

## ENTREPRENEURIAL SELF-EFFICACY IN ITALY: AN EMPIRICAL STUDY FROM A GENDER PERSPECTIVE

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Entrepreneurial self-efficacy (ESE) is a key factor for the promotion of entrepreneurship. Literature emphasizes the need for and, indeed, recommends a gender perspective in the study of ESE. The aim of this study is twofold: to begin analyzing some of the psychometric properties of the McGee, Peterson, Mueller, and Sequeira (2009) ESE scale in the Italian context, and to explore the gender differences in the ESE levels in an Italian sample of entrepreneurs and non-entrepreneurs. Confirmatory factor analysis, multigroup confirmatory factor analysis and a  $2 \times 2$  MANOVA were conducted. The results support the possible use of McGee et al.'s ESE scale in the Italian context. Furthermore, they reveal that the gender difference in the sample of non-entrepreneurs is greater than in the entrepreneur sample. The main practical implication is that women entrepreneurs should receive specific training both before and after creating a new venture.

Key words: Entrepreneurial self-efficacy; Female entrepreneurship; Psychometric properties; Gender difference; Entrepreneurs.

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Recent studies report that encouraging and supporting entrepreneurship could counteract the effects of the current economic, cultural, and social crisis. Many scholars agree on the crucial role played by entrepreneurship in economic (Estrin, Meyer, & Bytchkova, 2006), social (Licht & Siegel, 2006), and technical development (Berchicci & Tucci, 2006). As a result, the European Commission is fostering several actions aimed at entrepreneurial development. These actions, besides providing financial support for creating new ventures, address entrepreneurship education and training for the development of an entrepreneurial mindset. Accordingly, the development of consultancy services aimed at promoting awareness with regard to an individual's personal resources and the psychological mechanisms underlying venture intention and the concrete will to start an entrepreneurial business appears to be essential.

Current research on this topic has evolved by recommending specific assessment tools concerning entrepreneurial potential (Santos, Caetano, & Curral, 2014) and, in particular, entrepreneurial self-efficacy (Barbosa, Gerhardt, & Kickul, 2007; McGee, Peterson, Mueller, & Sequeira, 2009). General self-efficacy is a construct that measures a person's belief in his/her ability to mobilize the motivation, cognitive resources, and actions useful for managing life events (Gun-

zenhauser et al., 2013; Wood & Bandura, 1989). Entrepreneurial self-efficacy (ESE), on the other hand, is a construct that specifically measures a person's belief in his/her ability to successfully launch an entrepreneurial venture (McGee et al., 2009). Although several factors may influence an entrepreneurial career choice, entrepreneurial self-efficacy seems to play a key role (Barbosa et al., 2007; Boyd & Vozikis, 1994; Zhao, Seibert, & Hills, 2005). A number of scales measuring ESE have been proposed in the literature (e.g., Chen, Greene, & Crick, 1998; McGee et al., 2009). However, to date, an adaptation of an ESE scale to the Italian context is lacking. Accordingly, the first aim of the present study is to investigate the psychometric properties of the McGee et al. (2009) scale in the Italian context.

Furthermore, recent entrepreneurship literature emphasizes the role of gender in the study of entrepreneurial phenomena (Brush & Cooper, 2012; Jennings & Brush, 2013; Minniti & Nardone, 2007). Nowadays, although the absolute number of women involved in entrepreneurship has increased, empirical studies show that there are still significant differences in the level of new venture creation across genders, and that the number of women involved in starting a business is significantly and systematically lower than that of men (Minniti, Bygrave, & Autio, 2005; Minniti & Nardone, 2007). Much of the research carried out so far indicates that there are no gender differences in the entrepreneurship phenomena when the participants of the study are entrepreneurs (Mueller, 2004). In contrast, empirical studies comparing men and women in terms of their potential for entrepreneurship report a gender difference (Gupta, Turban, Wasti, & Sikdar, 2009). Accordingly, the second aim of the present study is to explore the gender differences in the ESE levels in Italy. A deeper literature overview of the role of ESE in entrepreneurial intention and performance, on the ESE measures, and on the relationship between gender and ESE will be addressed in the following paragraphs.

#### ENTREPRENEURIAL SELF-EFFICACY AS A KEY ANTECEDENT OF ENTREPRENEURIAL INTENTION AND PERFORMANCE

Starting one's own business or initiating a new venture is often described as a purposive and intentional career choice (e.g., Bird, 1988; Chen et al., 1998; Krueger, Reilly, & Carsrud, 2000). Several contextual and individual factors may influence entrepreneurial choice. Factors such as self-realization, financial success, roles, innovation, recognition, and independence (Carter, Gartner, Shaver, & Gatewood, 2003); social structures, such as workplace, family, and organized social life (Aldrich, 1989; Carr & Sequeira, 2007); gender, race, and age (Cooper & Gimeno-Gascon, 1992). However, Krueger (2000) shows that the direct effect of these antecedents is less explicative of a cognitive process where intentionality serves as an important mediating variable between the act of starting a business venture and the antecedents. In other words, intentions predict behavior, while, in turn, certain specific attitudes predict intention (Ajzen, 1987, 1991; Kim & Hunter, 1993). This theoretical model is called Ajzen's Theory of Planned Behavior (TPB) and identifies three attitudinal antecedents of intentions. Two of them reflect the perceived desirability of performing the behavior: personal attitudes toward outcomes of the behavior and perceived social norms. The third, perceived behavioral control, concerns the notion that behavioral control reflects the perceived feasibility of performing the behavior and is, thus, related to the perception of situational competence (self-efficacy).

Bandura (1986) states that self-efficacy is linked to initiating and persisting with behavior under uncertainty, to setting higher goals, and reducing threat-rigidity and learned helplessness. In the entrepreneurship field, self-efficacy has also been identified as a critical variable. In particular, entrepreneurial self-efficacy (ESE) has been emphasized as a key antecedent of entrepreneurial intention (e.g., Boyd & Vozikis, 1994; Carr & Sequeira, 2007; Mauer, Eckerle, & Brettel, 2013; Zhao et al., 2005) and entrepreneurial performance (e.g., Baum & Locke, 2004; Forbes, 2005; Hmieleski & Corbett, 2008). The multidimensionality of entrepreneurial self-efficacy is one of the most intriguing topics and consequently has received much attention. Multidimensionality has been conceived in different and varied dimensions, according to the purposes of the behavior. Chen et al. (1998) defined ESE multidimensionality in accordance with the entrepreneurial roles and tasks that individuals have to perform: marketing, innovation, management, risk-taking, and financial control. Nevertheless, the operationalization of Chen et al.'s ESE measure revealed poor predictive validity and discriminating power within dimensions (Fitzsimmons & Douglas, 2011). As an attempt to solve these weaknesses, DeNoble, Jung, and Ehrlich (1999) developed a measure of ESE with six subscales, anchored also on the main tasks and roles performed by entrepreneurs: developing new product and market opportunities; building an innovative environment; initiating investor relationships; defining core purpose; coping with unexpected challenges; and developing critical human resources. Taking into account the four phases of the venture-creation process, McGee et al. (2009) proposed a multidimensional measure of ESE including, specifically, searching, planning, marshaling, and implementing. McGee et al.'s proposal is particularly interesting once it integrates the construct conceptualization and measurement, as it is based on the robust theory of different stages of the entrepreneurial project of Stevenson, Roberts, and Grousbeck (1985). Building on these scales, subsequent attempts to develop multidimensional ESE scales have been developed, making slight refinements, such as in wording (e.g., Moberg, 2013). Other proposals were theoretical, such as those proposed by Drnovšek, Wincent, and Cardon (2010), who offered a different theoretical conceptualization of ESE using three dimensions: target of ESE (business start-up or business growth activities), goal benefits of ESE beliefs (task or outcome goal beliefs), and control beliefs of ESE beliefs (positive or negative control beliefs).

Despite the multidimensionality of the construct, ESE has also been studied as a predictor and mediator of entrepreneurial behaviors. As a predictor, ESE was identified as an antecedent of entrepreneurial intentions (e.g., Boyd & Vozikis, 1994; Carr & Sequeira, 2007; Mauer et al., 2013; Pihie & Bagheri, 2013; Zhao et al., 2005) and performance (e.g., Baum & Locke, 2004; Forbes, 2005; Hmieleski & Corbett, 2008). These studies indicate that the perceived entrepreneurial self-efficacy to undertake the tasks of launching a new venture positively influences entrepreneurial intentions, and consequently, leads to entrepreneurial actions. Considering the mediation processes, Zhao et al. (2005) reported that the effects of perceived learning from entrepreneurship-related courses, previous entrepreneurial experience and risk propensity on entrepreneurial intentions were fully mediated by entrepreneurial self-efficacy. Indeed, the results of Carr and Sequeira (2007) showed the mediating effect of ESE in the relationship between prior family business and entrepreneurial intent.

In sum, entrepreneurial self-efficacy is positively related to entrepreneurial outcomes, and "entrepreneurs tend to be 'can do' individuals" (Baron, 2014, p. 218). Hence, empirical research on the relationship between ESE and entrepreneurial intent is to be encouraged, also in non-English speaking countries where it seems scarcer. The present study aims to contribute to fill this gap, at least by shedding some light on the investigation of entrepreneurial self-efficacy in Italy.

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## ENTREPRENEURIAL SELF-EFFICACY MEASURES

Even though entrepreneurial self-efficacy could be measured by a single item (Tominc & Rebernik, 2007) or by a scale including various items relying on a “total ESE” score (Arenius & Minniti, 2005; Baum & Locke, 2004; Chen et al., 1998; Zhao et al., 2005), many authors recommend a multidimensional approach in order to obtain a more detailed picture of the relationships among the variables studied (Barbosa et al., 2007; McGee et al., 2009; Mueller & Goic, 2003).

Barbosa and colleagues (2007) examined the relationship between cognitive styles and four task-specific types of ESE, such as opportunity-identification, relationship, managerial and tolerance self-efficacy. These authors found that the various types of self-efficacy, or underlying dimensions, may have individual and unequal relationships with multiple dependent variables, particularly entrepreneurial intentions and nascent behavior. Mueller and Goic’s (2003) international comparative study adapted a four-phase venture-creation process model originally proposed by Stevenson et al. (1985), and proposed a single measure of ESE for each specific task associated with each of the four phases of the process (searching, planning, marshalling, and implementing). These authors reported that an individual’s level of ESE varied by phase, empirically suggesting a construct of a multidimensional nature. As described in the previous section, McGee et al. (2009) proposed a multidimensional measure of ESE based on the model first anticipated by Stevenson and colleagues and used by Mueller and Goic. They developed a scale with this four-phase venture-creation process model as a theoretical guide. The four phases are the following: searching, which involves the development by the entrepreneur of a unique idea and/or identification of a special opportunity; planning, which consists of the activities the entrepreneur carries out to convert the idea into a feasible business plan; marshalling, which involves assembling resources to bring the venture into existence; implementing, which involves the application of good management skills and principles. It is important to note that the model tested by McGee et al. included two more variables: a dichotomous variable representing nascent entrepreneurship and a measure of attitude toward venturing. According to the authors, nascent entrepreneurs are those who have never owned a business and do not currently own a business. Moreover, nascent entrepreneurs were defined as those who were participating, or had done so in the past, in at least two of the following six behaviors: (1) attending a “start your own business planning” seminar or conference, (2) writing a business plan or participating in seminars that focus on writing a business plan, (3) putting together a start-up team, (4) looking for a building or equipment for the business, (5) saving money to invest in the business, and (6) developing a product or service. The authors justified the inclusion of the two variables, dichotomous variables representing nascent entrepreneurship and attitude toward venture, by arguing that a more powerful assessment of the convergent, discriminant and nomological validity of the ESE-related construct could be evaluated. Actually, they tested two models: a first model where ESE comprised three dimensions (searching, planning, and marshalling were collapsed into only one factor) and a second model where ESE comprised the five dimensions hypothesized (searching, planning, marshalling, implementing human resources, implementing financial resources). The test of fit of the data on McGee et al.’s hypothesized five-dimension model using structural equation modeling showed the best fit. Moreover, results pointed out that nascent entrepreneurs exhibited higher levels of the ESE dimensions and felt more confident about operating across all stages of the entrepreneurship process than individuals in the general population who had not fully pursued entrepreneurial endeavors. Finally, they found that nascent entrepreneurs appear to be particularly

confident in their ability to seek out entrepreneurial opportunities and marshal the required resources to exploit such opportunities. This supports the notion that nascent entrepreneurs most likely approach the discovery and exploitation of potentially profitable opportunities differently from non-entrepreneurs (Shane & Venkataraman, 2000).

A recent study by Karlsson and Moberg (2013) developed in Denmark, using the scale proposed by McGee et al. (2009), proved that the entrepreneurship program was effective in enhancing ESE. Since it is based on the main important stages for developing a venture creation, this measure of ESE appears to be very suitable for assessing entrepreneurial personal resources at the beginning and at the end of entrepreneurial training sessions to support an individual's awareness of their own entrepreneurial competences. Thus, it could be a useful career-counseling tool for promoting and supporting entrepreneurial development in Italy.

Accordingly, the present study's first aim is to explore some of the psychometric properties of the McGee et al. (2009) ESE scale in the Italian context. In particular, data supporting the construct validity of the Italian version of the scale are provided.

#### ENTREPRENEURIAL SELF-EFFICACY FROM A GENDER PERSPECTIVE

Gender differences in entrepreneurship have systematically shown that a gender gap exists in entrepreneurial intentions (e.g., Gupta, Turban, & Bhawe, 2008), self-employment (e.g., Clain, 2000; Georgellis & Wall, 2005), early-stage entrepreneurial activity (e.g., Global Entrepreneurship Monitor Reports; Xavier, Kelley, Kew, Herrington, & Vorderwülbecke, 2013), and entrepreneurial activity indicators in general (e.g., Cowling & Taylor, 2001; Fairlie, 2014). The gender gap suggests that, in general, women are less involved in entrepreneurship intentions and activities than men, despite the differences across countries and cultures (e.g., Koellinger, Minniti, & Schade, 2013; Mueller, 2004). In brief, the explanations for this discrepancy between gender is based on the perceived discrimination of women at various stages of entrepreneurship (Zhang et al., 2009), for example, they have more difficulty in finding initial capital (Fay & Williams, 1993), angel capital (Becker-Blease & Sohl, 2007), and bank loans (Buttner & Rosen, 1988).

Differences between men and women in task-related self-efficacy have been studied. Most of the gender differences were focused on academic areas and a meta-analysis in academic self-efficacy suggested that men had higher levels of self-efficacy, the content domain being a significant moderator (Huang, 2012). Work-related performance is also predicted by self-efficacy, varying in the presence of individual differences dependent on the context and on the complexity of the task (Judge, Jackson, Shaw, Scott, & Rich, 2007).

The career psychology literature substantiates the significant role of gender in understanding differences in career self-efficacy (Lent & Hackett, 1987; Nevill & Schleckler, 1988). In brief, several authors have argued that career self-efficacy differences are mainly based on differential gender-role socialization. In their studies, these authors found that men's self-efficacy was generally equal across traditionally male and female occupations, but that women's self-efficacy was significantly higher for traditionally female occupations and significantly lower for stereotypically male occupations (Eccles, 1994; Hackett & Betz, 1981; Tien, Wang, & Liu, 2009).

Despite this consensus on the role of gender in career self-efficacy studies, few studies to date have specifically addressed the relationship between gender and ESE, and the results have

been inconsistent (Mueller & Dato-on, 2008; Wilson, Kickul, & Marlino, 2007). In particular, Wilson et al. reported a gender effect on ESE in a U.S. middle/high school student sample. Their findings point out that young women may be limiting their career aspirations because they do not feel adequately skilled, and this effect persists even in women pursuing a Master in Business Administration (MBA) degree.

In contrast to these results, Mueller and Dato-on (2008) found no gender effect on ESE in a representative U.S. sample of MBA students. These authors argued that the lack of gender differences might be attributed to the changing times characterized by the advancement of women in traditionally male-dominated fields. Recently, Mueller and Dato-on (2013) extended their research in a cross-cultural study of the relationship between gender-role orientation and ESE in the USA and Spain. The results provide evidence that culture affects the relationship between gender-role orientation and ESE, and that the traditional gender-role stereotypes associated with entrepreneurship are more persistent in Spain than in the United States. This recent study is important because it is one of the first cross-cultural studies in this field and provides interesting clues for designing further cross-cultural studies (e.g., Junco & Brás-dos-Santos, 2009). However, first and foremost, research is still needed to examine the gender-gap within each single national culture. Accordingly, the second aim of the present study addresses the issue of gender differences in the ESE by scoring two different groups of participants, entrepreneurs and non-entrepreneurs.

As stated by several authors (e.g., Cejka & Eagly, 1999; Mueller & Dato-on, 2013) the disadvantage for female entrepreneurship career choice seems to originate mainly from the stereotypical characteristics attributed to men and women with the classification of various occupations as either masculine or feminine, as this tends to affect people's aspirations and inclination toward such jobs. This stereotypical characterization is influenced by the national culture (Mueller & Dato-on, 2013). The national culture is a critical determinant to explain the differences between groups of people, and is characterized by four main dimensions: power distance, individualism versus collectivism, masculinity versus femininity, and uncertainty avoidance (Hofstede, 1998; Hofstede, Hofstede, & Minkov, 2010).

Hofstede and his co-authors developed one of the most comprehensive studies about national cultures, describing the national culture dimensions in more than seventy countries. Italy was characterized by a high score in individualism, evidencing that Italians are focused on themselves and driven by personal fulfilment, while the power distance score highlights a perception of inequalities between members of institutions and organizations. The dimension uncertainty avoidance reported a high score in Italy, suggesting that Italians try to avoid ambiguous situations, despite the fact that strict planning is also stressful for them. The masculinity versus femininity dimension in Italy reported a high score, showing that there is a typically masculine culture, driven by competition, success-orientated, and career-focused. Hofstede (1998) indicates a masculine society as characterized by the traditional masculine social values, such as the importance of showing off, of performing, of achieving something visible, of making money, of "big is beautiful." These values in a typical masculine society permeate the whole society, even the women's way of thinking. In particular, the "masculinity/femininity index" of the specific country examined could be taken into account as a key factor for explaining gender differences in entrepreneurial self-efficacy. Accordingly, the hypotheses of the investigation of the gender differences in the ESE levels in Italy, a typically masculine country, on two different groups of participants, entrepreneurs and non-entrepreneurs, are:

Hypothesis 1: in the group of non-entrepreneurs, men will reveal higher levels in ESE than women;

Hypothesis 2: in the group of entrepreneurs, men will not reveal higher levels in ESE than women.

In the non-entrepreneurs group, the specific gender-role socialization might explain the women's lower ESE in comparison to that of the men. In fact, Italy represents a typical masculine society, and, thus, for women just the traditional feminine job careers are fostered and supported. In its turn, in the group of entrepreneurs, the characteristics of a typical masculine society might be dissipated, given that both women and men are engaged and experienced in the entrepreneurial process, and thus there will be no gender differences regarding ESE levels, as H2 suggests. Moreover, H2 is also in line with "the general assumption concerning the venture creation process that there is no difference between the perceived self-confidence of women or men on the verge of making an entrepreneurial career choice and once it is taken and concretised" (Mueller, 2004, p. 15).

These hypotheses report innovativeness because they include two different groups, entrepreneurs and non-entrepreneurs. Furthermore, H2 states an innovative pattern between gender and ESE for entrepreneurs, since in previous studies male entrepreneurs were hypothesized as higher in ESE. Thus, the particular characteristics of the national context of this study, Italy, allowed the development of an innovative and culture-contextualized hypothesis.

The McGee et al. (2009) scale is the measure for ESE which discriminates the four phases of the entrepreneurial process, and that fact justifies the relevance and utility of this measure. Testing the psychometric characteristics of McGee et al.'s ESE scale in a specific cultural context is interesting because it can provide the first input for developing national validated versions of the scale. Thus, it is relevant to analyze the psychometric properties of the McGee et al. ESE scale in the Italian context, as it can provide initial evidence for the validation of the scale in the future. Italy shows a typically masculine culture, characterized by individualism, high power distance, and high uncertainty avoidance. Taken together, these national culture characteristics reveal an interesting environment to study McGee et al.'s ESE and gender differences, as the cultural environment is propitious for entrepreneurial activities and for acute gender differences.

In sum, studying gender differences in the ESE in a specific culture is interesting because it can contribute to explain the inconsistencies in previous research. Moreover, the Italian context is particularly interesting and relevant to test gender differences, as it reveals a marked masculine culture, and thus, it is expected that the gender differences in ESE will be unbiased by other factors. Moreover, Italy is a non-native English speaking country, and thus, it is interesting to analyze the fit of the scale in a different language.

## METHOD

### Participants

A total of 1,148 participants took part in this study. In particular, two different groups of participants were involved: 402 entrepreneurs (35%) and 746 non-entrepreneurs (65%). The 402

entrepreneurs were 239 men (59.4%) and 163 women (40.6%) aged between 20 and 82 ( $M = 44.66$ ,  $SD = 12.80$ ). The 746 non-entrepreneurs were 303 men (40.8%) and 443 women (59.2%) aged between 17 and 80 ( $M = 31.39$ ,  $SD = 12.94$ ). The entrepreneurs are mainly involved in small business ventures, such as retail (33%), artisanship (16%), services (37%), and construction (14%). The non-entrepreneurs are students (51%) and unemployed (49%), since these categories may at some point be involved in an entrepreneurial activity given that they still do not have a job and an entrepreneurial career could be an option for them in the future.

### Procedure

To ensure equivalence of meaning for the items between the Italian and the English versions of the McGee et al. (2009) ESE scale, a rigorous translation process was used. This included forward and backward translation and pilot testing. The translation process began with the translation of the English version into Italian by a bilingual translator. Then, another bilingual translator (a native English speaker) independently translated the ESE scale back into English. The translators then compared the back-translation to assess the item-by-item consistency. Before the application of the ESE scale, a pilot test was conducted in order to gather feedback on the readability and content validity of the translated instrument. This instrument was applied to 12 individuals and no significant word changes were made. The questionnaire was administered both online and by hand delivery and return. The online administration was applied through a dedicated web site, which constitutes a data-gathering platform for an international research project. The advertising strategies used to involve the participants on the web site were: snowball technique, request to specific entrepreneurial associations, and connection of the research web site to the university web site. The hand delivery and return administration was conducted by involving bachelor students on Work and Organizational Psychology courses who voluntarily took part in the data-collecting phase of the study. These students had to administer a limited number of questionnaires to both entrepreneurs and non-entrepreneurs. All participants were informed of the anonymity and confidentiality of the survey.

The preliminary database included 1,743 respondents. Specifically 935 were the respondents to the online administration and 808 were the respondents of the hand delivery and return administration. However, 595 cases of this preliminary sample were eliminated after the initial data managing due to problems with missing data. Particularly, according to the aim and the design of the study, the respondents' record where gender and entrepreneurial status were missing were annulled as well as the incomplete questionnaires. Thus the final sample included 1,148 respondents.

### Instruments

The McGee et al. (2009) ESE scale comprises 19 items. The authors reported five dimensions underlying the ESE construct corresponding to the four typical phases of starting a new venture. The number of items in each of the five dimensions, the reliability score, and item examples are as follows: searching, three items ( $\alpha = .84$ ), "How much confidence do you have in

your ability to identify the need for a new product or service?"; planning, four items ( $\alpha = .79$ ), "How much confidence do you have in your ability to estimate customer demand for a new product or service?"; marshalling, three items ( $\alpha = .76$ ), "How much confidence do you have in your ability to get others to identify and believe in your vision and plans for a new business?"; implementing human resources, six items, ( $\alpha = .85$ ), "How much confidence do you have in your ability to recruit and hire employees?"; implementing financial resources, three items ( $\alpha = .80$ ), "How much confidence do you have in your ability to read and interpret financial statements?" Respondents were asked to indicate on a 5-point scale (1 = *very little*, 5 = *a lot*) how much confidence they had in their ability to engage in each of the 19 entrepreneurial tasks.<sup>1</sup>

### Data Analysis

The first aim of the analyses was meant to examine the normality of the items on the ESE scale. All the values for skewness and kurtosis were found to be under the threshold (skewness < 2, kurtosis < 7) recommended for running the confirmatory factor analysis (CFA) with maximum likelihood estimation (West, Finch, & Curran, 1995). Descriptive statistics and general data managing were conducted through SPSS 20. According to the measurement literature, the comparison of latent means and their meaningful interpretation requires the achievement of three levels of invariance: configural, metric, and scalar invariance (e.g., Brown, 2006; Byrne, 2004; Davidov, 2008). CFA was performed in order to assess the fit of the dimensional models of McGee et al. (2009) for each group as well as for the overall sample. In particular, CFA was conducted using the overall sample and the two groups: entrepreneurs and non-entrepreneurs. Three models were tested: unidimensional, three-dimension, and the original McGee et al. (2009) five-dimension model. The indices of the model fit considered were: the comparative fit index (CFI), the root mean square error of approximation (RMSEA), the relative chi-square ( $\chi^2/df$ ), and the Akaike information criterion (AIC). CFI assesses the extent to which the tested model is superior to an alternative model in reproducing the observed covariance matrix (Bentler, 1990; McDonald & Marsh, 1990). The CFI index varies from 0 to 1 and a cut-off criterion of  $CFI > .90$  is needed in order to ensure that misspecified models are not accepted (Hooper, Coughlan, & Mullen, 2008). The RMSEA introduces a correction for lack of parsimony given that, all other things being equal, more complex models are penalized. A cut-off value close to .06 (Hu & Bentler, 1999) or a stringent upper limit of .08 (Steiger, 2007) seems to be the general consensus among the researchers in this area. The relative chi-square, or the chi-square to degrees of freedom ratios ( $\chi^2/df$ ), is a further version of the traditional chi-square. The advantage of the relative chi-square is that it might be less sensitive to the sample size. Thus, since the whole sample of the present study is quite wide, the option not to use the chi-square in the analysis was preferred. Schumacker and Lomax (2004) suggest that a relative chi-square lower than five is a sign of good fit. The AIC is a comparative measure of fit. Lower values indicate a better fit and so the model with the lowest AIC is the best fitting model (Burnham & Anderson, 2004). Multigroup confirmatory factor analysis (MCFA) was conducted to assess configural invariance for the unidimensional, three-dimension and five-dimension models on four groups: women entrepreneurs, women non-entrepreneurs; men entrepreneurs, men non-entrepreneurs. Configural invariance is needed as a precondition in order to compare the means between the group of participants and it is achieved when the model holds on the different

groups included in the analysis (Byrne, 2004). Then, measurement invariance analysis was conducted on the five-dimension model in order to test if the factor loadings and the intercepts are the same in all the groups studied. The results of the measurement invariance test would support also the construct validity of the Italian version of the ESE scale by testing both the metric and the scalar invariance. In order to test full metric invariance, the fit of a constrained model including all the fixed factor loadings is compared to the fit of the free-to-vary model. Following Chen (2007) and Cheung and Rensvold (2002), CFI and RMSEA were also used to test measurement invariance. The cut-off points for rejection of measurement invariance are established as an increase of RMSEA by .02 and a decrease of CFI by .02. If the fit difference between the models falls into the threshold for rejecting the full metric invariance, partial metric invariance could still be explored leaving at least two factor loadings fixed in a construct, or in a factor when a construct is composed by several factors. Once that at least partial metric invariance has been established, in order to compare the factors' means of the different samples it is important to explore whether the scores from different groups have the same origin, thus whether the intercept across the group is the same (scalar invariance). As to factor loadings, in order to achieve at least partial scalar invariance the intercept non-invariance can be explored by relaxing constraints on the intercepts one by one (Byrne, Shavelson, & Muthén, 1989; Millsap & Meredith, 2007). AMOS 16 was used to run CFA and MCFA. Finally, a  $2 \times 2$  MANOVA was conducted in order to test the main effects and the interactions of the two factors: gender (men/women) and entrepreneur status (entrepreneurs/non-entrepreneurs). The dependent variables were the five factors' score of the ESE scale.

## RESULTS

Table 1 shows the groups and overall demographic data of the participants. Table 2 reports the Cronbach's alphas of the five ESE dimensions in the four subsamples (men, women, entrepreneurs, and non-entrepreneurs), in the overall sample and, for comparison purpose, in the McGee et al. (2009) study. The Cronbach's alphas in the overall sample and in the four subsamples of the present study are slightly lower than in the McGee et al. study. Nevertheless, except for a few values regarding specifically the entrepreneurs' sample, they are broadly above the common cut-off point of .70 (Nunnally & Bernstein, 1994) indicating the adequate reliability of the measures. Table 3 presents the intercorrelation among the ESE dimensions. All the bivariate correlations are positive and statistically significant at  $p < .001$ . However, all the correlation coefficients are broadly  $< 1$  indicating the absence of complete overlapping between the ESE dimensions. Table 4 points out the results for CFA and MCFA. Three models were tested: unidimensional, a model with three underlying dimensions resulting from collapsing searching, planning, and marshalling, and the original five dimensions proposed by McGee et al. As in these authors' study, the three-dimension model was tested due to the high intercorrelation of the three dimensions. The fit indices for CFA show quite similar results. However, both the RMSEA and the CFI index were more satisfying for the five-dimension model, and it also shows the lowest AIC and the lowest value of  $\chi^2/df$ . These results indicate that this model best fits the data. In particular, whereas CFI is slightly under the threshold of .90, the RMSEA value falls exactly on the threshold of acceptance. The fit indices for the overall sample are fairly acceptable. Specifically, CFI is

slightly under the threshold whereas the RMSEA is adequate. Similar results were found for the entrepreneur group. In particular, the RMSEA index is adequate, whereas CFI is under the threshold of acceptance. The fit indices for non-entrepreneurs groups are reasonably acceptable, since both fall exactly on the threshold suggested.

TABLE 1  
 Groups and overall demographics for ESE scale

Groups	<i>N</i>	% Women	Age	<i>SD</i>
1. Entrepreneurs	402	40.6	44.66	12.80
2. Non-entrepreneurs	746	59.2	31.39	12.94
3. Overall	1,148	53.0	36.04	14.36

TABLE 2  
 Cronbach's alphas of the five ESE dimensions in the overall sample,  
 in the four subsamples and in the McGee et al. (2009) study

	Entrepreneurs	Non-entrepreneurs	Men	Women	Overall	McGee et al. (2009)
Implementing human resources	.72	.81	.80	.78	.85	.91
Implementing financial resources	.68	.74	.76	.70	.80	.84
Marshalling	.60	.72	.72	.67	.76	.80
Planning	.70	.77	.78	.75	.79	.84
Searching	.74	.83	.83	.78	.84	.84

TABLE 3  
 Intercorrelations among the five ESE dimensions

	IHR	IFR	M	P
Implementing financial resources	.474*			
Marshalling	.686*	.483*		
Planning	.645*	.626*	.723*	
Searching	.599*	.465*	.705*	.787*

Note. IHR = implementing human resources; IFR = implementing financial resources; M = marshalling; P = planning.  
 \**p* < .001.

TABLE 4  
Fit indices for the factorial solutions for ESE scale

Groups	CFI	RMSEA	$\chi^2/df$	AIC
1. Overall (five dimensions)	.89	.08	8.889	1358.24
2. Entrepreneurs (five dimensions)	.85	.08	3.884	647.59
3. Non-entrepreneurs (five dimensions)	.90	.08	6.048	954.82
4. Overall (three dimensions)	.87	.09	9.710	1528.81
5. Entrepreneurs (three dimensions)	.83	.09	4.037	683.44
6. Non-entrepreneurs (three dimensions)	.88	.09	6.806	1096.09
7. Overall (unidimensional)	.89	.09	10.188	1033.88
8. Entrepreneurs (unidimensional)	.85	.09	4.140	649.61
9. Non-entrepreneurs (unidimensional)	.89	.09	7.190	1033.88
10. Multigroup* five dimensions	.87	.04	3.200	2262.06
11. Multigroup* unidimensional	.87	.05	3.590	2322.07
12. Multigroup* three dimensions	.85	.05	3.410	2361.17

Note. \* = four groups: entrepreneurs/non-entrepreneurs  $\times$  men/women. CFI = comparative fit index; RMSEA = root mean square error of approximation; AIC = Akaike information criterion.

Then, MCFA was conducted in order to further test the dimensionality of the model and its configural invariance. Also the results of the MCFA indicate that the model, which better fits the data, is the five-dimension model. Similarly to the CFA results, the fit indices for the MCFA are adequate, except for CFI, which falls under the threshold. Additionally, the comparison between the fit indices of the present study and those of McGee et al. (2009) shows that the CFI values in the present study are lower than that of McGee et al.'s, which was .96. Conversely, the RMSEA values in the Italian samples are rather better than that of McGee et al., which was .06. Since the RMSEA is meant to be "one of the most informative fit indices" (Diamantopoulos & Siguaw, 2000, p. 85), and is more appropriate in the confirmative context (Rigdon, 1996), we could affirm that the MCFA analysis reports evidence of acceptable fit of the data in the theoretical model proposed by McGee et al. Thus, also configural invariance was achieved. Moreover, all the lambda coefficients are statistically significant with values ranging from .41 to .81 supporting the construct validity of the five factors of the ESE scale. In order to give further support to the construct validity of the Italian version of the ESE scale and to compare correctly the means of the ESE factors, a measurement invariance test, in terms of metric and scalar invariance, was conducted. Table 5 shows the differences between the two fit indices tested, CFI and RMSEA, both in the free-to-vary model and in the constrained models. Specifically, three constrained models were tested: the full metric invariance model, which includes all the fixed factor loadings; the full scalar invariance model, where all the intercepts are fixed; the partial scalar invariance model, which contains just two intercepts fixed in each ESE dimension. The difference between the values of RMSEA and CFI in the free-to-vary model and in the full metric invariance model did not fall in the range for rejecting the invariance (Chen, 2007; Cheung & Rensvold, 2002). Accordingly, full metric invariance was established. After establishing metric invariance, attention was paid to the scalar invariance. First, the full scalar invariance model was compared to the free-to-vary model. The difference between the values of RMSEA in the free-to-vary model and in the full scalar invariance model did not fall in the range for rejecting the invariance model, whereas the difference between the values of CFI fell in the

range for rejecting the invariance of the model. Thus, in order to strengthen the scalar invariance results, the partial scalar invariance test was conducted too. Following Byrne et al. (1989) in this case just two intercept's values in each ESE factor were fixed. The evidence shows that partial scalar invariance could be established, since the difference between the RMSEA values continued to be in the range for accepting the invariance and the difference between the CFI's values was visibly reduced and very close to the threshold of acceptance. Thus, partial scalar invariance was established. According to these results the construct validity of the Italian version of the scale was supported and the comparison of the ESE factors' means can now be conducted correctly.

TABLE 5  
 Test for measurement invariance of the Italian version of the ESE scale

	RMSEA	CFI
Configural invariance	.044	.872
Full metric invariance	.043	.868
Full scalar invariance	.047	.827
Partial scalar invariance	.045	.848

Note. RMSEA = root mean square error of approximation; CFI = comparative fit index.

A 2 × 2 MANOVA was carried out in order to explore the main effects and the interactions of the two factors, gender and entrepreneurial status, on the five ESE dimensions. Thus, differences between the different groups of participants in the ESE five-dimension scale scores were explored.

Two-way MANOVA revealed that there was significant difference related to gender,  $F(5, 1140) = 7.1, p < .001$ , and entrepreneurial status,  $F(5, 1140) = 24.2, p < .001$ , but there was no entrepreneurial status-by-gender interaction,  $F(5, 1140) = 1.3, p = .27$ . Tables 6 and 7 report the means, standard deviations, and the  $F$  of the groups analyzed. The evidence indicates that a statistically

TABLE 6  
 Comparison of means, standard deviation, and  $F$  values in the groups studied (main effects)

	Men		Women		$F$	Entrepreneurs		Non-entrepreneurs		$F$
	$M$	$SD$	$M$	$SD$		$M$	$SD$	$M$	$SD$	
Implementing human resources	3.94	0.74	3.78	0.81	14.186**	4.03	0.71	3.75	0.80	34.538**
Implementing financial resources	3.36	1.02	2.83	1.12	69.158**	3.54	0.99	2.84	1.09	116.838**
Marshalling	4.01	0.81	3.84	0.89	11.413**	4.18	0.72	3.79	0.89	58.411**
Planning	3.84	0.85	3.58	0.94	23.895**	4.07	0.76	3.51	0.93	54.570**
Searching	3.93	0.90	3.75	0.99	10.808**	4.11	0.84	3.68	0.97	104.501**

\*\* =  $p < .001$ .

TABLE 7  
 Comparison of means, standard deviation, and interaction effects of the groups studied

	Men entrepreneurs		Women entrepreneurs		Men non-entrepreneurs		Women non-entrepreneurs		Interaction		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i> (1, 1148)		
Implementing human resources	4.09	0.68	3.95	0.74	3.82	0.77	*	3.70	0.83	.013	
Implementing financial resources	3.64	0.93	*	3.39	1.06	3.14	1.03	***	2.63	1.08	4.007*
Marshalling	4.22	0.68	4.12	0.78	3.85	0.86		3.74	0.90	.001	
Planning	4.10	0.71	4.01	0.82	3.64	0.90	**	3.42	0.93	1.503	
Searching	4.14	0.80	4.07	0.89	3.77	0.93	*	3.63	1.00	.450	

\* =  $p < .05$ . \*\* =  $p < .01$ . \*\*\* =  $p < .001$ .

significant difference exists between the group of entrepreneurs and the group of non-entrepreneurs. Particularly, the means of the entrepreneurs group are significantly higher than those of the non-entrepreneurs group. Moreover, a statistically significant difference exists between the group of the men and the group of the women. Specifically, the means of the men are significantly higher than those of the women. Furthermore, the results reveal that in the group of the entrepreneurs there is no statistically significant difference between men and women except for the dimension implementing financial resources, even though the mean of the men is higher than that of the women. Lastly, the evidence points out that a statistically significant difference exists between men and women in the group of the non-entrepreneurs, except for the dimension marshalling.

## DISCUSSION

First, the results of this study show that it is possible to adapt the McGee et al. (2009) ESE scale to the Italian context. Configural invariance as well as full metric and partial scale invariance were established. The results of the CFA and MCFA reflect an acceptable fit of the Italian data to the theoretical model. Except for the CFI values, which are slightly lower than those of the McGee et al. study, all the fit indices tested for achieving the configural invariance show very good fit. In particular, the RMSEA values are even better than those of McGee et al. For comparison purpose, it is important to note that the original test of the fit of the scale made by McGee et al. comprized two more variables, that is: attitude toward venturing and the status of nascent entrepreneur or not. This would strengthen the results of the present study, since the RMSEA value is not sensitive to complexity, and would never favor the simpler model. On the other hand, the slightly worse CFI values obtained in the present study might depend on the fact that the sample is not stratified and includes also the entrepreneur subgroup. In fact, although the Cronbach's alphas of the entrepreneur group appear to be still adequate according to the research context, they are the lowest. In particular, the lowest alpha (.60) value regards the marshalling dimension. One possible explanation of this critical value could be related to the Italian translation of the items regarding this specific dimension. Thus, future studies of validation of this scale should consider a further revision of these specific items. Accordingly, also a pool of entrepreneurs could be consulted in order to improve these items. However, since the sample was not representative of the entrepreneurs' population, all the possible inferences should be postponed to further research.

Nonetheless, full metric invariance and partial scalar invariance were established allowing the possibility to test construct validity of the Italian version of the ESE scale which was properly tested through the comparison between the ESE factors' means. Additionally, both the men and women entrepreneurs' ESE scores are higher than those of the non-entrepreneurs for all the five ESE dimensions giving further support to the construct validity of the ESE scale in the Italian context. Thus, although more aspects of validity, such as convergent, discriminant, and predictive, should be tested in the future, the Italian version of the scale could be adopted for research involving Italian samples and for practical purposes. Specifically, as suggested by Karlsson and Moberg (2013), this ESE scale could be useful for designing both individual and group training programs aimed at enhancing entrepreneurial self-efficacy.

Moreover, the results of this study help to depict the entrepreneurial self-efficacy gender difference in the Italian context. In general, the ESE scoring of the men is higher than that of the women for all five ESE dimensions. This data is consistent with the latest GEM report for Italy

(Muffatto, Giacon, & Saeed, 2012), which indicates that men feel more self-confident and more skilled to start a new venture than women do. Moreover, this result is in line with the previous study conducted by Wilson et al. (2007) and in contrast to the results of Mueller and Dato-on (2008) substantiating the assumption that, in a typical masculine culture, female entrepreneurship is not encouraged (Kobeissi, 2010). However, the specific comparison of the means conducted on the entrepreneur and non-entrepreneur groups point out the prominent gender differences only in the non-entrepreneur group. Thus, it can be argued that female entrepreneurship in Italy still appears as a typical masculine activity. In particular, in the non-entrepreneur group a statistically significant gender difference exists in all five ESE dimensions except for the dimension marshalling. Thus, Hypothesis 1 was partially supported. The marshalling phase of venture creation involves a typical entrepreneurial activity aimed at assembling resources to bring the venture into existence (McGee et al., 2009). This specific result is very interesting and should be explored in greater depth in further research. A qualitative data-collecting method should be applied in future studies to obtain useful clues to explain this result. On the other hand, the results show that there is only a gender difference in the entrepreneur group for the dimension implementing financial resources. No gender differences exist in the other ESE dimensions. This corroborates the general assumption concerning the venture-creation process that there is no difference between the perceived self-confidence of women or men on the verge of making an entrepreneurial career choice and once it is taken and concretized (Mueller, 2004). However, an interesting gender difference still remains in the entrepreneur group: the implementing phase of the venture creation, which concerns the responsibility for growing the business and sustaining it past its infancy (McGee et al., 2009). Specifically, the women's perception of self-efficacy in these tasks is lower than that of the men, which would indicate that the last phase of the venture-creation process could be an obstacle for the women group of entrepreneurs. This result is extremely interesting, since the implementing phase of the venture-creation process concerns primarily a management task. Thus, in other words, ESE perception of women and men entrepreneurs is different for the tasks that are included in both entrepreneurial and managerial careers, whereas it is equal for the tasks related to a specific entrepreneurial job. As a conclusion, Hypothesis 2 was partially supported too.

It is also relevant to notice that the inclusion of the entrepreneur group in the study of ESE is not so frequent in previous research, but is important and relevant for two main reasons. Firstly, self-efficacy is a psychological construct based on the experiences made in specific fields, in this case entrepreneurship. Thus, since entrepreneurs have already developed their perception of ESE, the inclusion of this group helps to depict a more complete developmental process of the ESE. In other words, we could say that ESE in the entrepreneurs group is the last stage of the ESE developmental process. Furthermore, the results of our study point out that there is still a gender difference in the entrepreneurs group. Thus, examining ESE in the entrepreneurs group helps to understand what kind of intervention (training and follow-up) is needed to foster the feminine ESE and in general feminine entrepreneurship.

#### Practical Implications

Several practical implications stem from these results. First, specific entrepreneurship training programs should be designed for aspiring women entrepreneurs. Their perception of their

entrepreneurial skills should be particularly enhanced in order for them to consider an entrepreneurial career as a feasible career option. Moreover, management skills should be reinforced during the entrepreneurship training programs undertaken both before the start of a venture creation and during the steps that follow the founding of a new female venture. Women that choose an entrepreneurial career should be able to count on a kind of follow-up training of entrepreneurial activity. This intervention could take several forms such as, for example, in the shape of mentoring or the provision of a specific consultancy service. Additionally, sensitizing culture interventions are needed in the Italian context in order to foster women's awareness of female entrepreneurship as a real and feasible possibility for job career. For example, secondary school vocational guidance interventions might include specific entrepreneurship workshops.

#### Research Limits and Suggestions for Further Research

Even though this is the first study aimed at investigating entrepreneurial self-efficacy in Italy from a gender perspective, there are some limitations that should be taken into account. First, the sample of the participants in the study is not representative of the Italian population. Thus, in future research a more stratified sample is recommended. Moreover, the mean age of the two groups of participants, entrepreneurs and non-entrepreneurs, is clearly different. The non-entrepreneurs group is characterized by a lower mean age. This is probably due to the fact that the non-entrepreneurs group includes also freshmen university students and that a career as an entrepreneur might not be an early age option. Despite this limitation, this study allows to study for the first time some of the psychometric proprieties of the ESE instrument in the Italian context. In particular, although not all the fit indices considered were satisfactory, a preliminary test of construct validity was reasonably supported by the data. In particular, the CFI values indicate a possible weakness of the Italian version of the scale that, therefore, should be refined further. Specifically, since the marshalling dimension showed the lowest Cronbach's alphas, the further revision should start from the marshalling items.

Additionally, support for the validation of the Italian version of the scale should be carried out exploring also the convergent, discriminant, and predictive validity. For example, a general measure of self-efficacy and a measure of personality could be included in the future studies in order to test the correlation of these measures to the ESE. Secondly, the entrepreneur sample involved in the study comprises owners of small business ventures. Although, this reflects the real portrait of the entrepreneurial phenomenon in a great part of Italy, the results can not be generalized to other ventures of different sizes. Finally, as suggested by Mueller and Dato-on (2013), further research should take a cross-cultural perspective in order to explore the gender differences through a global lens. Future research on entrepreneurial self-efficacy in Italy can also analyze the role of other demographic variables, such as age, educational level, or background.

#### CONCLUSION

This is the first study aimed at investigating some of the psychometric properties of an ESE scale in Italy. The results show that the Italian version of the McGee et al. (2009) ESE scale

could be used for further research in the Italian context. Moreover, the data were analyzed from a gender perspective. The main results would suggest that with the growing number of women entrepreneurs, specific attention should be paid to the perception of ESE both before starting (during training), and after creating a new venture (during follow-up).

#### NOTE

1. The Italian version of the scale is available from the corresponding author.

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