initiate nascent entrepreneurial activities than others (Arenius and Minniti, 2005; DeClercq *et al.*, 2011; Koellinger *et al.*, 2007; Lafuente *et al.*, 2007; Townsend *et al.*, 2010).

However, judgments based on perceptions are often inaccurate (Kruger and Dunning, 1999; Moore and Small, 2007). Inaccurate perceptions have opposite effect on the decision to initiate nascent entrepreneurial activities especially among individuals with differences in abilities. For instance, while favourable perceptions of entrepreneurial ability lead to business entry by individuals with low ability (DeClercq *et al.*, 2013; Hayward *et al.*, 2006), individuals with high ability refrain from entrepreneurship because of unfavourable perceptions of their entrepreneurial ability (Hartog *et al.*, 2010; Kruger and Dunning, 1999). This poses an interesting question: could favourable

perception of entrepreneurial ability among those with high ability influence the decision to initiate nascent entrepreneurial activities?

Previous studies on nascent entrepreneurship that has examined the role of individual's ability focuses mainly on actual ability¹. Similarly, studies that emphasize the importance of perceptual factors in entrepreneurial behavior focuses mostly on perceived ability with respect to other forms of perceptions or socio-economic variables. For example, Arenius and Minniti (2005) focused on the relative influence of several perceptual factors with socio-economic factors. Townsend *et al.*, (2010) compared perceived entrepreneurial ability with perceived ability to be a successful entrepreneur. Other studies have focused on differences in perceived entrepreneurial ability between gender (Driga *et al.*, 2010), and/or among entrepreneurs at different stages of the entrepreneurial process (Koellinger *et al.*, 2007). As far as we can understand no studies have focused on both dimensions of ability, actual as well as perceived. This study fills the above gap by examining the relative influence of both dimensions of ability. Understanding such influence is important because those with positive perception of entrepreneurial ability may lack the actual ability and vice-versa. The former could result in failed entrepreneurial initiatives while the later may result in lower participation in entrepreneurship by talented individuals. This lower participation in turn might lead to lower quality of entrepreneurial activities in an economy. This is because talented individuals, those with high actual ability tend to pursue growth oriented and innovative entrepreneurship compared to those with low actual ability (Barringer *et al.*, 2005; Marvel and Lumpkin, 2007) and without a favourable perception of

¹ Actual Ability is the knowledge, skills and experiences of individuals. Most studies in entrepreneurship use proxy indicators, like for instance the level or years of education and/or training (work experience) (Refer to meta-analysis by Unger *et al.*, 2011). Measured this way abilities are objective as opposed to *perceived* abilities which is the individual's subjective judgment about his or her knowledge, skills and experiences irrespective of when, where and how much of it is acquired.

entrepreneurial ability individuals with high actual ability may not be motivated to choose and pursue entrepreneurship. Since, quality entrepreneurship, the kind that produces the desired socio-economic impact is dependent on individuals with high actual ability choosing entrepreneurship and succeeding in it, there is a need to understand what makes such individuals choose entrepreneurship over wage employment. Therefore in this study using a random sample of individuals from population level data we also examine the moderating role of perceived entrepreneurial ability on the decision to initiate nascent entrepreneurial activity among individuals differing in actual abilities.

Using a conceptual framework drawn from the theory of human capital (Becker, 1993), and self-efficacy (Bandura, 1977) we suggest that the decision to initiate nascent entrepreneurial activities is the result of entrepreneurial confidence that arises from positive perceptions of one's ability to execute the role demands of entrepreneurship. We further argue 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 as follows: First we show (at a macro-level) that similar to many economic behaviour like investor confidence that drive financial investments or consumer confidence that drive consumption behaviour, entrepreneurial behaviour is influenced by individual's entrepreneurial confidence. Secondly, although previous studies have emphasized the importance of entrepreneurship specific ability on business entry decisions, our study shows that irrespective of the level of such task specific abilities general abilities can explain entrepreneurial entry among those with perceived entrepreneurial ability. This provides policy makers a wider pool of individuals to whom policy support can be directed, without being restricted to those with previous

(entrepreneurial) business experiences. Thirdly, several authors have argued about the importance of cognition or how individuals think in entrepreneurial decision making (Gregoire *et al.*, 2011). Our study provides empirical evidence on one such cognitive factor thus complementing other studies that focuses on other attributes of entrepreneurial thinking.

The document is organised as follows. In the following section we use the human capital theory as the conceptual foundation to explain the role of actual abilities in the employment choice decisions of individuals followed by explanations about how perceptions of entrepreneurial ability lead to business entry decisions. The methodology used is explained in section 3 and results are presented in section 4. Section 5 discusses the research and policy implications of the study's results while section 6 provides the conclusion.

2. Abilities and entrepreneurship

Abilities are significantly related to an individual's economic well-being. According to the human capital theory 1) Similar to physical assets an individual's ability is a form of capital that provides long terms economic benefits, 2) Abilities can be acquired through education and training (Becker, 1993; Mincer, 1958; Schultz, 1961). In the human capital view abilities enhances the productivity of an individual (Becker, 1993). Furthermore, higher level of education and training implies higher productivity and higher productivity in turn lead to higher wages. Therefore, the human capital theory prescribes that those who want to improve their future economic well-being should invest in education and training. However, the theory assumes that individuals who invest in a specific type of education and/or training do so because there is a market for the abilities (Blaug, 1976). One implication of this assumption is that in the absence of a

readily available market, for instance a market for entrepreneurs, individuals would not invest in acquiring entrepreneurship-specific abilities thereby lacking the abilities necessary to effectively pursue entrepreneurship. This would discourage the choice of entrepreneurship by individuals with high actual ability who are more likely than others to be equipped with non entrepreneurship related specialized abilities.

Nonetheless, entrepreneurship is a planned rather than instinctive behaviour (Krueger and Carsrud, 1993) and it is argued that as a planned behaviour² individuals develop (entrepreneurial) intent before initiating actions to create a new venture (Bird, 1988). As such intention based models of entrepreneurial behaviour have focused on the antecedents of such intent (Fayolle and Linan, 2014). A prominent model of entrepreneurial intention, the Shapero-Krueger model attribute perceptions to entrepreneurial intent (Krueger *et al.*, 2000). According to this model entrepreneurial intention is co-determinant on two perceptual factors, perceived desirability and perceived feasibility along with individual's propensity to act. The Shapero-Krueger Model defines perceived desirability as the personal and social attractiveness associated with starting a business, perceived feasibility as the degree to which an individual believes that she or he is personally capable of starting a business and propensity to act is the decision to act on one's own decision. The later is a judgement and judgemental decision making is a defining characteristic of entrepreneurs (Casson, 2010; Foss *et al.*, 2007; Hogarth and Kareila, 2012; Knight, 1921). Overall, among these three factors Kruger *et al.*, (2000) shows that perceived desirability do not have strong effect on entrepreneurial intent while perceived feasibility is similar to Bandura's (1977) self-

² The theory of planned behavior (TPB) developed by Ajzen (1991) has been frequently used to explain entrepreneurial behavior. TPB is an extension of theory of reasoned action (TRA) in which the construct of perceived behavior control (PBC) is incorporated to account for behavior in rare and difficult tasks that are not under the volitional control of individual (Armitage and Conner, 2001).

efficacy. Defined as people's beliefs³ about their ability to produce the desired behavioural outcome, self-efficacy influences not only the initiation of behaviour but also persistence in the same. Moreover, unlike entrepreneurial intention models but similar to human capital theory, self-efficacy emphasizes the *experiences* of individuals. This experience takes the form of mastery and vicarious experiences of individuals (Bandura, 1977). Mastery experiences are related to past successes in accomplishing tasks while vicarious experience involve behaviour modelling i.e. comparing oneself with others similar to oneself who have succeeded in a given task. The success in case of the former is based on an individual's actual ability, those that involve education and training, while the later is a perception that tasks can be accomplished successfully based on other's experience. In other words, both actual involvement (direct) and perceptions (in-direct) influences behaviour through self-efficacy. Therefore, although human capital theory restricts itself to actual ability as a determinant of behaviour, self-efficacy emphasizes both actual and perceived ability. In a context where individual's high actual ability acts as a barrier to the choice of entrepreneurship, self-efficacy could act as a catalyst in motivating behaviour especially when individuals have the propensity to act on their own judgement. In the next section we discuss how perceived entrepreneurial ability, a component of the self-efficacy influences the decision to initiate nascent entrepreneurial activities.

2.1. Perceived entrepreneurial ability and nascent entrepreneurial activities

According to Bandura, (1977) self-efficacy influences behaviour through the development of self-confidence. Empirical evidence in this regard reveals that successful entrepreneurs have high degree of entrepreneurial self-efficacy (Chen *et al.*,

³ Literally perception is the act of apprehending through the senses while belief is the trust that individuals have on what is perceived. In the literature self-efficacy is often referred as perceived self-efficacy and is defined with reference to beliefs.

1998; Drnovsek *et al.*, 2010). However, 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 i.e. success in creating and managing a new venture (McGee *et al.*, 2009; Townsend *et al.*, 2010). The latter is considered important because individuals seek utility or valence from partaking in a given behaviour (Vroom, 1964). Recently, Townsend *et al.* (2010) found that among those who initiate nascent entrepreneurial activities the perception of successful outcome (i.e. will there be a successful new venture?) is significantly much stronger than the perception of entrepreneurial ability. This is an indication that nascent entrepreneurs could disassociate goal outcome from the goal effort. Sarasvathy (2001) found similar decision making style among successful entrepreneurs. This decision making logic termed as effectual reasoning focuses on the goal effort rather than the goal outcome. We suggest that when individuals think about entrepreneurship they use effectual reasoning by thinking in terms of “roles” or what he or she can do to execute the role demands of entrepreneurship. Obviously, transition to entrepreneurship requires one to don the role of a founder irrespective of previous occupational role (Hoang and Gimeno, 2010). A focus on founder’s role could bring awareness about the role demand associated with the entrepreneurial task (Burke and Reitzes, 1981). Such awareness in turn could lead to perceptions about one’s fit in that role. Founder role perceptions may not require mastery or direct experience in that role (Walker, 2011). For instance, individuals learn vicariously by being exposed to co-workers with prior self-employment experience (Nanda and Sorensen, 2010). Similarly, individuals working in smaller enterprises are exposed to doing a more diverse range of activities that enhances their multi-tasking abilities and hence more in tune with the needs of the entrepreneurial task (Wagner, 2004; Elfenbien *et al.*, 2010). Therefore, irrespective of how they are

developed, perceiving one's ability to fulfil the role demands of entrepreneurship could lead individuals to focus on the goal effort rather than the goal outcome. We argue that those who perceive this fit positively develop the confidence necessary to initiate entrepreneurial activities. 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 in general entrepreneurs tend to be overconfident (Forbes, 2005; Koellinger *et al.*, 2007) and/or optimistic actors (Cooper *et al.*, 1988; Cassar, 2010). Such overconfidence and optimism could inflate one's entrepreneurial ability than it actually is. However, considering that most studies on overconfidence and optimism are based on existing entrepreneurs the question is: are such perceptions an outcome of the entrepreneurial process (Baron, 1998) or do such perceptions occur *a priori* i.e. before the entry decision is made? Evidence in this regard suggests that among entrepreneurs at different stages of entrepreneurship, nascent entrepreneurs tend to exhibit higher level of confidence in their entrepreneurial abilities than entrepreneurs who are at a more advanced stage. Koellinger *et al.*, (2007) showed that confidence in one's entrepreneurial abilities decline with entrepreneurial experience suggesting that entrepreneurial confidence could be at their highest before the entry decision is made. Considering that one's prior education and training may not be related to entrepreneurship, and the general tendency to perceive one's abilities favourably, taken together 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.

2.2. The interaction effect of perceived entrepreneurial ability and high actual ability

Although most individuals tend to perceive their abilities favourably, evidence also shows that individuals with high actual ability have a tendency to underestimate their actual abilities (Kruger and Dunning, 1999; Moore, 2007). In other words individuals with high actual ability are more likely to under-confident than over-confident about their entrepreneurial abilities. However, entrepreneurial confidence could be raised. For instance, self-confidence among those with high actual ability is enhanced through recognition of intrinsic value of one's higher level of productivity. Secondly, a wider professional network of peers developed through professional associations can lead to the confidence that new venture resources would be easier to access (Delmar and Shane, 2006). Thirdly, higher level of non-cognitive abilities such as social and emotional aptitude developed as a result of higher level of education and experience could enhance the confidence that one's inter-personal skills can be utilized for achieving entrepreneurial goals (Hartog *et al.*, 2010). Taken together recognition of these advantages can provide the motivation necessary for individuals with imperfect will power (Benabou and Tirole, 2002) such as those with high actual capital who have to leave a set career path in organizational employment to undertake the risk of entrepreneurship. Therefore, we hypothesize that,

H3: Individuals with high actual ability who develop positive perceptions of their entrepreneurial ability are more likely to develop the confidence to initiate nascent entrepreneurial activities compared to those who lack either or both these ability dimensions.

3. Methodology

3.1. Data Source

Our study uses data from an adult population survey (APS) conducted following the Global Entrepreneurship Monitor (GEM) methodology (Levie and Autio, 2008; Reynolds *et al.*, 2005). 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).

3.2. Variable definition

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 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; DeClercq *et al.*, 2011; Driga *et al.*, 2009; Koellinger *et al.*, 2007; Lafuente *et al.*, 2007). 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 proportion which is significantly greater than that shown by non-entrepreneurs in the sample (45.03%).

Two broad indicators, formal education and work experience were used to measure the second independent variable that we call actual ability. Formal education and work experience are commonly used proxy indicators of individual’s ability (Becker, 1993;). Such proxy measures have been successfully employed in teasing out the effects associated with different levels of education and work experience (Wößmann, 2003). Moreover, education can be considered good indicator of ability because it indicates declarative knowledge of individuals or the knowledge about “what to do” (Cauley, 1986). Secondly, education is an indication of an individual’s ability to apply acquired knowledge and skills outside classroom situations (Cole *et al.*, 1976). Furthermore, education indicate general problem solving skills (Husen and Juijnman, 1991). 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 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%).

The second component of actual ability, work experience is an indicator of procedural abilities or “how to perform a given task” (Cauley, 1986). It indicates the level of learning by doing (Kolb, 1984). In this study 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 nascent entrepreneurs and owner-manager of 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 all others (looking

-----Insert Table 1 about here-----

for jobs, students, homemakers etc). As shown in table 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%).

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 respondents 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.

Additional descriptive statistics in Table 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).

-----Insert table 2 about here-----

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). On the one hand younger individuals are more willing to take risks while on the other older individuals are more likely to have greater ability related resources but the later also develop continuance commitment, the perceived need to continue working for an organization because of perceived costs associated with leaving the organization (Meyer and Allen, 1990). 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). The correlation matrix of all the variables used in the study is shown in Table 3.

-----Insert table 3 about here-----

3.3. 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 an individual 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)⁴. For model fit statistics we use Hosmer-Lemeshow chi square goodness of fit. We also use the classification table of predicted probability of logistic regression results with actual probability⁵. As shown below in our model the influence of perceived entrepreneurial ability and high actual ability on nascent entrepreneurial activity is expressed as :

⁴ Note that 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.

⁵ Although several model fit statistics are available for logitistic regression classification statistics is intuitively appealing.

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. In terms of our hypotheses, we expect that $\beta_3 > 0$, meaning that individuals with perceived entrepreneurial ability are more likely to initiate 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.

4. Results

The results of our logistic regression are shown in Tables 4 and Table 5. Table 4 gives the results of the logit model on the full sample while Table 5 shows the results of the corresponding marginal effect. The Hosmer-Lemeshow χ^2 with a p-value of 0.78 for model 1 and 0.81 for model 2 suggests that both the models fit the data well. Moreover, the standard errors of the coefficient are low and consistent across the two models suggesting that multi-collinearity is not an issue. To confirm the effect of colinearity we estimated the VIF and found that the mean VIF of the variables on the right side of the regression equation at 1.41 is well-below the limit of 10 for multi-collinearity to serious affect the regression estimates (Hair *et al.*, 1995).

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 2 of Table 5 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 2 of table 5).

-----Insert table 3 about here-----

As regards our 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 4 and 5). 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 4). Results of the marginal effect (specification 1 of Table 5)

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. Again if we look at the marginal effects of our ability dimensions (specification 2 of Table 5), it can be 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 2 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 among those with different levels of actual ability the interaction term in specification 2 of Tables 4 and 5 has been estimated using the method developed by Ai and Norton (2003). The coefficient of the interaction term in (specification 2 of table 4) is the incorrect standard logit output while specification 2 of table 5 is the average (true) interaction effect. The result of the robust interaction effect in specification 2 of Table 5 ($\gamma_{23} = 0.00786$) 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. To corroborate the true interaction effect we can observe that 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 in figure A.1

and figure A.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.

-----Insert table 4 about here-----

It should be noted that the inclusion of the interaction term in specification 2 implies a very careful interpretation of the empirical results presented in specification 2 of Table 5. 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 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. 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 again, this finding is in line with the descriptive statistics presented in Table 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.

5. 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; Krueger, 2003; Shane and Venkataraman, 2000). 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 (Baron, 1998; Busenitz and Barney, 1997; 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 (Greenwood and Tsang, 1997). 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 such perceptions might still be higher before the new venture entry decision is made. Our results suggest that perceived entrepreneurial ability can occur *a priori* and influences entrepreneurial behaviour through entrepreneurial confidence. Moreover, our theoretically grounded analysis goes beyond the exploratory nature of Arenius and Minniti's (2005) study. Our results pertain to Spain, a context that have not been examined by studies by Arenius and Minniti, 2005 as well as Townsend *et al.*, 2010 and DeClercq *et al.*, 2011. We suggested that perceived entrepreneurial ability or thinking in terms of one's ability for the entrepreneurial task focuses attention on the role demands of entrepreneurship. Such a focus is important because entrepreneurship is a difficult task and most individuals are not trained to carry out the diverse tasks related to new venture creation and management. Hence, even though individuals develop entrepreneurial intent they cannot hire others to create the new venture but rely on their entrepreneurial abilities as perceived to kick-start the process. Therefore, a lack of positive perception of entrepreneurial ability could act as a barrier to the business entry decision of individuals. Only those who perceive their entrepreneurial ability positively develop the confidence to go ahead and start organizing the new venture. Positive perceptions of entrepreneurial ability are thus the raw ingredients that drive the animal instinct of voluntary participation in entrepreneurship. These perceptions that originate in individual's mind they are subjective and could be quite different from what is visible from their education and training. It is true that subjective judgments may not always be accurate or realistic, yet it could induce individuals take concrete actions towards

becoming entrepreneurs rather than limit to entrepreneurial intent. Alternately, lack of positive perceptions of entrepreneurial ability could explain why some individuals even with entrepreneurial intent do not take the plunge towards entrepreneurship.

The implication of positive perceptions in the adult population is an increase in the rate of entrepreneurship. However, as several authors argue such an increase may not be beneficial for the economy because they do not necessarily lead to the right type of entrepreneurial initiatives (Shane, 2009; Henrekson and Johannson, 2010). What economies require are innovative and growth-oriented entrepreneurship. To achieve such objective at a macro-level there is a need to promote or encourage individuals who have the abilities to not only successfully create innovative new ventures but also pursue high growth. Our results suggest that when individuals with high actual ability develop perceived entrepreneurial ability they are more likely to initiate nascent entrepreneurial activity. This auger well for an economy as previously suggested those with high actual ability pursue productive entrepreneurial initiatives compared to those with low actual ability (Cassar, 2006; Haynie *et al.*, 2009; Koellinger, 2008). Interestingly, 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.

5.1. Implications for research

The finding that perceived of entrepreneurial ability leads to business entry decision through development of entrepreneurial confidence is important for entrepreneurship research. First of all, unlike many decision making situations potential entrepreneurs often face lack concrete and reliable information. Judgments under such circumstances

could be fallible (Hogarth and Karaiela, 2012). The evidence that most new ventures fail is a testament to fallible judgment. However, this does not stop individuals from trying entrepreneurship irrespective of whether they have the ability necessary to successfully pursue entrepreneurship or whether their judgement stands the test of time. This motivation to pursue entrepreneurship could be due to high actual ability that does not necessarily equate only to higher information processing capabilities but also related to unobservable abilities that individuals develop over time. Thus unlike the economics oriented human capital approach to understanding the employment choice decisions of individuals entrepreneurship research should incorporate unobserved abilities or how individuals think about their entrepreneurial ability in their research designs. After-all, individuals make sense of the world their perceptions and without accounting for perceptions of one's ability especially when it comes to difficult and rare tasks like entrepreneurship it is difficult to discern the mental process that makes entrepreneurship happen (Gregoire *et al.*, 2011). The results of our study opens up new avenues for extending ability based research in entrepreneurship without limiting oneself to objective (observable) measures of ability.

5.2. Implications for policy

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 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). We therefore suggest a targeted 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. Such support need to not be discriminatory and should cover those without previous business experiences thereby enlarging the scope of support to entrepreneurial initiatives that in the future could have a high impact on the economy.

6. 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.

The main implications of our study are that it is possible to influence nascent entrepreneurial activities in an economy if entrepreneurial confidence is increased. Therefore, if policy makers are focused on increasing the rate of nascent entrepreneurial activities they must take actions increase entrepreneurial confidence among the population. One way could be strengthening institutional mechanisms that promote greater transparency and business friendly rules and regulations. However, it should be noted that the later might induce a form of unproductive 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.

There are some limitations of our study. We use a single item measure of perceived entrepreneurial ability. Future studies can use multi-item constructs that are more precise measures of perceived entrepreneurial ability. Secondly, although our use of proxy measures follow extant tradition future studies could use experimental designs similar to those used in relative performance studies (Better-than average effect or worse-than-average studies) to simultaneously measure both perceived and actual ability of individuals. The third limitation is the weak marginal effects of our

explanatory variables although these effects are similar to studies by Falck et al., 2012, Nanda and Sorensen, 2010.

-----Insert Appendix about here-----

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List of Tables

Table 1: Descriptive statistics for 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 | 0.4862 (0.5008) | 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 | 19,791 | 20,046 | |

*** = Significant at the 0.01 level (Kruskal Wallis test).

Table 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.

Table 3: Correlation Matrix

| | Mean | S.D | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--|--------|--------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
| Nascent (1) | 0.012 | 0.112 | 1 | | | | | | | | | | | |
| Age (2) | 44.108 | 12.507 | -0.038* | 1 | | | | | | | | | | |
| Gender(3) | 0.488 | 0.499 | 0.037* | -0.047* | 1 | | | | | | | | | |
| High education (4) | 0.449 | 0.497 | 0.039* | -0.152* | 0.061* | | | | | | | | | |
| Work Experience (5) | 0.543 | 0.498 | 0.039* | -0.101* | 0.143* | 0.264* | 1 | | | | | | | |
| Entrepreneurship training (6) | 0.2453 | 0.430 | 0.070* | 0.160* | 0.055* | 0.161* | 0.058* | 1 | | | | | | |
| Personal knowledge of other entrepreneurs (7) | 0.289 | 0.453 | 0.085* | 0.146* | 0.090* | 0.100* | 0.078* | 0.152* | 1 | | | | | |
| Fear of failure (8) | 0.467 | 0.498 | 0.041* | 0.027* | 0.056* | 0.034* | 0.018* | 0.066* | -0.013 | 1 | | | | |
| Opportunity perception (9) | 0.173 | 0.378 | 0.072* | 0.061* | 0.067* | 0.037* | 0.015 | 0.078* | 0.108* | 0.078* | 1 | | | |
| High actual Ability (10) | 0.310 | 0.462 | 0.043* | 0.114* | 0.085* | 0.741* | 0.614* | 0.106* | 0.093* | 0.035* | 0.026* | 1 | | |
| Perceived entrepreneurial ability (11) | 0.456 | 0.498 | 0.106* | 0.051* | 0.102* | 0.144* | 0.115* | 0.292* | 0.195* | 0.067* | 0.084* | 0.122* | 1 | |
| Perceived entrepreneurial ability X high actual ability (12) | 0.169 | 0.375 | 0.088* | 0.084* | 0.095* | 0.500* | 0.414* | 0.204* | 0.147* | 0.052* | 0.055* | 0.674* | 0.493* | 1 |

* significant at $p < 0.05$

Table 4: Logit results - the relationship between nascent entrepreneurial activity, perceived entrepreneurial ability and high actual ability.

| | Specification 1 | Specification 2 |
|---|-------------------------|------------------------|
| Age (years) | -0.0177*** (0.0045) | -0.0177*** (0.0045) |
| Gender (1 for male) | 0.3369** (0.13402) | 0.3368** (0.1340) |
| Fear of failure | -0.54296*** (0.1408) | -0.5428*** (0.1408) |
| Personal knowledge of other entrepreneurs | 0.8615*** (0.1346) | 0.8614*** (0.1347) |
| Perceived opportunity (1 for yes) | 0.8241*** (0.1317) | 0.8239*** (0.1317) |
| Entrepreneurship training (1 for yes) | 0.3965*** (0.1322) | 0.3957*** (0.1324) |
| High actual ability | 0.3351*** (0.1280) | 0.1531 (0.4936) |
| Perceived entrepreneurial ability | 2.2590*** (0.2469) | 2.1913*** (0.2973) |
| High actual ability X Perceived entrepreneurial ability | | 0.1957 (0.5128) |
| Intercept | -6.1810*** (0.3157) | -6.1204*** (0.3460) |
| Pseudo R ² | 0.1598 | 0.1598 |
| Log Likelihood | -1147.991 | -1147.917 |
| LR (chi2) | 303.21*** | 306.45*** |
| Correctly predicted cases (Overall): cutoff=0.5 | 0.9873 | 0.9873 |
| Correctly predicted cases (Overall): cutoff= 0.01273 | 0.7063 | 0.7080 |
| Number of observations | 20,046 | 20,046 |

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).

Table 5: Logit results - Marginal effects of the change in the probability of nascent entrepreneurial activities

| | Specification 2 dy/dx | Specification 3 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 | 20,046 | 20,046 |

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.

Appendix

Figure A.1. Interaction (perceived entrepreneurial ability and high actual ability) as a function of the predicted probability of entrepreneurship

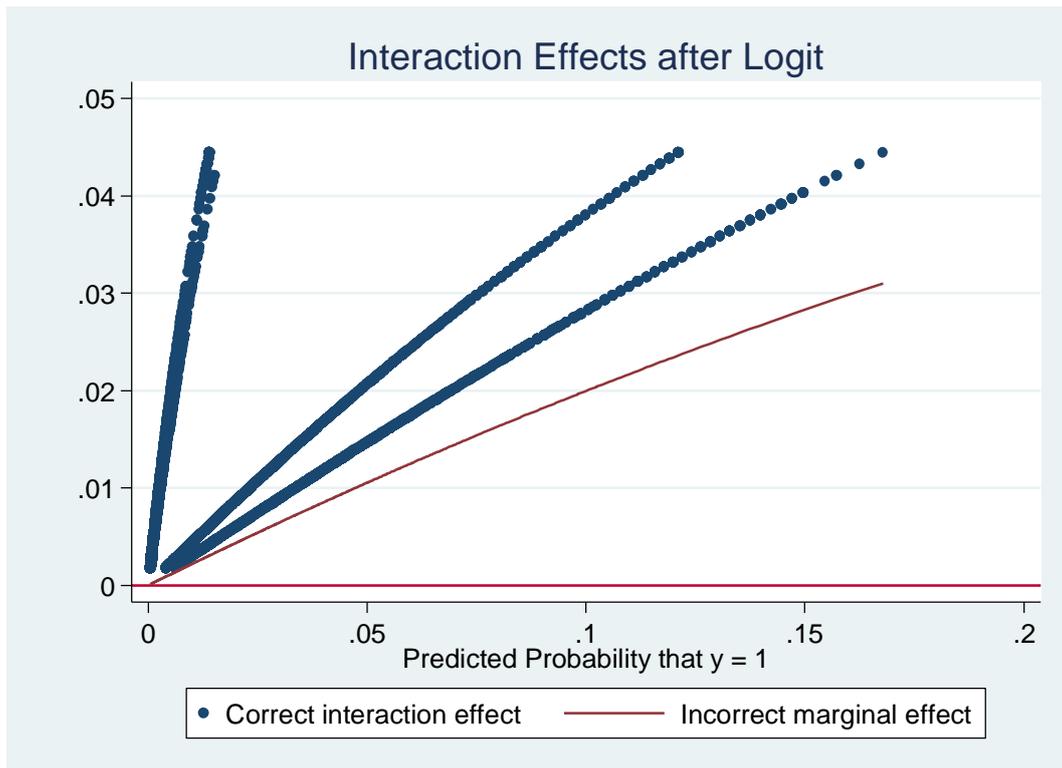


Figure A.2. Z-Statistic as a function of the predicted probability

