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ARTICLE

# The influence of gender on entrepreneurial intention: The mediating role of perceptual factors

## La influencia del género sobre la intención emprendedora: El papel mediador de los factores de percepción

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**Summary** The empirical evidence devoted to analyze the impact of perceptual factors in explaining the differences in the entrepreneurial intention of men and women is still limited and not entirely conclusive (Shinnar et al., 2012; Wilson et al., 2009). This non-conclusive research is significantly more noteworthy when the analysis is focused on the entrepreneurial intention of men and women once they become entrepreneurs. Drawing on this gap and taking as starting point the premises of Social Feminist Theory, our paper aims to examine the mediating role of perceptual factors on the relationship between gender and entrepreneurial intention of non-entrepreneurs and entrepreneurs. Drawing on a sample provided by the Global Entrepreneurship Monitor Project of 21,697 Spanish non-entrepreneurs and 2899 Spanish entrepreneurs, our results have shown that, in general terms, perceptual factor fully mediate the relationship between gender and the entrepreneurial intention of non-entrepreneurs, whereas such mediating impact disappears when people become entrepreneurs.


## Introduction

Over the past three decades, women have made significant progress in entrepreneurship and new venture creation (Kickul et al., 2008); consequently, female entrepreneurship and its social and economic importance are of increasing interest. Concurrently, research into women's

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entrepreneurship has gained importance since the late 1990s (Arenius and Kovalainen, 2006; Ettl and Welter, 2010; Greer and Greene, 2003; Langowitz and Minniti, 2007). However, although the number of female entrepreneurs has increased significantly in recent years in Spain and similarly developed countries, empirical evidence still indicates that the number of businesses owned by women is significantly lower than the number of businesses owned by men, and that twice as many men become entrepreneurs as do women (Acs et al., 2005; Gupta et al., 2014). The Global Entrepreneurship Monitor (GEM) project has examined entrepreneurial activity in more than 70 countries, and the results show that the ratio of women to men in terms of entrepreneurship is low, reflecting low participation by women (Kwong et al., 2009; Langowitz and Minniti, 2007; Minniti et al., 2005).

In an attempt to identify the underlying reasons for gender differences in entrepreneurship, some authors such as Reynolds et al. (2001), Langowitz and Minniti (2007) and Almeida-Couto and Borges-Tiago (2009) have focused on the groups of factors that have been traditionally considered as determinants for making the individual decision of starting a new business: contextual factors, socio-demographic factors (e.g., gender, age, educational level, employment status) and individuals' perceptual factors (e.g., self-efficacy, ability to recognize opportunities, fear of failure, regretful thinking, perseverance). Drawing on this typology, our research puts its focus on analyzing the role played by perceptual factors on the entrepreneurial intention reported by men and women.

The literature on entrepreneurship has consistently recognized that perceptual factors have a major influence on the likelihood that a particular individual will become involved in entrepreneurial activity (Arenius and Minniti, 2005; Gatewood et al., 1995; Györfy, 2014; Koellinger et al., 2007, 2013), and that this group of factors influence on the decision to start a business (Evald et al., 2011; Minniti and Nardone, 2007). Our focus is specifically on entrepreneurial self-efficacy, the ability to recognize opportunities, and the fear of failure. These are three of the strongest predictors of entrepreneurial intention and behavior found in entrepreneurship studies, and there is general agreement in the literature that they are highly correlated with the decision to start a new business (Arenius and Minniti, 2005; Koellinger et al., 2007).

Moreover, the literature has also shown that perceptual factors could play a crucial role in explaining the differences in the entrepreneurial behavior of men and women (Koellinger et al., 2007). However, empirical evidence is still limited and not entirely conclusive (Shinnar et al., 2012; Wilson et al., 2009). On the one hand, most studies have found a higher explanatory power of individuals' perceptual characteristics with respect to other variables traditionally employed (e.g., age, household income, work status, education level) when it comes to analyzing the influence of gender on the likelihood of starting a new business (Lefkowitz, 1994; Minniti and Nardone, 2007). To this respect, Koellinger et al. (2013: 229) concluded, in their study carried out in 17 countries, that ''a significant portion of the gender gap in entrepreneurial propensity is explained by subjective perceptions whereas socio-economic variables appear to play a smaller role. In fact, when perceptual variables are considered, the explanatory powers of age, education, work status, and household income decrease or disappear completely, suggesting that these variables may influence startup decisions primarily because of their influence on perceptions''. On the other hand, some research has not been able to provide empirical evidence about the impact of perceptual factors on the relationship between gender and entrepreneurial intention. In this vein, it is possible to highlight the studies conducted by Wilson et al. (2009) and Zhao et al. (2005), who drawing on a sample of adolescents and a sample of MBA students, respectively, could not demonstrate that entrepreneurial self-efficacy mediated such relationship. The existence of non-conclusive empirical evidence is significantly more noteworthy when the analysis is focused on the entrepreneurial intention of men and women once they become entrepreneurs. While it is true that most previous research agree that entrepreneurs report more entrepreneurial self-efficacy, more ability to recognize opportunities and less fear of failure than non-entrepreneurs (Koellinger et al., 2013; Markman et al., 2005) it is not less true that the role played by perceptual in explaining gender differences in the entrepreneurial intention reported by entrepreneurs has hardly been previously addressed (Trevelyan, 2011). To this respect, there is no empirical evidence that comparatively analyzes whether the influence of perceptual factors on the different entrepreneurial intention reported by men and women is modified once people establish a venture, or whether such impact is similar.

Drawing on this gap and taking as starting point the premises of Social Feminist Theory (SFT), our paper aims to analyze the mediating role of perceptual factors on the relationship between gender and entrepreneurial intention.

The contribution of our paper to the literature is threefold. First, we contribute to the limited and non-conclusive research that has analyzed the mediating role of perceptual factors on the relationship between gender and entrepreneurial intention (Yordanova and Tarrazon, 2010; Wilson et al., 2007; Zhao et al., 2005). To this respect, our study provides interesting and robust findings, which could help to shed some light to this topic. Second, and closely related to the first contribution, our research goes a step further, since comparatively analyzes the impact of perceptual factors on the entrepreneurial intention reported by non-entrepreneurs and entrepreneurs. To this respect, our paper is the first attempt to examine such mediating role under this specific comparative perspective, since the limited previous empirical evidence has been focused on analyzing the gender differences among students (Kickul et al., 2008; Wilson et al., 2009; Zhao et al., 2005) or students and adults (Wilson et al., 2009). Finally, we contribute to the enrichment of the literature on SFT. This theoretical framework posits that men and women exhibit fundamentally different views of world because of differences in their experiences and in their socialization processes (Fischer et al., 1993), which could result in that men and women differ in their intentions in relation to entrepreneurship (Yordanova and Tarrazon, 2010). However, previous empirical research has not addressed the specific question of whether the experiences acquired by female entrepreneurs during their lives could result in that inherent gender differences in perceptual factors could be hindered or, at least, decreased.

## Theoretical background and development of hypotheses

The proposed study derives from SFT. This perspective is described as ''a combination of ideas about gender socialization pieced together with elements of psychological and philosophical theory about innate differences between men and women in personality makeup or moral development'' (Greer and Greene, 2003). SFT posits that men and women are subject to different socialization processes and experiences relating to their observed sex, and that this will condition them to exhibit feminine and masculine rationality and modes of knowing and viewing the world, which are different, but equally important for society (Fischer et al., 1993; Johnsen and McMahon, 2005). According to SFT, these prominent differences in socialization and previous life and learning experiences, which may stem from the earliest moments of life, explain that men and women differ not only in their motivations toward entrepreneurship, but also in some characteristics generally considered relevant to entrepreneurship (DeMartino and Barbato, 2003; Fischer et al., 1993). On the one hand, the greater motivational desire among women for attaining a better balance between their work and family life, leaving the desire for economic wealth aside, could explain the lower female entrepreneurial intention (Jennings and McDougald, 2007; Kepler and Shane, 2007). On the other hand, SFT holds that men and women may exhibit important differences in certain psychological traits (Fischer et al., 1993; Robb and Watson, 2012), which previous literature has consistently noted as relevant predictors of entrepreneurial intention (Douglas and Shepherd, 2002; Kickul et al., 2008; Langowitz and Minniti, 2007; Mueller and Dato-On, 2013; Van Gelderen et al., 2008). Men are expected to possess higher levels of self-assertion, autonomy, independence, self-confidence and risk-taking propensity (Echabe and Gonzalez-Castro, 1999; Moore and Buttner, 1997) and consequently, SFT suggests that women are likely to exhibit significantly lower entrepreneurial intentions than their male counterparts (Jones and Tullous, 2002).

Most of previous empirical research carried out under the premises of SFT has revealed the direct impact of gender on entrepreneurial intention (Routamaa et al., 2004; Veciana et al., 2005). Specifically, these studies have consistently found that women report lower entrepreneurial intention than men (Gatewood et al., 2002; Malach-Pines and Schwartz, 2008; Veciana et al., 2005; Wilson et al., 2007).

However, an increasing and incipient research stream within SFT is revealing that the analysis of the influence of gender on entrepreneurial intention could require the consideration of the effect exerted by other variables on such relationship (Yordanova and Tarrazon, 2010). Among the limited previous empirical evidence, Kolvereid (1996) and Yordanova and Tarrazon (2010) found that attitudes, subjective norms and perceived behavioral control mediated the impact of gender on entrepreneurial intention. Crant (1996) reported the mediating role of education, entrepreneurial parents and proactive personality. Wang and Wong (2004) demonstrated that gender effect on entrepreneurial intention was partially mediated by entrepreneurial knowledge. Finally, Wilson et al. (2009) analyzed the mediating role of perceptual factors on the relationship between gender and entrepreneurial intention, founding that entrepreneurial self-efficacy partially mediated such relationship.

Following this line and, drawing on the main premises of SFT, our research aims to analyze the influence of gender on entrepreneurial intention, through the mediating impact of perceptual factors. This interest stems from the fact that as previous literature has consistently noted, perceptual factors are relevant factors for explaining the willingness to entrepreneurial actions (Almeida-Couto and Borges-Tiago, 2009; Langowitz and Minniti, 2007; Minniti, 2009). As a result of their differentiated experiences and socialization process, women may perceive that they are less efficacy in relation to entrepreneurial activities, less capable for recognizing entrepreneurial opportunities, and feel more fear to failure, than men and consequently, self-perceptions of women may constrain their entrepreneurial behavior (Anna et al., 2000). Indeed, previous research has empirically supported this assumption (DeTienne and Chandler, 2007; Kickul et al., 2008). However, a central premise of SFT is that the knowledge, experiences and relationships accumulated by women during their lives may be considered as crucial mechanisms, not only for women equal their self-perceptions to those of men, but also for society give up the notion of entrepreneurship as an eminently masculine career (DeTienne and Chandler, 2007; Fischer et al., 1993). To this respect, DeTienne and Chandler (2007) found that women and men have unique stocks of human capital that they use differentially to identify opportunities and more interestingly, that although women and men utilize different opportunity identification sequences, there was no difference in the innovativeness of the opportunities they identified.

Drawing on these arguments, below is a review of the literature devoted to analyze the mediating role of perceptual factors on the relationship between gender and entrepreneurial intention, from which we derive the corresponding research hypotheses.

### Entrepreneurial self-efficacy

The concept of entrepreneurial self-efficacy is derived from Social Learning Theory. Self-efficacy is based on individuals' perception of their own skills and/or abilities and their competence to perform particular tasks, and it reflects a person's confidence in his/her own ability to succeed in such tasks (Bandura, 1989; Kickul et al., 2008).

In an entrepreneurial context, self-efficacy can be defined as an individual's confidence in his or her ability to succeed in entrepreneurial roles and tasks (Chen et al., 1998). Entrepreneurial self-efficacy influences choices, aspirations, and effort, as well as perseverance when entrepreneurs face difficulties (Boyd and Vozikis, 1994), and it plays an important role in the development of an intention to establish and manage a new venture (Kickul et al., 2008; Mueller and Dato-On, 2008). Some research has specifically focused on whether self-efficacy is a key factor in explaining why some individuals are motivated to become entrepreneurs and others are not (Wilson et al., 2007, 2009; Zhao et al., 2005). In this regard, the research has shown

compelling and consistent patterns, reflecting that individuals with higher entrepreneurial self-efficacy tend to exhibit higher entrepreneurial intention (Chen et al., 1998; Kickul et al., 2008; Wang et al., 2002).

Recently, an incipient research stream has addressed the analysis of entrepreneurial self-efficacy and entrepreneurial intention from a gender perspective (Kirkwood, 2009; Laviolette et al., 2012; Wilson et al., 2007; Zhao et al., 2005). In this vein, the little empirical evidence suggests that a higher proportion of women than men reject the choice of an entrepreneurial career and involvement in entrepreneurial activities because they perceive themselves as lacking the necessary abilities (Chen et al., 1998; Kickul et al., 2008; Wilson et al., 2007). Following the main premises of SFT, women may perceive they are less efficacy than men in their business abilities because they are less likely to be socialized in business roles and to be confronted with expectations for starting a business (Kalleberg and Leicht, 1991; Yordanova and Tarrazon, 2010). Also, the different access to opportunities and resources may result in women are disadvantaged in terms of previous managerial experience and training and consequently, women may feel that they do not have the necessary abilities for entrepreneurship (Verheul et al., 2005; Yordanova and Tarrazon, 2010). Along these lines, Kickul et al. (2008) identified the importance of self-efficacy in the consideration of entrepreneurship as a professional career, and highlighted in their conclusions that women probably limit their options in career selection because of a perception that they lack abilities they consider necessary for entrepreneurial careers. Even young women who presented reasonable levels of entrepreneurial self-efficacy showed less inclination to choose an entrepreneurial career compared with men, and believed they would have more opportunities in other professional fields. For its part, Wilson et al. (2007) also found empirical evidence that both female adolescents and MBA students exhibited lower rates of entrepreneurial self-efficacy and entrepreneurial intention than their male counterparts. Finally, Wilson et al. (2009) analyzed specifically the mediating role of entrepreneurial self-efficacy on the relationship between gender and entrepreneurial intention of students and early career adults, founding that entrepreneurial self-efficacy partially mediated such relationship in both cases.

In our research, we hold the thesis that the mediating role of entrepreneurial self-efficacy on the relationship between gender and entrepreneurial intention is avoided once people have become entrepreneurs. As we previously noted, women usually feel that they do not have the necessary abilities for entrepreneurship, and consequently, women are expected to exhibit lower levels of entrepreneurial self-efficacy than men. However, as Bandura (1992) posited, the development of the entrepreneurial activity by women could significantly increase their own perceptions about their entrepreneurial abilities, in such a way that gender differences in entrepreneurial intention could not be explained by the impact of entrepreneurial self-efficacy. In this vein, Cox et al. (2002) noted that ''mastery experiences or simply put, 'learning by doing', appear to be basic in determining our self-confidence to successfully perform future tasks that are perceived to be similar or related'' (Wilson et al., 2007: 392). Once women become entrepreneurs, they can acquire cognitive, social, and language abilities through business experiences, workshops, or entrepreneurial training, which may bring as a result that women increase their levels of entrepreneurial self-efficacy, reaching similar levels to those of men (Kirkwood, 2009; Wilson et al., 2007). Therefore, it is reasonable to think that male and female entrepreneurs could not significantly differ in their levels of entrepreneurial self-efficacy and consequently, their behaviors and attitudes toward entrepreneurship would not affected by such perceptual factor. To this respect, Kirkwood (2009) showed that most female entrepreneurs were inclined to report higher levels of entrepreneurial self-efficacy and entrepreneurial attitudes over time and, consequently, that the differences between the entrepreneurial behavior of men and women usually significantly decreased when these individuals undertook entrepreneurial activities. Finally, Chen et al. (1998) and Shaver et al. (2001) found that nascent women entrepreneurs did not report significant different entrepreneurial self-efficacy and entrepreneurial intention than their male counterparts. Among their conclusions, they posit that the acquisition of higher levels of entrepreneurial self-efficacy through entrepreneurial education and experience could explain their results.

Based on these arguments, the following hypotheses are formulated:

**Hypothesis 1.** For non-entrepreneurs, the relationship between gender and entrepreneurial intention is mediated by entrepreneurial self-efficacy.

**Hypothesis 2.** For entrepreneurs, the relationship between gender and entrepreneurial intention is not mediated by entrepreneurial self-efficacy.

## The ability to recognize opportunities

The ability to recognize opportunities constitutes a key factor in the entrepreneurial process (Ozgen and Baron, 2007). Some studies in the entrepreneurship field have shown that the ability to recognize opportunities increases the probability of people becoming entrepreneurs (Baron and Ensley, 2006; Casson and Wadeson, 2007; Clarysse et al., 2011). The recognition of an opportunity to set up a business is a cognitive process, and only certain individuals possess this ability. Such people are often strongly determined to create new ventures (Ozgen and Baron, 2007).

Within the gender and entrepreneurship literatures, few studies have analyzed the relationship between the ability to recognize opportunities and entrepreneurial intention. To this respect, Langowitz and Minniti (2007) found evidence that the ability to recognize opportunities is positively related to the entrepreneurial intention of men and women, with the effect being stronger in the case of men. Diverse approaches have provided some arguments in order to explain the underlying differences that men and women exhibit in relation to their abilities to recognize opportunities and its incidence on the entrepreneurial intention reported by them. From SFT, some previous research has been specifically focused on this topic. In this vein, it is possible to note the work of DeTienne and Chandler (2007),

who drawing on both SFT and Human Capital Theory, considered whether the different social processes in which men and women are immersed during their lives cause them to develop different types of human capital–experience, training and education–and consequently different abilities to recognize opportunities. For its part, Arenius and De Clercq (2005) argued that such different configurations of human capital result in men and women accessing different network contacts; consequently, their likelihood of perceiving opportunities is affected. Finally, González-Álvarez and Solís-Rodríguez (2011), using the data provided by the GEM 2009 Spain Report, found a direct and positive relationship between the stocks of human and social capital held by men and women and the likelihood of recognizing entrepreneurial opportunities, concluding that men discover more opportunities than women because their higher stocks of human and social capital.

Drawing on these arguments, we consider that differences in human capital and social capital as a result of the different social processes experienced by men and women could be responsible for the development of different abilities to recognize opportunities and consequently, different motivations to become entrepreneurs.

Additionally, we support the thesis that the influence of gender on the entrepreneurial intention exhibited by men and women is substantially hindered when the analysis is addressed to the entrepreneur population. Once a woman becomes an entrepreneur, her acquired entrepreneurial experience brings about an evolution of her human capital. This could result in a decrease in the specific human capital and social capital differences between men and women, and women could develop the motivation and capacity to improve their ability to recognize opportunities, thus putting themselves on the same level as men. In this regard, Boden and Nucci (2000) argued that the acquisition by women of these entrepreneurial experiences and abilities could have a positive impact on women's entrepreneurial intention.

From the above considerations, it is possible to formulate the following hypotheses.

**Hypothesis 3.** For non-entrepreneurs, the relationship between gender and entrepreneurial intention is mediated by the ability to recognize opportunities.

**Hypothesis 4.** For entrepreneurs, the relationship between gender and entrepreneurial intention is not mediated by the ability to recognize opportunities.

## Fear of failure

The academic literature has shown that entrepreneurs must be capable of confronting risky situations, and the presence of a certain degree of fear of failure can affect entrepreneurial aspirations and the level of entrepreneurial activity (Arano et al., 2010; Langowitz and Minniti, 2007; Minniti, 2009). Minniti (2009: 50) argues that ''since most individuals are risk adverse and since the perceived fear of failure is an important component of the risk attached to starting a new business, a reduced perception of the likelihood of failure should increase the probability that an individual will start a new business.'' The research of Caliendo et al. (2009), Zhao et al. (2010) and Shinnar et al. (2012) demonstrated, respectively, that entrepreneurial intention is positively related to risk tolerance, and that risk aversion reduces individuals' likelihood of becoming self-employed.

Within the gender literature, some well-documented empirical studies have reflected the impact of gender on fear of failure. Most of them have concluded that women, in general, are more averse to taking risks than men (Kwong et al., 2009; Neelakantan, 2010; Wagner, 2007). In this vein, Minniti (2009) pointed out that women in all the countries in the GEM sample (with the exception of Japan) report fearing failure more often than men. Generally, other authors in different contexts have found similar results (Eckel and Grossman, 2003; Wagner, 2007; Koellinger et al., 2013). Moreover, recent research has posited not only the influence of gender on fear of failure, but also the relationship between gender, fear of failure and entrepreneurial intention (Koellinger et al., 2013; Malach-Pines and Schwartz, 2008).

This increased fear of failure experienced by women and the consequent reduced entrepreneurial intention can be explained by SFT. As Robb and Watson (2012: 546) noted: ''the men and women are inherently different by nature and these differences (rather than discrimination) will cause them to operate their ventures differently; for example women might seek to take fewer risks (Watson and Robinson, 2003). Moreover, as a result of the different experiencies and socialization processes of men and women (Carter and Williams, 2003), women are seen by society as conservative and risk averse, whereas men are considered more entrepreneurial and prone to risk-taking (Powell and Ansic, 1997). Roszkowski and Grable (2005) found that men are seen by society as more risk tolerant than they really are, and women as less tolerant than they can be in reality. Similarly, Eckel and Grossman (2003) and Siegrist et al. (2002) demonstrated that both men and women often consider men more risk tolerant than women, and that women tend to believe that men have a lower fear of failure than men consider themselves to have. All these arguments lead us to conclude that the fact that women report fear of failure at a higher rate than men could explain a lower female propensity to start a business.

However, previous research addressed to analyze the impact of fear of failure on the entrepreneurial intention of men and women once they have become entrepreneurs is not conclusive (Díaz et al., 2010). On the one hand, it is possible to find some research that demonstrates that female business founders are more risk averse than male ones (Boohene et al., 2008; Sexton and Bowman-Upton, 1990; Stephan and El-Ganainy, 2007). On the other hand, a research stream has reported that women who have become entrepreneurs exhibit similar fear of failure tan their male counterparts (Minniti, 2009; Tan, 2008).

Our research holds that there are certain characteristics that entrepreneurs have in common or can acquire in the course of their activity, whether they are men or women. This leads to the argument that the gender differences in attitudes toward entrepreneurship tend to disappear once men and women undertake a business activity, because their motivations, beliefs and knowledge become similar (Ahl, 2006; Tan, 2008). To this respect, and drawing on Tan

**Table 1** Detailed characteristics of the Adult Population Survey (APS) 2013 in Spain.

| | |
|---|---|
| Universe[a] | 30,722,016 citizens aged 18–64 and resident in Spain |
| Sample | 24,596 individuals aged 18–64 years (21,697 non-entrepreneurs and 2899 entrepreneurs) |
| Sample selection | Multistage sampling: random selection of cities and municipal areas in all the Spanish provinces by habitat (rural versus urban). In the second stage, a random sample of phone numbers is taken in each selected municipal area. Finally, individuals are selected and gender and age quotas are filled, and these are proportionally adjusted to the population of each Spanish region |
| Methodology | Phone interview assisted by a computerized system (CATI) |
| Sampling error[b] | $\pm 0.62\%$, under $p = q = 0.5$ |
| Confidence level | 95.5% |
| Survey period | From May to July 2013 |
| Survey field | Opinómetre Institute |

CATI: Computer Assisted Telephone Interview.
[a] Data extracted from Spain National Statistics Institute.
[b] The sampling error calculation has been performed for infinite populations. Hypothesis: $p = q = 50\%$, or maximum uncertainty.

(2008) and Minniti (2009), we consider that women who have become entrepreneurs can overcome their a priori greater tendency to report fear of failure, and subsequently that fear of failure could influence in a similar way the entrepreneurial intention reported by male and female entrepreneurs.

On the basis of these arguments, we formulate the following hypotheses.

**Hypothesis 5.** For non-entrepreneurs, the relationship between gender and entrepreneurial intention is mediated by fear of failure.

**Hypothesis 6.** For entrepreneurs, the relationship between gender and entrepreneurial intention is not mediated by fear of failure.

## Methods

### Samples and procedures

Our empirical analyses were undertaken on a representative sample of the Spanish adult population who are members of the workforce (i.e., those between 18 and 64 years of age at the time of the interview). Our sample consisted of 24,596 individuals, comprising 21,697 non-entrepreneurs and 2899 entrepreneurs. The detailed characteristics of the sample are described in Table 1.

This survey is part of the GEM 2013 research project. The GEM data are based on three sources of information: a survey of the population of 18–64 year olds termed the Adult Population Survey; a survey of a representative sample of experts in nine entrepreneurial framework conditions; and a wide range of secondary variables. For this study, information was obtained from the first of these sources, the survey of the working population of Spain for 2013.

### Measures

#### Dependent variable

Entrepreneurial intention was measured by whether respondents were thinking about the possibility of starting a new business in the following three years. This variable has been used previously in other research based on the GEM survey (Liñán et al., 2011).

#### Independent variables

Following previous research (Arenius and De Clercq, 2005; González-Álvarez and Solís-Rodríguez, 2011; Langowitz and Minniti, 2007; Wagner, 2007), the three perceptual factors were measured using binary variables. Entrepreneurial self-efficacy was analyzed through individual replies to the question of whether respondents consider themselves to possess the necessary ability, experience, and knowledge to start a new venture (Langowitz and Minniti, 2007). Regarding the ability to recognize opportunities, we assessed the respondents' recognition of the existence of opportunities that could be acted on in the following six months (Arenius and De Clercq, 2005). Fear of failure was measured through individual responses to the question of whether respondents recognize this perceptual factor as an obstacle to the establishment of new ventures (Kwong et al., 2009; Langowitz and Minniti, 2007; Wagner, 2007). Finally, a dummy variable, which takes the value 0 for women and 1 for men, was used for the analysis of gender.

#### Control variables

Our analysis also included three control variables: age; being acquainted with someone who had started an entrepreneurial activity in the previous two years; and having had training in entrepreneurship. Previous research has shown that age influences entrepreneurial intention (Indarti et al., 2010; Reynolds, 2000). In our research, age was measured as a continuous variable (ranging between 18 and 64). We also considered it appropriate to control for whether respondents had known an entrepreneur who had started an entrepreneurial activity in the previous two years. Established entrepreneurs could offer their experience and advice as well as provide access to capital, equipment, business networks, consultancy, and reputation (Parker, 2004). Consequently, this could enhance the entrepreneurial intention of potential entrepreneurs. We coded this as a binary variable: 1 if the respondent knew an entrepreneur; 0 otherwise. Finally, it is important to control for the possible effect of entrepreneurial education on entrepreneurial intention. Previous research, such as that by Kuratko (2005) or Florin et al. (2007), has argued that attitudes toward entrepreneurship could be influenced through entrepreneurship education. To control

**Table 2** Description of logistic regression analyses.

| Analysis | Sample | Hypothesis | Mediating variable | Models |
|---|---|---|---|---|
| 1 | 21,697 non-entrepreneurs | 1 | Entrepreneurial self-efficacy | 1–4 |
| 2 | 21,697 non-entrepreneurs | 2 | Ability to recognize opportunities | 5–8 |
| 3 | 21,697 non-entrepreneurs | 3 | Fear of failure | 9–12 |
| 4 | 2899 entrepreneurs | 4 | Entrepreneurial self-efficacy | 13–16 |
| 5 | 2899 entrepreneurs | 5 | Ability to recognize opportunities | 17–20 |
| 6 | 2899 entrepreneurs | 6 | Fear of failure | 21–24 |

Source: own elaboration.

for this, a dummy variable was created: 1 if the respondent had received any kind of entrepreneurship education; 0 otherwise.

## Results

Based on the arguments and hypotheses from the previous section, six different binominal logistic regression analyses were conducted to examine the mediating role of perceptual factors on the relationship between gender and entrepreneurial intention. Table 2 shows the details concerning each analysis. Following Baron and Kenny (1986), three conditions must be confirmed for testing mediating hypotheses. The first condition implies the existence of a significant relationship between the independent and the dependent variable. The second condition is that a significant relationship between the independent and the mediating variable exists. Finally, the third condition requires on the one hand, the existence of a significant relationship between the mediator and the dependent variable and on the other hand, that the relationship between the independent variable and the dependent variable is no longer significant, or at least, that its level of significance decreases when the effect of the mediating variable is controlled. Lastly, with the purpose of complementing the causal step approach, we carry out six Sobel tests to determine the significance of the mediated effect of gender on entrepreneurial intention via perceptual factors. The results obtained are presented in subsections ''Non-entrepreneur population'' and ''Entrepreneur population''.

### Non-entrepreneur population

Table 3 reports the descriptive statistics of the variables and the results of the correlation analysis. Our average respondent is 40.37 years old and men and women are

**Table 3** Correlation matrix. Non-entrepreneur population.

| Variables | Mean | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| Entrepreneurial intention | 0.09 | 1 | 0.024*** | 0.183*** | 0.082*** | −0.054*** | −0.120*** | 0.100*** | 0.099*** |
| Gender | 0.49 | | 1 | 0.088*** | 0.052*** | −0.077*** | −0.043*** | 0.042** | 0.049*** |
| Entrepreneurial self-efficacy | 0.44 | | | 1 | 0.073*** | −0.073*** | −0.009 | 0.169*** | 0.244*** |
| Ability to recognize opportunities | 0.15 | | | | 1 | −0.101*** | −0.034*** | 0.120*** | 0.046*** |
| Fear of failure | 0.52 | | | | | 1 | 0.033*** | −0.011 | −0.046*** |
| Age | 40.37 | | | | | | 1 | 0.080*** | −0.108*** |
| Knowing an entrepreneur | 0.29 | | | | | | | 1 | 0.117*** |
| Entrepreneurship education | 0.28 | | | | | | | | 1 |

Source: own elaboration.
** Significant at the 5% level.
*** Significant at the 1% level.

**Table 4** Results of the logistic regression analysis 1. Non-entrepreneur population. Mediating variable: entrepreneurial self-efficacy.

| Variables Dependent variable | Model 1 Entrepreneurial intention | | Model 2 Entrepreneurial intention | | Model 3 Entrepreneurial self-efficacy | | Model 4 Entrepreneurial intention | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald |
| Age | −0.032*** | 231.990 | −0.032*** | 230.688 | 0.005*** | 17.458 | −0.037*** | 273.853 |
| Knowing an entrepreneur | 0.576*** | 122.952 | 0.573*** | 121.538 | 0.668*** | 423.846 | 0.407*** | 58.840 |
| Entrepreneurial education | 0.575*** | 121.692 | 0.572*** | 119.725 | 1.061*** | 1028.757*** | 0.292*** | 29.182 |
| Gender | | | 0.104* | 4.177 | 0.307*** | 108.797 | 0.036 | 0.488 |
| Entrepreneurial self-efficacy | | | | | | | 1.260*** | 472.571 |
| Model $\chi^2$ [df] | 573.558*** [3] | | 877.181*** [4] | | 1782.134*** [4] | | 1097.481*** [5] | |
| Block $\chi^2$ [df] | 573.558*** [3] | | 304.739*** [1] | | 1782.134*** [4] | | 220.300*** [1] | |
| Cox and Snell $R^2$ | 0.028 | | 0.059 | | 0.083 | | 0.074 | |
| Nagelkerke $R^2$ | 0.063 | | 0.126 | | 0.141 | | 0.134 | |
| Percentage of global correct predictions | 83.2% | | 91.2% | | 84.5% | | 91.6% | |

Source: own elaboration.
* $p < 0.005$.
*** $p < 0.001$.

almost equally represented in our sample. Fear of failure and entrepreneurial self-efficacy are the perceptual factors reported by people most frequently (52% and 44%, respectively), and only 9% of non-entrepreneurs reported having any entrepreneurial intention. With regard to the possible existence of collinearity among the variables, Table 3 shows that the values of the significant correlations are not high enough to justify concern. Moreover, the analysis of the variance inflation factor (VIF) reveals that there are no multicollinearity problems because the VIF of all research variables was below the VIF of 10 that Kennedy suggested as a warning of 'harmful collinearity' (Kennedy, 1992: 183).

Table 4 shows the results of the binomial logistic regression that analyzes the mediating effect of entrepreneurial self-efficacy. From Model 2, a positive and significant impact of gender on entrepreneurial intention is demonstrated ($\beta = 0.104$; $p < 0.005$). For its part, Model 3 shows the existence of a positive and significant relationship between gender and entrepreneurial self-efficacy ($\beta = 0.307$; $p < 0.001$). Finally, results of Model 4 confirm, on the one hand, that entrepreneurial self-efficacy is positively and significantly related to entrepreneurial intention ($\beta = 1.260$; $p < 0.001$) and, on the other hand, that the impact of gender on entrepreneurial intention is not significant ($\beta = 0.036$; $p > 0.1$) once the influence of entrepreneurial self-efficacy is controlled. Therefore, we can conclude that entrepreneurial self-efficacy fully mediates the relationship between gender and entrepreneurial intention and, consequently, Hypothesis 1 is supported. This affirmation is corroborated by the results of Sobel test ($z = -2.27$; $p < 0.05$).

In order to test the mediating role of the ability to recognize opportunities, Models 5–8 were built. As we can see in Table 5, gender is positively and significantly related to entrepreneurial intention ($\beta = 0.078$; $p < 0.005$; Model 6). Model 7 shows that gender impacts positively on the ability to recognize opportunities ($\beta = 0.274$; $p < 0.001$). Finally, Model 8 allows us to confirm not only the existence of a significant and positive relationship between the ability to recognize opportunities and entrepreneurial intention, ($\beta = 0.531$; $p < 0.001$) but also that the inclusion of the ability to recognize opportunities into the Model 8 brings as a result that the link between gender and entrepreneurial intention is no longer significant ($\beta = 0.055$; $p > 0.1$). Consequently, the relationship between gender and entrepreneurial intention is fully mediated by the ability to recognize opportunities and therefore, Hypothesis 3 is supported. Results obtained from Sobel test allow us to confirm such mediating effect ($z = -2.17$; $p < 0.05$).

Table 6 offers the details of the analysis carried out for testing the mediating effect of fear of failure. As we can see in Model 10, gender is significantly and positively related to entrepreneurial intention ($\beta = 0.105$; $p < 0.05$). Model 11, for is part, shows that gender negatively impacts on fear of failure ($\beta = -0.132$; $p < 0.001$). Finally, the third condition for mediation is confirmed by the results offered by Model 12. On the one hand, Model 12 reports a significant and negative relationship between fear of failure and

**Table 5** Results of the logistic regression analysis 2. Non-entrepreneur population. Mediating variable: ability to recognize opportunities.

| Variables Dependent variable | Model 5 Entrepreneurial intention | | Model 6 Entrepreneurial intention | | Model 7 Ability to recognize opportunities | | Model 8 Entrepreneurial intention | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald |
| Age | −0.031*** | 205.142 | −0.031*** | 204.443 | −0.005*** | 8.526 | −0.031*** | 201.627 |
| Knowing an entrepreneur | 0.621*** | 134.265 | 0.619*** | 133.192 | 0.647*** | 227.667 | 0.568*** | 109.857 |
| Entrepreneurial education | 0.553*** | 105.009 | 0.550*** | 103.580 | 0.179*** | 15.893 | 0.538*** | 98.715 |
| Gender | | | 0.078* | 3.377 | 0.274** | 43.159 | 0.055 | 1.074 |
| Ability to recognize opportunities | | | | | | | 0.531*** | 69.118 |
| Model $\chi^2$ [df] | 534.543*** [3] | | 701.314*** [4] | | 628.925*** [4] | | 991.445*** [5] | |
| Block $\chi^2$ [df] | 534.543*** [3] | | 164.599*** [1] | | 628.925*** [4] | | 290.131*** [1] | |
| Cox and Snell $R^2$ | 0.029 | | 0.041 | | 0.036 | | 0.066 | |
| Nagelkerke $R^2$ | 0.063 | | 0.091 | | 0.076 | | 0.122 | |
| Percentage of global correct predictions | 82.1% | | 86.4% | | 85.5% | | 91.0% | |

Source: own elaboration.
* $p < 0.005$.
** $p < 0.01$.
*** $p < 0.001$.

**Table 6** Results of the logistic regression analysis 3. Non-entrepreneur population. Mediating variable: fear of failure.

| Variables Dependent variable | Model 9 Entrepreneurial intention | | Model 10 Entrepreneurial intention | | Model 11 Fear of failure | | Model 12 Entrepreneurial intention | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald |
| Age | −0.032*** | 233.209 | −0.032*** | 232.057 | −0.007*** | 35.404 | −0.032*** | 242.026 |
| Knowing an entrepreneur | 0.567*** | 120.852 | 0.563*** | 119.382 | −0.564*** | 100.565 | 0.564*** | 118.939 |
| Entrepreneurial education | 0.557*** | 115.391 | 0.553*** | 113.333 | −0.211*** | 44.139 | 0.535*** | 105.613 |
| Gender | | | 0.105* | 4.361 | −0.312*** | 122.324 | 0.072 | 1.998 |
| Fear of failure | | | | | | | −0.386*** | 57.376 |
| Model $\chi^2$ [df] | 564.939*** [3] | | 669.303*** [4] | | 500.057*** [4] | | 927.187*** [5] | |
| Block $\chi^2$ [df] | 564.939*** [3] | | 104.364** [1] | | 500.057*** [4] | | 427.130*** [1] | |
| Cox and Snell $R^2$ | 0.028 | | 0.033 | | 0.056 | | 0.064 | |
| Nagelkerke $R^2$ | 0.062 | | 0.071 | | 0.086 | | 0.120 | |
| Percentage of global correct predictions | 86.1% | | 86.7% | | 79.5% | | 91.0% | |

Source: own elaboration.
* $p < 0.005$.
** $p < 0.01$.
*** $p < 0.001$.

**Table 7** Correlation matrix. Entrepreneur population.

| Variables | Mean | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| Entrepreneurial Intention | 0.11 | 1 | 0.043** | 0.098*** | 0.162*** | −0.087*** | −0.122*** | 0.118*** | 0.044** |
| Gender | 0.60 | | 1 | 0.017 | 0.021 | −0.024 | 0.095*** | 0.008 | 0.001*** |
| Entrepreneurial self-efficacy | 0.84 | | | 1 | 0.079** | −0.139*** | −0.104*** | 0.153*** | 0.059** |
| Ability to recognize opportunities | 0.20 | | | | 1 | −0.120*** | −0.074*** | 0.196*** | 0.072*** |
| Fear of failure | 0.38 | | | | | 1 | 0.052** | −0.066** | −0.021 |
| Age | 45.31 | | | | | | 1 | −0.211*** | −0.083*** |
| Knowing an entrepreneur | 0.47 | | | | | | | 1 | 0.121*** |
| Entrepreneurship education | 0.39 | | | | | | | | 1 |

Source: own elaboration.
** Significant at the 5% level.
*** Significant at the 1% level.

entrepreneurial intention ($\beta = -0.386$; $p < 0.001$) and on the other hand, that the impact of gender on entrepreneurial intention is not significant ($\beta = 0.072$; $p > 0.1$) once the effect of fear of failure is controlled. These results allow us to confirm Hypothesis 5, that is, that fear of failure fully mediates the relationship between gender and entrepreneurial intention. Moreover, the results extracted from Sobel test are in the same line ($z = -2.33$; $p < 0.05$).

Finally, it should be noted the significant influence of control variables on the entrepreneurial intention reported by non-entrepreneurs. Whereas age is negatively related to entrepreneurial intention in all the models (Model 4:

**Table 8** Results of the logistic regression analysis 4. Entrepreneur population. Mediating variable: entrepreneurial self-efficacy.

| Variables Dependent variable | Model 13 Entrepreneurial intention | | Model 14 Entrepreneurial intention | | Model 15 Entrepreneurial self-efficacy | | Model 16 Entrepreneurial intention | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald |
| Age | −0.029*** | 22.899 | −0.031*** | 25.520 | −0.022*** | 16.203 | −0.030*** | 22.876 |
| Knowing an entrepreneur | 0.618*** | 22.460 | 0.611*** | 21.931 | 0.783*** | 47.215 | 0.548*** | 17.443 |
| Entrepreneurial education | 0.179 | 2.023 | 0.178 | 1.981 | 0.205* | 3.169 | 0.158 | 1.548 |
| Gender | | | 0.374** | 8.095 | 0.188 | 2.248 | 0.398*** | 9.159 |
| Entrepreneurial self-efficacy | | | | | | | 0.955*** | 15.074 |
| Model $\chi^2$ [df] | 63.026*** [3] | | 171.351** [4] | | 86.726** [4] | | 490.378*** [5] | |
| Block $\chi^2$ [df] | 63.026*** [3] | | 108.324** [1] | | 86.726** [4] | | 319.027*** [1] | |
| Cox and Snell $R^2$ | 0.023 | | 0.028 | | 0.028 | | 0.045 | |
| Nagelkerke $R^2$ | 0.046 | | 0.057 | | 0.050 | | 0.101 | |
| Percentage of global correct predictions | 88.9% | | 88.9% | | 83.8% | | 88.9% | |

Source: own elaboration.
* $p < 0.005$.
** $p < 0.01$.
*** $p < 0.001$.

**Table 9** Results of the logistic regression analysis 5. Entrepreneur population. Mediating variable: ability to recognize opportunities.

| Variables | Model 17 | | Model 18 | | Model 19 | | Model 20 | |
|---|---|---|---|---|---|---|---|---|
| Dependent variable | Entrepreneurial intention | | Entrepreneurial intention | | Ability to recognize opportunities | | Entrepreneurial intention | |
| | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald |
| Age | −0.030*** | 22.334 | −0.032*** | 25.223 | −0.010*** | 3.745 | −0.031*** | 22.929 |
| Knowing an entrepreneur | 0.598*** | 19.638 | 0.588*** | 18.927 | 0.926*** | 74.135 | 0.450*** | 10.546 |
| Entrepreneurial education | 0.209 | 2.563 | 0.207 | 2.496 | 0.252** | 5.880 | 0.165 | 1.544 |
| Gender | | | 0.415** | 9.126 | 0.150*** | 2.016 | 0.472*** | 11.261 |
| Ability to recognize opportunities | | | | | | | 0.880*** | 38.666 |
| Model $\chi^2$ [df] | 59.455*** [3] | | 168.885** [4] | | 94.701** [4] | | 505.302*** [5] | |
| Block $\chi^2$ [df] | 59.455*** [3] | | 109.430** [1] | | 94.701** [4] | | 336.41*** [1] | |
| Cox and Snell $R^2$ | 0.024 | | 0.028 | | 0.034 | | 0.051 | |
| Nagelkerke $R^2$ | 0.047 | | 0.058 | | 0.060 | | 0.114 | |
| Percentage of global correct predictions | 88.7% | | 88.7% | | 80.4% | | 88.7% | |

Source: own elaboration.
** $p < 0.01$.
*** $p < 0.001$.

$\beta = -0.037$; $p < 0.001$; Model 8: $\beta = -0.031$; $p < 0.001$; Model 12: $\beta = -0.032$; $p < 0.001$), both knowing an entrepreneur (Model 4: $\beta = 0.407$; $p < 0.001$; Model 8: $\beta = 0.568$; $p < 0.001$; Model 12: $\beta = 0.538$; $p < 0.001$) and entrepreneurial education (Model 4: $\beta = 0.292$; $p < 0.001$; Model 8: $\beta = 0.538$; $p < 0.001$; Model 12: $\beta = 0.535$; $p < 0.001$) exert a highly positive influence on entrepreneurial intention.

## Entrepreneur population

Following a procedure similar to the one carried out for the non-entrepreneur population, we studied the possible existence of collinearity among the independent variables. The correlations reported in Table 7 as well as the results of VIF analysis show that there are no serious problems of multicollinearity in the sample of entrepreneurs. Table 7 also reports the descriptive statistics of the variables. In this case, the average age of entrepreneurs is 45.31 years, and there is a significant increase in the ratio of men to women (60%). Lastly, it is necessary to highlight the significant increase in the number of people who report entrepreneurial self-efficacy (84%), ability to recognize opportunities (20%), and entrepreneurial intention (11%), as well as the decrease in people who report fear of failure (38%).

Similarly to the procedure carried out for non-entrepreneurial population, three binomial logistic regressions were built for analyzing the mediating role of perceptual factors on entrepreneurs' entrepreneurial intention.

First, Table 8 offers the results extracted from Models 13, 14, 15 and 16, which were designed to test the mediating impact of entrepreneurial self-efficacy. Regarding the first condition for mediation, Model 14 shows that gender is significantly and positively related to entrepreneurial intention ($\beta = 0.374$; $p < 0.01$). Model 15, for its part, shows that gender is not significantly related to entrepreneurial self-efficacy ($\beta = 0.188$; $p > 0.1$), which implies the reject of the second condition. Lastly, as can be extracted from Model 16, entrepreneurial self-efficacy is significantly correlated to entrepreneurial intention ($\beta = 0.955$; $p < 0.001$). However, the relationship between gender and entrepreneurial intention is more significant ($\beta = 0.398$; $p < 0.001$) once entrepreneurial self-efficacy is controlled and consequently, the third condition is also not accepted. Therefore, we can conclude that entrepreneurial self-efficacy does not mediate the relationship between gender and entrepreneurial intention and consequently, that Hypothesis 2 is supported. These results are corroborated by Sobel test ($z = -1.21$; $p > 0.05$).

Second, Table 9 shows the details of the analysis carried out for analyzing the mediating effect of the ability to recognize opportunities. From Model 18, it can be extracted that gender is significantly related to entrepreneurial intention ($\beta = 0.415$; $p < 0.01$). For its part, Model 19 shows that gender does not significantly impact on the ability to recognize opportunities ($\beta = 0.150$; $p > 0.1$), which lead us to reject the second condition for mediation. In addition, the results extracted from Model 20 allow us to reject the third condition for mediation, because while it is true that the ability

**Table 10** Results of the logistic regression analysis 6. Entrepreneur population. Mediating variable: fear of failure.

| Variables Dependent variable | Model 21 Entrepreneurial intention | | Model 22 Entrepreneurial intention | | Model 23 Fear of failure | | Model 24 Entrepreneurial intention | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald | Coefficient $\beta$ | Wald |
| Age | −0.030*** | 24.047 | −0.032*** | 26.779 | 0.010* | 5.831 | −0.031*** | 24.796 |
| Knowing an entrepreneur | 0.621*** | 22.849 | 0.613*** | 22.156 | −0.241*** | 8.864 | 0.583*** | 19.835 |
| Entrepreneurial education | 0.187 | 2.218 | 0.187 | 2.202 | −0.048** | 0.353 | 0.184 | 2.120 |
| Gender | | | 0.387** | 8.722 | −0.189 | 2.229 | 0.461*** | 12.239 |
| Fear of failure | | | | | | | −0.520*** | 14.007 |
| Model $\chi^2$ [df] | 65.638*** | [3] | 174.620** | [4] | 80.175*** | [4] | 489.415*** | [5] |
| Block $\chi^2$ [df] | 65.638*** | [3] | 108.982** | [1] | 80.175*** | [4] | 314.795*** | [1] |
| Cox and Snell $R^2$ | 0.024 | | 0.027 | | 0.031 | | 0.056 | |
| Nagelkerke $R^2$ | 0.048 | | 0.054 | | 0.050 | | 0.124 | |
| Percentage of global correct predictions | 88.8% | | 88.8% | | 81.9% | | 88.8% | |

Source: own elaboration.
* $p < 0.005$.
** $p < 0.01$.
*** $p < 0.001$.

to recognize opportunities and entrepreneurial intention are significantly related ($\beta = 0.880$; $p < 0.001$), the inclusion of the mediating variable into the model does not bring as a result a lower significance in the relationship between gender and entrepreneurial intention ($\beta = 0.472$; $p < 0.001$) Consequently, Hypothesis 4 is supported, since the effect of gender on entrepreneurial intention is not mediated by the ability to recognize opportunities. For its part, the results extracted from Sobel test lead us to corroborate these findings ($z = -1.48$; $p > 0.05$).

Finally, the analysis of the mediating role of fear of failure is described in Table 10. As Model 22 shows, there is a positive and significant relationship between gender and entrepreneurial intention ($\beta = 0.387$; $p < 0.01$). From Model 23, we can extract that gender impacts negatively on fear of failure ($\beta = -0.189$; $p > 0.1$). However, this relationship is not significant and consequently, the second condition for mediation is rejected. Lastly, Model 24 shows that on the one hand, fear of failure is significantly and negatively related to entrepreneurial intention ($\beta = -0.520$; $p < 0.001$) and on the other hand, that the relationship between gender and entrepreneurial intention is more significant ($\beta = 0.461$; $p < 0.001$) once the effects of fear of failure are controlled. Therefore, the third condition for mediation is also rejected, and Hypothesis 6 is supported. For its part, the results extracted from Sobel test allow us to confirm the non-existence of mediating impact ($z = -1.55$; $p > 0.05$).

With respect to the control variables, results of Models 16, 20 and 24 show the negative influence of age on entrepreneurial intention (Model 16: $\beta = -0.030$; $p < 0.001$; Model 20: $\beta = -0.031$; $p < 0.001$; Model 24: $\beta = -0.031$; $p < 0.001$). Conversely, knowing an entrepreneur and entrepreneurial intention are positively correlated in all the models (Model 16: $\beta = 0.548$; $p < 0.001$; Model 20: $\beta = 0.450$; $p < 0.001$; Model 12: $\beta = 0.583$; $p < 0.001$). For its part, the results obtained reveal that entrepreneurial does not exert any influence on the entrepreneurial intention reported by entrepreneurs (Model 16: $\beta = 0.158$; $p > 0.1$; Model 20: $\beta = 0.165$; $p > 0.1$; Model 24: $\beta = 0.184$; $p > 0.1$).

## Discussion and conclusions

This research was designed with the main purpose of analyzing the influence of perceptual factors – entrepreneurial self-efficacy, the ability to recognize opportunities, and fear of failure – on the relationship between gender and entrepreneurial intention. To this end, and drawing on the premises of SFT, we have distinguished between non-entrepreneurs and entrepreneurs.

With regard to non-entrepreneurs, our empirical analysis has mainly revealed that gender decisively influences their entrepreneurial intention and, more importantly, that perceptual factors play a crucial role on explaining the different entrepreneurial intention reported by male and female non-entrepreneurs. Indeed, our results indicate that entrepreneurial self-efficacy, the ability to recognize opportunities and fear of failure fully mediate the relationship between gender and entrepreneurial intention.

Focusing on entrepreneurial self-efficacy, our findings seem to suggest that self-perceptions of women regarding their abilities to succeed in entrepreneurial tasks may importantly restrict their attitudes toward entrepreneurship. The key for understanding these barriers self-imposed by women and their detrimental impact on female's

entrepreneurial intention could lie on early social learning, which would be decisively related to career decisions of men and women (Greene et al., 2003). To this respect, several scholars have argued that women have fewer early career experiences, social support, or role models related to entrepreneurship than their male counterparts (Dyer, 1994; Zhao et al., 2005), which undermines the entrepreneurial self-efficacy of women and, ultimately, their entrepreneurial intention. Our findings follow the line of previous research that has highlighted the relevance of entrepreneurial self-efficacy in explaining the higher preference of male for entrepreneurship (Matthews and Moser, 1996; Wilson et al., 2009; Koellinger et al., 2013).

For its part, from our results about the role played by the ability to recognize opportunities, it may be suggested that the differentiated perception of entrepreneurial opportunities reported by men and women significantly influences the lower entrepreneurial intention exhibited by female non-entrepreneurs. These results are aligned with the main foundations of SFT and can be explained by the significant gender differences in human capital. The differences between males' and females experiences and socialization processes (Fischer et al., 1993) allow men and women to develop unique human capital which in turn impacts the ability to recognize opportunities and entrepreneurial intention (DeTienne and Chandler, 2007). Indeed, women frequently display a lack of prior experience, training, business experience and social capital if they are compared with men (Ettl and Welter, 2010; Verheul and Thurik, 2001). Reinforcing this argument, Venkataraman (1997) posited that the stock of knowledge varies among men and women and these differences matter, in such a way that the search for and the decision to exploit and opportunity is significantly affected.

Finally, our findings reveal the role of fear of failure as a significant barrier that constrains the entrepreneurial intention of female non-entrepreneurs. This result could be explained by two main reasons. On the one hand, fear of failure reflects the way in which men and women perceive themselves and their environment, which are a result of the different socialization processes experienced by them (Minniti, 2009). In this vein, the research of Fuentes-García and Sánchez-Cañizares (2010) reported the fear of failure as the most important obstacle perceived by female students for starting a business, whereas their male counterparts noted other aspects such as tax burdens or personal effort. More interestingly, female students considered their creativity as the most important factor for starting a business, whereas male students attached greater importance to factors such as the desire for new challenges of the willingness to take risks. On the other hand, the social consideration of entrepreneurship as a typically masculine choice could also influence the self-perceptions of women in relation to their fear of failure. As Heilman (1983) and Shinnar et al. (2012) reported, the gendered nature of the entrepreneurial career may raise additional barriers for women in terms of fear of failure when thinking about the possibility of starting a business because doing so would constitute the pursuit of a career which is socially discouraged for women.

Conversely, the results extracted from the analysis devoted to the sample of entrepreneurs reveal that perceptual factors do not explain gender differences in the entrepreneurial intention exhibited by male and female entrepreneurs. To this respect, while it is true that men report more entrepreneurial intention than women, it is not less true that differences in self-perceptions tend to disappear once people have become entrepreneurs and consequently, that perceptual factors do not mediate the relationship between gender and entrepreneurial intention.

At this point, our reflection should aim to analyze why the influence of perceptual factors is hindered among entrepreneurs. In this vein, a plausible explanation arises from the acquisition of competences and experiences by female entrepreneurs. As we previously noted, men and women could differ in relation to their own perceptions and their attitudes toward entrepreneurship as a result of the different experiences and socialization processes experienced by them. However, once women have become entrepreneurs, it is reasonable to think that the experience and knowledge accumulated during the entrepreneurial development allow them to modify their own perceptions. Specifically, once women have started a venture, they could feel more confident regarding their abilities for entrepreneurship, consider themselves and their abilities in a more realistic way and overcome their own fears and barriers to entrepreneurship (Kirkwood, 2009; Shinnar et al., 2012). Our findings are consistent with some previous research, which found that gender differences in perceptual factors decreased when the human capital of men and women is similar (Koellinger et al., 2013; Zhao et al., 2005).

Taking into account the relevance of control variables in our models, a final consideration about its influence on the entrepreneurial intention reported by both non-entrepreneurs and entrepreneurs should be mentioned. First, it is relevant to posit the universal impact of both age and knowing an entrepreneur. Regarding age, previous literature is not entirely conclusive (Aidis et al., 2012; Levesque and Minniti, 2006). Our results seem to be aligned with some research that has suggested that younger people tend to be less adverse to take risks than older people and consequently, that the former would be more likely to report entrepreneurial intention than the latter (Levesque and Minniti, 2006; Reynolds et al., 2002; Wilson et al., 2007). With respect to the influence of knowing an entrepreneur, the results obtained reinforce the increasing and conclusive research stream that highlights the universal impact of social networks on the development of entrepreneurial attitudes (Davidsson and Honig, 2003; González-Álvarez and Solís-Rodríguez, 2011; Liñán and Santos, 2007). At this point, our results show the crucial role of entrepreneurs within individuals' social networks. On the one hand, entrepreneurs could be considered as role models and therefore, they could significantly determine individuals' perceptions and intentions to start a firm (Liñán and Santos, 2007). On the other hand, entrepreneurs could facilitate the access to crucial resources and information regarding new potential entrepreneurial opportunities (Bhagavatula et al., 2010). Lastly, the role of entrepreneurial education only seems to be relevant when it comes to enhance the likelihood of non-entrepreneurs exhibiting entrepreneurial intention. In this vein, our results follow the line of previous research that has found that the smaller is the entrepreneurial experience of the individuals who participate in the courses, the greater is

the influence of entrepreneurial education on the development of their entrepreneurial intentions (Cooper and Lucas, 2007; Fayolle et al., 2007; Peterman and Kennedy, 2003).

This research offers several contributions. First, we contribute to gender and entrepreneurship literatures, following the recommendations of Mirchandani (1999), Bird and Brush (2002) and De Bruin et al. (2007), who claims the need to analyze the female entrepreneurship, through feminist theories. In this vein, our paper allows us to further the little empirical evidence based on SFT, reinforcing the relevance and validity of this framework. Second, our research goes a step further, because in line with the main premises of SFT, not only suggests that unique experiences and socialization result in men and women differ in self-perceptions, but also that such differences seem to be overcame once people become entrepreneurs. Third, we contribute to enhance the understanding about gender differences in entrepreneurial intention. Previous literature has highlighted the lack of research devoted to analyze the variables that mediate the relationship between gender and entrepreneurial intention (Yordanova and Tarrazon, 2010), being extremely significant the limited empirical evidence focused on examining the mediating role of perceptual factors (Wilson et al., 2009; Zhao et al., 2005). To this respect, our research represents the first attempt of comparatively analyzing the mediating role of perceptual factors on the relationship between gender and entrepreneurial intention of both non-entrepreneurs and entrepreneurs.

Although our study offers several new insights, some limitations should be highlighted. Some of these are related to the characteristics of the GEM database. First, survey questions in the GEM study are designed for analyzing a number of different issues. For this reason, there are only a small number of items related to perceptual factors and entrepreneurial intention. However, previous research, such as that by Kwong et al. (2009) or Langowitz and Minniti (2007), has used these variables in a similar way to the approach taken in our study. Second, our research has included data only on individuals' own perceptions, not actual abilities. In this vein, other influencing factors that have been related to perceptual factors and entrepreneurial intention should be considered. A third point, to which we must draw our attention, is that the conclusions of our research are limited by the geographical representation of the study (Spain). Therefore, our results may not be applicable to other countries because of economic, institutional and cultural differences. And finally, a limitation concerning causality should be mentioned. We emphasize that the causal relationships established in the present research are the result of accepting the theoretical premises and findings of previous studies (Díaz-García and Jiménez-Moreno, 2010; Koellinger et al., 2013; Wilson et al., 2009; Zhao et al., 2005). However, we must recognize that because these data are cross-sectional, we have not been able to check the possibilities that the relationships of causality established herein also operate in the opposite direction, or that self-reinforcing processes exist. Therefore, it would be desirable to conduct longitudinal studies to explore and understand the causal relationships among the variables in greater depth.

Lastly, important practical implications can be derived from this research. In the light of the results obtained, we suggest that both educational institutions and governmental institutions should foster entrepreneurial training and programs with the purpose of women can overcome their inherent differences in experiences and socialization processes and consequently, modify their own perceptions toward entrepreneurship. Moreover, the access to role models should also have a positive influence on the entrepreneurial intention reported by women, since as a large body of research has argued, role models can help to overcome fear of failure and lack of experience, as well as to strength the entrepreneurial self-efficacy (BarNir et al., 2011; Buunk et al., 2007; Minniti and Bygrave, 2001). To this respect, the development of meetings and workshops in which successful female entrepreneurs participate, could be especially appropriate for increasing the entrepreneurial intention of women.

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