GENDER DIFFERENCES IN ENTREPRENEURIAL ACTIVITY: AN ANALYSIS OF INFORMAL INSTITUTIONAL FACTORS

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Abstract

The aim of this paper is to determine and compare the influence of certain informal institutional factors upon the decision to become an entrepreneur among men and women entrepreneurs in Spain. To attain this objective we adopt a socio-cultural institutional approach. We undertake a logit model using a robust Spanish dataset from 2003. The main contribution of this paper lies on the identification of specific factors that influence women entrepreneurship, which differ from those of men's. The results show the importance of entrepreneurial self-confidence, as a common factor for both women and men entrepreneurial activity. The main result indicates that the presence of entrepreneurial role models is an important informal institutional factor explaining the difference between women and men's entrepreneurial activity.

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Keywords: Entrepreneurial activity, women entrepreneurship, informal institutional factors.

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1. Problem statement

Since the *discovery* of women entrepreneurs by entrepreneurship and small business scholars in the mid 70's (Catley and Hamilton, 1998), research on women's entrepreneurship expanded and matured considerably (Carter et al., 2001). However, there are some *silent areas* in the research on women's entrepreneurship, mostly concerned with how the social world is constructed and how it affects entrepreneurship (Ahl, 2002: 168).

In her extensive literature review on women's entrepreneurship, Ahl (2002) points out that the *typical* study is based on a strong individualistic assumption as it focuses on individuals and their businesses. Women and men are compared by their distinctive entrepreneurial characteristics (e.g. motivations, personality traits, experience) or features of theirs firms (e.g. size, goals and strategy, management, performance). There are also studies that consider structural factors such as financial constraints or other barriers that women face in the start-up process or development of their businesses. The ways for overcoming such barriers are still suggested at an individual level.

Nevertheless, starting and running a business involves other people such as partners, employees, suppliers, customers etc. It also involves structural and institutional arrangements such as legislation, politics, public services, infra-structure, and business cycles. Turning away the attention from such aspects means the loss of a discussion on the importance of the institutional framework relevant to women's entrepreneurship (Ahl, 2002:166).

The objective of the paper is to determine and compare the influence of the informal institutional factors upon the decision to become an entrepreneur among men and women entrepreneurs in Spain[1]. To reach this objective, we focus the analysis on the socio-cultural and institutional approach.

There have been relatively few investigations focusing on the factors that determine the entrepreneurial activity of men and women from a country perspective (macro level). Recent studies as Arenius and Minniti (2004) or Verheul et al (2004) focused on this issue and used large samples of individuals to compare entrepreneurial activity across countries and the differences and similarities between men and women. Nevertheless, we consider that the results of such direct comparisons between countries should be cautiously interpreted due to the different social and economic contexts in each country (Stevenson and Lundström, 2001). Separate macro level analysis in distinct national settings is also needed, as it may contribute to a better understanding of the differences (if any) between women's and men's entrepreneurial activity and the factors that determine it in each case.

The paper adopts the following structure. Section 2 presents the theoretical framework and the construction of hypotheses. Data and research methodology are introduced in section 3. A discussion of the main findings is offered in section 4. Final conclusions and implications are displayed in section 5.

[1] As indicated by García and Jiménez (2004:2), in Spain 26.57% of the enterprises are managed by women, percentage which varies by size, only 16.4% of them, managing business with more than 10 workers, 25.6% managing micro-enterprises and 46.3% being sole entrepreneurs. The authors also indicate that their participation is higher in retail and service sectors.

2. Theoretical framework and literature review

As indicated in Verheul et al. (2004:4) research on gender and entrepreneurship mainly consists of studies at micro level, focusing on the distinctive characteristics of female and male entrepreneurs such as their motivations to become entrepreneurs, their personality traits, background and experience (e.g. Masters and Meier, 1988; Sexton and Bowman-Upton, 1990; Mroczkowski, 1997; Catley and Hamilton, 1998; Anna et al, 2000). Comparative studies have also been conducted in terms of the features of the firms created by women, capturing aspects such as the size of the firm, the goals, the management style and the strategies adopted by women, or the performance of businesses controlled by women (e.g. Chaganti, 1986; Brush, 1997; Shabbir and Di Gregorio, 1996; Gundry and Welsch, 2001; Watson, 2001; Watson and Robinson, 2003). Other studies have included environmental characteristics, such as financial constraints or other challenges, faced by women at start-up or development of their businesses (e.g. Fabowale et al, 1995; Shabbir and DiGregorio, 1996; Orhan, 2001).

There are relatively few studies that investigate the influence of macro-level factors on female and male entrepreneurship. Exception of this, are investigations as Kovalainen et al (2002); Reynolds et al. (2002); Arenuis and Minniti (2004) and Verheul et al (2004) that use large samples of individuals compare entrepreneurial activity across countries and the differences and similarities between men and women.

Much of the research developed in this field is not theory based (Brush, 1992; Ahl, 2003) and those that are, start either from psychological, managerial or economic

frameworks to analyse and compare individual aspects of women entrepreneurs and their businesses.

An alternative approach that a growing number of studies are demonstrating as being more appropriate for the study of entrepreneurship and SME's, is the use of a theoretical framework based on a socio-cultural and institutional approach (Granovettor, 1985; North, 1990; Gnyawali and Fogel, 1994; Maillat, 1996; Urbano and Veciana, 2001; Aponte, 2002; Uhlaner and Thurik, 2004, etc). The main hard-core common to the theories falling under this approach is the basic belief that the decision to create a new enterprise, and therefore to become an entrepreneur, is conditioned by external or environmental factors. In other words, the institutional framework and its socio-cultural factors are what determine the levels of entrepreneurial activity in a specific time and place (Veciana, 1999).

Examples of theories that adopt a socio-cultural or institutional approach have been compiled and described in Veciana (1999). In the mentioned article, the theories under this and the other main approaches used for the study of entrepreneurship are described in much greater length. We will therefore not venture into this task within this paper.

Of the theories within the socio-cultural or institutional approach, the Institutional Economic Theory, developed mainly by Douglass North (1990), is one of the most general, which encloses most of the specificities of the other theories falling under the same approach. The theoretical amplitude that the institutional economic theory offers us is ideal for the objective laid out for this study, and was therefore used as the theoretical backbone guiding our research.

Institutional economic theory develops a very wide concept of “institution”. North (1990: 3) proposes that “institutions are the rules of the game in a society, or more formally, institutions are the constraints that shape human interaction”. Institutions include any form of constraint that human beings devise to shape human interaction. Institutions can be either formal - such as political rules, economic rules and contracts - or informal - such as codes of conduct, attitudes, values, norms of behaviour, and conventions, or rather the culture of a determined society. North attempts to explain how institutions and institutional framework affect economic and social development. The main function of institutions in a society is to reduce uncertainty by establishing a stable structure for human interaction. An exhaustive literature review on the topic of institutional factors that condition new business formation can be found in Rutherford (2001) and Urbano (2003).

According to North (1995), formal institutions are subordinate to informal ones in the sense that they are the deliberate means used to structure the interactions of a society in line with the norms and cultural guidelines that make up its informal institutions. Policy making that attempts to change the formal institutions of society will therefore have little success if it does not first adjust the informal institutions in a compatible way. The difficulty rises from the fact that, whereas a governing body can influence the evolution of a society’s formal institutions in a rather direct way, informal institutions are much less tangible and usually fall outside the direct influence of public policy. They can be moulded, but tend to resist change and take time to evolve towards new social norms.

In the literature on entrepreneurship many different versions of models describing the entrepreneurial process can be found. Models of the entrepreneurial process that consider informal institutional factors as determinants of business creation can be found in Veciana (1988) and Bygrave (1995). Among the fundamental factors affecting the decision to create a business, Veciana's (1988) model consider informal institutional factors such as the positive examples that make entrepreneurship a more credible alternative; the social attitudes towards entrepreneurship and the non-pecuniary rewards for entrepreneurs. The importance of informal institutional factors also stands-out in Bygrave's (1995) model. Here, the presence of the entrepreneurial role models is considered as one of the most consistent influential factors, throughout the different stages of the entrepreneurial process.

Very few empirical studies analyse gender and entrepreneurship adopting specifically the institutional economic theory. A rare exception is Nilsson (1997), who investigates the business counselling services directed towards female entrepreneurs in Sweden. Nevertheless, several studies have included variables that can be considered institutional factors in their analysis.

Some of the work produced on gender and entrepreneurship include in the analysis formal institutional factors as, for example, support received by women initiating businesses (Anna et al, 1999), programmes fostering women's entrepreneurship (Nilsson, 1997; Weeks and Seiler, 2001), the impact that certain governmental policies have on the entrepreneurial activity (Mroczkowski, 1997; Lituchy and Reavly, 2004; Verheul et al., 2004) or the relationships that women entrepreneurs establish with

governmental and non-governmental institutions (Mroczkowski, 1997; Fielden and Dawe, 2004; Lituchy and Reavly, 2004).

Research on women's entrepreneurship has given little attention to the analysis of the impact that informal institutional factors may have on the entrepreneurial activity of men and women entrepreneurs. The literature review of studies produced during the past decade, indicate that the fear of entrepreneurial failure and the impact that an entrepreneurial role-model may have on women's decision to start-up, were most investigated within this stream of research.

The fear of failure (usually operationalized through the individual's risk aversion) is a particularly critical issue for entrepreneurs due to the little separation between business and personal risk in an entrepreneurial venture (Watson and Robinson, 2003). Research comparing women entrepreneurs' risk aversion with that of their male counterparts tend to hypothesize that women are more risk averse than men (Buttner and Rosen, 1988; Sexton, 1989; Sexton and Bowman – Upton, 1990; Powell and Ansic, 1997) but there is no agreement yet on this question. However, the social stigma to entrepreneurial failure has been previously investigated on a micro level, but rarely from a macro perspective where the social stigma of failure is analysed.

In their study on Pakistani women entrepreneurs, Shabbir and DiGregorio (1996:516) point out that women in the sample tended to limit their financial risk to their own funds, mainly because they were afraid of the social consequences of business failure, that is, social embarrassment. Fielden and Dawe (2004) obtain similar results of British

female entrepreneurs, the social stigma towards the entrepreneurial failure being found as an important barrier to business creation.

Under the light of these findings we expect Spanish female entrepreneurs to perceive the social stigma towards entrepreneurial failure as a barrier to entrepreneurship in a greater extent than their male counterparts. From this argument comes the first hypothesis:

H1: Female entrepreneurs are expected to be more negatively influenced by the belief that there is a social stigma towards business failure than their male counterparts.

The Role Model effect on the entrepreneurial activity of women is the second informal institutional factor considered in our analysis. Indirect experience like previous work experience or the experience of others that own businesses is one way of entrepreneurial learning. The role model effect comes from the observation of behaviour in others and can influence substantially how one thinks about entrepreneurship (Reitan, 1997). Role models are persons that by their attitudes, behaviours and actions establish the desirability and credibility of a choice (in this case becoming an entrepreneur) for an individual.

Examples of research on women's entrepreneurship which analyse the role model effect are Lerner et al (1997), Dhaliwal (2000), Levent et al (2003), Arenius and Minniti (2004) or Lituchy and Reavly (2004). In these studies, the presence of a role model for women entrepreneurs was considered as a factor that facilitated their decision to start their businesses. Nevertheless, it is also considered that women, as they historically

have been a minority of the entrepreneurial population, lack of close role models or at least, they have less role models than men do (Delmar and Holmquist, 2004: 42). Hence, in the case of Spanish entrepreneurs we expect similar results, leading to formulate the second hypothesis:

H2: The positive influence of entrepreneurial role models on the decision to start-up a new business is greater for men than for women.

The social acceptance of entrepreneurship and business ownership as a valid career option is an informal institutional factor that can affect the perceived attractiveness of becoming an entrepreneur (Hamilton, 2000). The literature on gender and entrepreneurship suggest that entrepreneurship as a career option is gender-blind, studies as Masters and Meier (1998) and Sexton and Bowman-Upton (1990) finding few differences between men and women on this issue. However, we believe that the social acceptance of entrepreneurship as a valid career choice depends on the gender beliefs system existing in a society (country). As argued by Delmar and Holmquist (2004: 33), gender beliefs are cultural schemas representing what we think *most people* believe or accept as true about the categories of *men* and *women*. Also people in general perceive entrepreneurs as masculine and entrepreneurship to be a male domain (Ahl, 2002, 2003). Hence, in most countries, men may be perceived as more *suited* to entrepreneurship than women are. Consequently, the third hypothesis emerges:

H3: The influence of the perception of the social acceptance of entrepreneurship as a valid career option upon entrepreneurial activity is greater for men than for women.

Finally, the social praise for entrepreneurs and the social prestige and status that entrepreneurs receive can act as an important non-pecuniary reward for entrepreneurship and therefore affect the opportunity cost of becoming an entrepreneur (Baumol, 1993; Gifford, 1998). We will test whether the belief that the community praises its entrepreneurs is having a positive effect upon entrepreneurial activity and if this effect is the same for women as for men. As argued above, due to the attitudes formed by the traditional gender roles (Delmar and Holmquist, 2004:46), women may be viewed as less entrepreneurial than men and therefore, they may place less value on the social prestige and status they perceive as a reward for their entrepreneurial activity. This leads to formulate the fourth hypothesis:

H4: The perception that there are social rewards for entrepreneurs influence women's entrepreneurial activity less than men's.

3. Data and Method

3.1 Data and variables

The data used to carry out this study come from the Spanish Global Entrepreneurship Monitor (GEM) for the year 2003. The original database contained 7000 observations, including 3508 (50.11%) men, and 3492 (49.89%) women. However, in the interest of following a rigorous methodology, only individuals for whom a complete dataset of the independent variables can be constructed are included. Thus, data availability limits the sample to 4877 observations, 2423 (49.68%) men, and 2454 (50.32%) women.

As regards the dependent variable, entrepreneurial activity covers several fields related to business creation, business growth, and innovation strategy. Nevertheless, the

meaning used within this study will be the same as that most commonly convened within recent literature, i.e., entrepreneurship as the act of creating a new business. As a result, the dependent variable used in this study as a measure of entrepreneurial activity is the main index resulting from the GEM project, the Total Entrepreneurial Activity index (TEA). This index assumes a value of one if an individual is either involved in "start-up" activities or has recently lunched a business (over the last 42 months).

The rationale for the selection of the independent variable set follows. Firstly, to determine the entrepreneur's profile we consider variables commonly found in many models trying to explain entrepreneurial activity (Uusitalo 2001, Douglas and Shepard 2002). Thus, the variables incorporated are the following: age, expressed in years, and; formal education, using dummy variables distinguishing people who finish secondary and those who did not, as well as people with university studies. Furthermore, we consider the self-confidence in one's own entrepreneurial skills as a dummy variable, assuming a value of one if the person makes a positive assessment of his/her entrepreneurial skills, and zero otherwise. Several studies have recently used this variable in substitution, or together with, formal business training. These studies have found that entrepreneurial self-confidence explains an important part of the decision to become an entrepreneur (Krueger and Brazeal 1994, Arenius and Minniti 2004, Köllinger et al. 2004, Lee et al. 2004).

In addition, a second set of four dummy variables associated with the informal institutional framework have been added to support that the informal socio-cultural environment is an important stimuli, or obstacle, to business creation. These variables are: 1) the social stigma to entrepreneurial failure as an obstacle to business creation; 2)

the presence of an entrepreneurial Role-Model, who has created a new business over the past two years within one's personal social circle; 3) the perception that the community perceives entrepreneurship and subsequently business ownership as a valid career choice; and finally, 4) the perception that entrepreneurship is socially valued and leads to greater social prestige. Table 1 presents the descriptive statistics for the selected variables of the study.

Table 1: Descriptive Statistics of selected variables

Variables	**Women**	**Men**	**Full sample**
Gender (1 for woman, 0 otherwise)	1.0000 (0.0000)	0.0000 (0.0000)	0.5032 (0.5000)
Entrepreneurial activity	0.0281 (***) (0.1653)	0.0615 (0.2403)	0.0447 (0.2067)
Age (years)	42.0359 (***) (12.5989)	40.5947 (13.2152)	41.3199 (12.9276)
Primary studies	0.3818 (***) (0.4859)	0.2992 (0.4580)	0.3408 (0.4740)
Secondary studies	0.3965 (**) (0.4893)	0.4305 (0.4952)	0.4134 (0.4925)
University studies	0.1785 (***) (0.3830)	0.2328 (0.4227)	0.2055 (0.4041)
Self - confidence in entrepreneurial skills	0.3867 (***) (0.4871)	0.4643 (0.4988)	0.4253 (0.4944)
Social stigma to entrepreneurial failure	0.4108 (***) (0.4921)	0.3438 (0.4751)	0.3775 (0.4848)
Personnel knowledge of recent entrepreneur	0.2653 (***) (0.4416)	0.3343 (0.4718)	0.2996 (0.4581)
Perception of business as a career choice	0.5640 (0.4960)	0.5654 (0.4958)	0.5647 (0.4958)
Social reward for entrepreneurship	0.4336 (0.4957)	0.4536 (0.4979)	0.4435 (0.4968)
Observations	2454	2423	4877

Values in brackets represent the standard deviation.
*; **; *** = Significant at the 0.10, 0.05, and 0.01 level, respectively (two-tailed).

As we can see within table 1, there is a highly statistically significant difference between both samples in what refers to entrepreneurial activity. The results show that, in the women sample, the educational level is concentrated in the lower bounds, i.e.,

women have lower education levels as compared to the men sample. Also, women's sample shows a statistically significant higher level of social stigma to entrepreneurial failure, as compared to men's sample. Finally, we report a significant difference in what refers to self – confidence in entrepreneurial skills as well as for our proxy for the Role-Model effect, which result is statistically significant lower in the case of the women sample.

3.2 Method

An individual will become an entrepreneur if the total consideration of push and pull factors considered in the analysis results in a positive decision. It is easy and convenient to consider the decision process for becoming an entrepreneur as a process that generates a binary choice model. Thus, to identify the differentiating characteristics that affect the likelihood of women and men to become an entrepreneur, we perform a logit regression model estimated by maximum likelihood method expressed as follows (Greene 1997),

$$\hat{p}_i = p\ (\text{become an entrepreneur}_i) = \frac{e^{\hat{\beta}_0 + \sum \hat{\beta}_n x_{ni}}}{1 + e^{\hat{\beta}_0 + \sum \hat{\beta}_n x_{ni}}} = \Lambda(\beta' x) \qquad [1]$$

Expression [1] may be expressed as a linear function of the odds to turn into an entrepreneur $\left(\hat{\Omega}_i = \frac{\hat{p}_i}{1 - \hat{p}_i}\right)$. Thus, after a logarithmic transformation, the resulting expression is,

$$\ln \hat{\Omega}_i = \hat{\beta}_0 + \sum_{n=1}^{N} \hat{\beta}_n x_{ni} + \varepsilon_i \qquad [2]$$

where,

$\hat{\beta}_0 =$ constant term

$\hat{\beta}_n =$ vector of parameters to be estimated for the *nth* independent variables.

$x_{ni} =$ vector of observed value for the *nth* independent variables and the *ith* cases.

$\varepsilon_i =$ logistic distributed error term for the *ith* cases.

Parameters estimated from the logit model only indicate the direction of the effect of each explanatory variable on the response probability. To obtain a better understanding of the results, we also calculate the probability changes at the sample mean of the regressors by differentiating equation [2] as follows (Greene, 1997):

$$\frac{\partial \hat{p}_i}{\partial x} = \hat{p}_i \left[\hat{\beta}_n - \sum_{Y=0}^{Y=1} \hat{p}_i \hat{\beta}_n \right] = \Lambda(\beta' x) - \left[1 - \Lambda(\beta' x)\right] \qquad [3]$$

Equation [3] applies in the case of individual independent variables. However, in this paper our hypotheses are determined by the influence of the considered informal institutional factors upon women's decision to become entrepreneur, as compared to that of men. We therefore follow Ai and Norton (2003) to estimate robust interaction effects, where for the case of two dummy variables (x_1, x_2), the change in the predicted probability that $y = 1$ results from the discrete double difference with respect to x_1 and x_2.

Finally, we also calculate the proportion of correctly classified (predicted) observations. This is done for the full sample as well as for those observations that are entrepreneurially active (adopter) and those that are not (non-adopters).

4. Empirical findings

The results of the logit models of the binary decision to become an entrepreneur are presented in this section. To corroborate our hypothesis that the informal institutional framework exerts a different influence upon women entrepreneurs, as compared to their male counterparts, we run several specifications where an interactive term between gender and the informal institutional factors is considered individually.

Rather than report the coefficient estimates, table 2 reports the estimated change in the probability to become an entrepreneur. The full set of logit estimates are presented in appendix 1. Model 1 takes into account all the aforementioned variables linked to entrepreneurship. Specifications 2, 3, 4 and 5 have been ran including the interactive terms between gender and the informal institutional factors individually.

The results emerging from table 2 show that, for every specification, the variable linked to the positive valuation of self-confidence in entrepreneurial skills increases the likelihood to become an entrepreneur. For example, the result of model one implies that individuals with entrepreneurial self-confidence are 7.31% more likely to become entrepreneurs, as compared to those who do not. This finding, consistent for every specification, relating the positive influence of entrepreneurial self-confidence and entrepreneurial activity is consistent with previous studies having use similar variables (Arenius and Minniti 2004, Köllinger et al. 2004, Lee et al. 2004).

Table 2: Logit results: Predicted change in the probability to become an entrepreneur

Independent variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Entrepreneur's profile					
Gender (one for women, zero otherwise) (+)	-0.0143 (***) (0.0035)	-0.0153 (***) (0.0042)	-0.0116 (***) (0.0044)	-0.0155 (***) (0.0055)	-0.0096 (**) (0.0042)
Age (years)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
Primary studies (+)	-0.0019 (0.0039)	-0.0020 (0.0039)	-0.0021 (0.0039)	-0.0019 (0.0039)	-0.0017 (0.0039)
Secondary studies (+)	-0.0061 (*) (0.0035)	-0.0061 (*) (0.0035)	-0.0062 (*) (0.0036)	-0.0061 (*) (0.0035)	-0.0061 (*) (0.0035)
Self - confidence in entrepreneurial skills (+)	0.0731 (***) (0.0066)	0.0735 (***) (0.0066)	0.0733 (***) (0.0066)	0.0730 (***) (0.0066)	0.0726 (***) (0.0066)
Informal Institutional Factors					
Social stigma to entrepreneurial failure (+)	-0.0086 (***) (0.0038)	-0.0098 (***) (0.0043)	-0.0086 (**) (0.0034)	-0.0086 (**) (0.0034)	-0.0086 (***) (0.0033)
Gender × Social stigma to entrepreneurial failure (+)		0.0138 (0.0118)			
Personnel knowledge of recent entrepreneur (+)	0.0048 (0.0033)	0.0048 (0.0033)	0.0071 (*) (0.0043)	0.0048 (0.0033)	0.0048 (0.0033)
Gender × Personnel knowledge of recent entrepreneur (+)			-0.0156 (*) (0.0120)		
Perception of business as a career choice (+)	0.0037 (0.0033)	0.0037 (0.0033)	0.0037 (0.0033)	0.0031 (0.0039)	0.0037 (0.0033)
Gender × Perception of business as a career choice (+)				-0.0006 (0.0114)	
Social reward for entrepreneurship (+)	-0.0052 (0.0033)	-0.0052 (0.0033)	-0.0052 (0.0033)	-0.0052 (0.0033)	-0.0017 (0.0039)
Gender × Social reward for entrepreneurship (+)					-0.0127 (0.0116)
Pseudo R^2	0.1447	0.1448	0.1452	0.1447	0.1462
Log Likelihood	-761.7042	-761.5883	-761.2443	-761.6628	-761.3102
LR (chi2)	148.72 (***)	153.49 (***)	153.25 (***)	149.65 (***)	147.78 (***)
Correctly predicted (Adopters)	0.8716	0.8807	0.8716	0.8807	0.8394
Correctly predicted (Non-adopters)	0.6186	0.6115	0.6177	0.6160	0.6426
Correctly predicted (Full Sample)	0.6299	0.6235	0.6291	0.6278	0.6514
Number of cases	4877	4877	4877	4877	4877

Values in brackets represent the standard error. Dependent variable: One if the person is identified as being involved in entrepreneurial activity. Women sample size = 2454. Men sample size = 2423. (+) $\partial\hat{p}/\partial x$ is for discrete change of dummy variable from 0 to 1. Interaction terms are derived as presented in Ai and Norton (2003).
*, **, *** = Significant at the 0.10, 0.05, and 0.01 level, respectively.

Column 2 in table 2 allows for testing our first hypothesis. The findings indicate that both gender and the social stigma towards business failure has a statistically significant negative effect upon entrepreneurial activity. More specifically, the results show that women are 1.53% less likely to become entrepreneurs as compared to men. Also, individuals that perceive the existence of a social stigma towards business failure are

0.98% less likely to get involved in entrepreneurial activities. This latter result is in accordance with those reported in Wagner and Sternberg (2004) and Simon et al. (1999).

The coefficient of the interaction term that relates gender and the social stigma towards business failure shows as no statistically significant[2]. Consequently, we reject the hypothesis 1 that stated that women entrepreneurs are more negatively influenced by their belief in a social stigma towards business failure, than their male counterparts.

The findings in column three indicate that the variable linked to gender remains as statistically significant. In the case of the role model proxy, we find that the personnel knowledge of recent entrepreneurs in individual's social circle increases in 0.71% the likelihood to be involved in entrepreneurial activities. In addition, and consistent with our hypothesis, the interaction term that relates gender to role model indicates that the probability to be entrepreneurlly active for women that know an entrepreneurial role model fell 1.56%, as compared to that of men who personally know recent entrepreneurs[3]. This finding is statistically significant, leading to confirm hypothesis two.

The lack of a tradition of positive female entrepreneurial role models may explain this result. This is consistent with Dunn and Holtz-Eakin (1995), Delmar and Gunarsson (2000) and Delmar and Holmquist (2004), who find that the influence of entrepreneurial role models is gender related, an individual being more influenced by another individual

[2] The result for the full interaction term varies widely for many observations. However, no observation shows as statistically significant under the conventional levels of acceptance.
[3] The result for the full interaction term varies widely for many observations. The statistical significance reported remains for all observed individuals.

of the same sex, as one's aspirations and choices tend to be more influenced by persons of their same sex (Delmar and Holmquist, 2004: 41). Hence, if there has been a lack of positive role models amongst women, or if there mostly have been negative ones, it is comprehensive that, even though women may personally know recent entrepreneurs, they have no influence upon women's decision to become entrepreneurially active.

The results emerging from columns four and five show that gender remains as statistically significant. However, no significant result is found for neither the social acceptance for entrepreneurship nor for the social rewards linked to entrepreneurship. In the case of the interaction terms, none of them indicate that the informal institutional factors have a different impact upon women's decision to become an entrepreneur. These results lead to reject hypotheses three and four; hence neither the social acceptance for entrepreneurship nor the non-pecuniary rewards linked to entrepreneurship exert a different influence on the entrepreneurial activity of women as compared to men[4].

5. Concluding Remarks

The aim of the present paper was to determine and compare the influence of the informal institutional factors upon the decision to become an entrepreneur among men and women entrepreneurs. Using Global Entrepreneurship Monitor data for Spain we tested a series of hypothesis concerning the impact of informal institutional factors upon female and male entrepreneurship. Adopting a socio-cultural and institutional approach to entrepreneurship, we derived our informal institutional factors as determinants of the

[4] In this case, only the result for the full interaction term of social reward varies widely for many observations. As before, no observation shows statistical significance under the conventional levels of acceptance.

entrepreneurial activity of men and women from Veciana's (1988) and Bygrave's (1995) models of the entrepreneurial process.

Our results suggest that Spanish women are less likely to become entrepreneurs as compared to men. Although evidence was found that the existence of a social stigma towards business failure negatively influences the decision to create a business, no significant differences were found between men and women on this issue. Also, no significant differences were found between men and women's propensity to get involved in entrepreneurial activities as a consequence of their perception of social acceptance and social rewards for entrepreneurship.

Findings in the present paper also indicate that in the case of Spanish entrepreneurs, the personal acquaintance of an entrepreneurial role-model exerts a positive impact on the decision to create a business. Moreover, we found that this positive influence of entrepreneurial role models on the decision to start-up a new business is greater for men than for women. This result has important policy implications, as it indicates that in the case of Spain, entrepreneurial role-models have been a stimulating factor explain a larger proportion of men's entrepreneurial activity than women's. This result is in accordance with that reported in Delmar and Holmquist (2004: 7), confirming that the lack of role-models can act as an obstacle for women's entrepreneurial activities. Therefore, this finding gives further arguments for policy makers to design programmes that foster networking between established and potential women entrepreneurs.

Examples of such practices are the *Advisory Center for Female Enterprise Starters* in Germany, the *Women in Focus* programme in Norway, and the *Women Into the Network*

Programme in the U.K., all promoting and offering positive entrepreneurial role-models to women entrepreneurs.

Within the literature on gender and entrepreneurship, the variation in men and women's entrepreneurial activity raised the question of what their determinants are and prompted a series of recent investigations focused on the impact that several factors have on male and female entrepreneurship across countries. While several economic and demographic factors have been previously investigated, the socio-cultural and institutional variables received little attention. Hence, an important contribution of the present paper consists in the insights it offers on the effects that certain informal institutional factors have upon men's and women's decision to create a business.

Moreover, we also believe that the results of direct comparisons between countries should be cautiously interpreted due to the different social and economic contexts in each country (Stevenson and Lundström, 2001). Therefore, an additional contribution of this paper is that it offers a separate macro level analysis in a specific national setting, as it may contribute to a better understanding of the differences (if any) between women's and men's entrepreneurial activity and the factors that determine it in each case.

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Appendix 1: Logit coefficients for results reported in Table 2

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Entrepreneur's profile						
Gender (one for women, zero otherwise)	-0.6594 (***) (0.1521)	-0.7007 (***) (0.1550)	-0.5379 (***) (0.1993)	-0.7121 (***) (0.2382)	-0.4535 (**) (0.1933)	-0.5161 (*) (0.2884)
Age (years)	0.0011 (0.0052)	0.0011 (0.0052)	0.0009 (0.0052)	0.0011 (0.0052)	0.0010 (0.0052)	0.0009 (0.0052)
Primary studies	-0.0921 (0.1876)	-0.0937 (0.1880)	-0.0977 (0.1885)	-0.0929 (0.1877)	-0.0780 (0.1878)	-0.0864 (0.1888)
Secondary studies	-0.2931 (*) (0.1716)	-0.2926 (*) (0.1717)	-0.2948 (*) (0.1718)	-0.2906 (*) (0.1713)	-0.2957 (*) (0.1718)	-0.2887 (*) (0.1713)
Self - confidence in entrepreneurial skills	2.3971 (***) (0.2244)	2.4000 (***) (0.2238)	2.3956 (***) (0.2246)	2.3963 (***) (0.2246)	2.4033 (***) (0.2247)	2.4036 (***) (0.2243)
Informal Institutional Factors						
Social fear for entrepreneurial failure	-0.4232 (**) (0.1711)	-0.4831 (**) (0.2144)	-0.4224 (**) (0.1713)	-0.4227 (**) (0.1712)	-0.4242 (**) (0.1713)	-0.4846 (**) (0.2152)
Gender × Social fear for entrepreneurial failure		0.1701 (0.3530)				0.1735 (0.3558)
Personnel knowledge of recent entrepreneur	0.2174 (0.1440)	0.2166 (0.1441)	0.3110 (*) (0.1744)	0.2179 (0.1440)	0.2170 (0.1440)	0.3048 (*) (0.1740)
Gender × Personnel knowledge of recent entrepreneur			-0.2995 (0.3154)			-0.2820 (0.3151)
Perception of business as a career choice	0.1753 (0.1575)	0.1765 (0.1576)	0.1739 (0.1578)	0.1465 (0.1870)	0.1771 (0.1571)	0.0813 (0.1932)
Gender × Perception of business as a career choice				0.0891 (0.3088)		0.2919 (0.3287)
Social reward for entrepreneurship	-0.2480 (0.1555)	-0.2480 (0.1555)	-0.2476 (0.1558)	-0.2485 (0.1553)	-0.0823 (0.1844)	-0.0508 (0.1905)
Gender × Social reward for entrepreneurship					-0.5223 (*) (0.3186)	-0.6183 (*) (0.3340)
Intercept	-4.2802 (***) (0.3556)	-4.2703 (***) (0.3574)	-4.3144 (***) (0.3553)	-4.2659 (***) (0.3602)	-4.3546 (***) (0.3587)	-4.3425 (***) (0.3619)
Number of cases	4877	4877	4877	4877	4877	4877

Robust standard errors are presented in brackets. Dependent variable: One if the person is identified as being involved in entrepreneurial activity. Women sample size = 2454. Men sample size = 2423.
*, **, *** = Significant at the 0.10, 0.05, and 0.01 level, respectively (two tailed).