

Gender and propensity to risk in advanced countries

Comparison between entrepreneurs and non-entrepreneurs

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Abstract

Purpose – The purpose of this paper is to compare the way in which gender and propensity to risk are associated in two samples, one of entrepreneurs and the other of non-entrepreneurs, while controlling for other factors, namely, national cultures.

Design/methodology/approach – On the basis of data from 19 advanced countries, and by using two different samples, one of entrepreneurs and the other of non-entrepreneurs, the authors have used logistical regression analysis to analyse the relation between gender and propensity to risk has been used.

Findings – Findings suggest that gender and culture are much stronger in influencing risk propensity among non-entrepreneurs than among entrepreneurs.

Originality/value – Instead of analysing the effects of propensity to risk in entrepreneurship, as is usually done, the authors study some of its determinants, highlighting the differences between men and women.

Keywords Gender, Entrepreneurship, Fear of failing, Risk propensity

Paper type Research paper

1. Introduction

Risk-taking is acknowledged as one of the crucial dimensions of entrepreneurial orientation. In the context of entrepreneurship, “risk-taking” refers to “a willingness to commit resources to projects, ideas, or processes whose outcomes are uncertain and for which the cost of failure would be high” (Covin and Wales, 2012, p. 694). As Marlow and Swail (2014, p. 84) argued, “risk tolerance and aversity act as a conceptual bridge between opportunity recognition and entrepreneurial enactment and in turn influence financial resourcing preferences.” The assumption that entrepreneurs have a high propensity to risk relative to the general population is commonplace in economics (Xu and Ruef, 2004; Herranz *et al.*, 2015). Influential early economists such as Cantillon, Marshall and Knight are pioneers of the view of entrepreneurs as risk bearers (Kan and Tsai, 2006).

Among the factors deemed to influence entrepreneurship, one may include the country, education, household income and gender (Langowitz and Minniti, 2007). Some studies suggest that entrepreneurial activity is likely to be affected by the cultural context of a nation (Mueller and Thomas, 2000; Tan, 2002; George and Zahra, 2002; Hayton *et al.*, 2002;



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Russell, 2004; Wennekers *et al.*, 2007; Diaz-Casero *et al.*, 2012; Hayton and Cacciotti, 2013; Lim and Envick, 2013; Wennberg *et al.*, 2013). In this study, all these factors will be analysed. However, in the wake of Sepúlveda and Bonilla's study (2011, 2014), instead of analysing the effects of the propensity to risk in entrepreneurship, as is usually done, we study some of its determinants, highlighting the differences between men and women.

There is a wealth of studies in economics and psychology documenting a lower propensity to risk of women within the general population (Sila *et al.*, 2016). More recently, albeit not questioning such relation in the case of the general population, some researchers began to question whether differences in the propensity to risk between women and men would hold in specific samples, such as economics, finance and business students (Deaves *et al.*, 2009) or corporate executives (Adams and Funk, 2012; Faccio *et al.*, 2016). Other studies examined the relation between the representation of women on corporate boards and corporate risk (Berger *et al.*, 2014; Sila *et al.*, 2016).

This type of research is scarcer in the entrepreneurship literature. The few studies that address this subject suggest that entrepreneurs report less fear of failure than non-entrepreneurs (Arenius and Minniti, 2005; Markman *et al.*, 2005; Brixly *et al.*, 2012; Koellinger *et al.*, 2013; Camelo-Ordaz *et al.*, 2016). Extant literature also suggests that women have higher fear of failure than men (Wagner, 2007; Koellinger *et al.*, 2013). We contribute to this literature by comparing the propensity to risk between women and men by using two samples, one of entrepreneurs and the other of non-entrepreneurs, while controlling for other characteristics that are likely to influence such propensity.

As Sepúlveda and Bonilla (2011, 2014), we take the fear of failing as a proxy for propensity to risk. In the literature on entrepreneurship, fear of failing is usually viewed as a psychological factor which acts as an inhibitor of entrepreneurial behaviour (Cacciotti and Hayton, 2015; Cacciotti *et al.*, 2016). Expanding on Sepúlveda and Bonilla's analyses, which focused on Latin American countries, we analyse a set of advanced economies and compare the way in which some factors considered to influence risk propensity are associated to this variable. Furthermore, in the wake of studies whose findings suggest that relative to general population, entrepreneurs possess a different set of characteristics (Camelo-Ordaz *et al.*, 2016), we use two samples, one of entrepreneurs and the other of non-entrepreneurs. Our research question pertains to whether the propensity to risk is associated in the same manner to gender among entrepreneurs and non-entrepreneurs. Our findings suggest that gender and culture are much stronger in influencing risk propensity among non-entrepreneurs than among entrepreneurs.

The rest of this paper is organized as follows. The next section presents the lens of analysis and develops the hypotheses. Section 3 explains the research design. Section 4 presents the main findings. Section 5 offers a discussion of results and some concluding remarks.

2. Hypothesis development

In both the psychology and the economics literatures, the findings reported in the majority of prior studies that compare the propensity to risk between women and men in the general population suggest that the former tend to present lower propensity to risk than the latter (Faccio *et al.*, 2016; Sila *et al.*, 2016). However, some studies examining the propensity to risk among women and men in specific samples present different findings. For example, in a study on whether overconfidence induces trading that used a sample of economics, finance and business students, Deaves *et al.* (2009) found no statistically significant difference in terms of overconfidence between women and men. As a result of this finding, they presented the possibility "that women who are attracted to 'male' disciplines such as economics,

finance and business are more overconfident than the overall female population, even as overconfident as is the typical male” (Deaves *et al.*, 2009, p. 566).

Some recent studies on differences regarding the propensity to risk among members of corporate boards present findings similar to those of Deaves *et al.* (2009). Adams and Funk (2012), who conducted a survey to Swedish directors, reported even more shocking results: they found that women present higher propensity to risk than their male counterparts. Berger *et al.* (2014) reported similar findings in the case of a sample of German banks, in which higher representation of women in executive teams increase portfolio risk. Sila *et al.* (2016), who examined the relations between gender diversity in the board of directors and equity risk, presented evidence suggesting that there is no statistically significant relation between the proportion of women on the board and risk-taking.

Notwithstanding, Faccio *et al.* (2016), while acknowledging that women’s lower risk propensity documented in previous economics and psychology literature may not be found within top executives in view of the “specific and rare combination of skills needed to ascend to a high management position” (Faccio *et al.*, 2016, p. 206), presented evidence suggesting that women CEOs do tend to present lower propensity to risk when compared to men.

In a very different setting, based on a sample of Chinese entrepreneurs from the electronics industry, Tan (2008) compared the entrepreneurial orientation and performance between men and women. The findings of this study suggested that the factors affecting decision-making are the same for men and women. Results also revealed that women differed from their male counterparts “in their willingness to take more risks and make bolder moves in pursuit of greater returns and future competitive advantage” (Tan, 2008, p. 547), as well as by outperforming men.

Kirkwood (2016) surveyed the self-perceived success criteria for their businesses of 216 New Zealand business owners, of whom 78 were women and 138 were men. The findings suggested that among business owners, there are no statistically significant gender differences. Female and male business owners described comparable criteria for success, viewing the success of their businesses as incorporating financial success and personal and relationship aspects.

Some studies suggest that in the case of entrepreneurs, there is no significant difference between men and women in terms of exhibiting fear of failure (Camelo-Ordaz *et al.*, 2016; Minniti, 2009; Tan, 2008). In the wake of Camelo-Ordaz *et al.* (2016), we consider that it is plausible that entrepreneurs, whether men or women, possess certain common characteristics or can acquire them during the process of creating a business. According to Hayton and Cacciotti (2013, p. 725), extant “evidence suggests that entrepreneurs as a group do share a number of common traits.” Moreover, there is evidence suggesting that the individual values of entrepreneurs differ from the dominant culture (*ibid.*). As a result, some differences between men and women documented for the general population tend to be smaller or not to exist in the case of entrepreneurs or tend to become mitigated or to disappear during the process of creating a business (Ahl, 2006; Tan, 2008). Camelo-Ordaz *et al.* (2016) found that in the case of female non-entrepreneurs, the fear of failure acted as an important barrier constraining the entrepreneurial intention, whereas the case was not the same in the case of entrepreneurs.

The above findings lead to the two following hypotheses:

- H1. Within non-entrepreneurs, women present lower propensity to risk than their male counterparts.
- H2. Within entrepreneurs, there is no significant difference between men and women in terms of propensity to risk.

3. Data and methodology

3.1 Data

We have used data obtained from the Global Entrepreneurship Monitor (GEM) Adult Population Survey (APS) of 2012, the most recent including individual data and available at the GEM's webpage (www.gemconsortium.org) by the time our study was conducted. The GEM project started in 1999 as a joint initiative between the Babson College (EUA) and the London Business School (UK), with a purpose to use empirical data in assessing entrepreneurial activity across countries, understanding how it varies over time and why some countries present higher levels of entrepreneurial activity when compared to others (Álvarez *et al.*, 2014, p. 445). The number of countries included has increased from 10 in 1999 to 85 in 2012 (Sepúlveda and Bonilla, 2014).

One of the questions asked in the GEM APS is, “would fear of failure prevent you from starting a business?” We obtained the answers to this question and used it as a proxy for risk propensity of the individual who responded to the survey. Following Sepúlveda and Bonilla's study (2011, 2014), we consider that an individual who gives a positive answer to this question is less willing to bear the risk of new enterprise when compared to one who answers no.

Our analysis focuses on advanced countries according to the International Monetary Fund classification (Nielsen, 2011), for reasons similar to those presented by Sepúlveda and Bonilla (2014) to analyse only countries from Latin America. Of these countries, we have analysed only the 19 for which the GEM APS of 2012 provides data (Table I).

As we use two different samples, we also obtained the questions that allow us to identify such samples. In the case of entrepreneurs, following Langowitz and Minniti (2007), we identified individuals in the following way. In the GEM (2012) APS, all respondents were asked:

- (1) Are you, alone or with others, currently trying to start a new business, including any type of self-employment or selling any goods or services to others?

Country	Entrepreneurs		Non-entrepreneurs	
	No.	(%)	No.	(%)
Austria	163	8.14	1,032	4.96
Belgium	35	1.75	588	2.82
Denmark	61	3.05	923	4.43
Finland	39	1.95	1,064	5.11
France	81	4.05	1,306	6.27
Germany	165	8.24	1,777	8.54
Greece	36	1.80	398	1.91
Ireland	65	3.25	634	3.05
Israel	53	2.65	376	1.81
Italy	30	1.50	411	1.97
Japan	46	2.30	654	3.14
The Netherlands	119	5.94	1,057	5.08
Norway	65	3.25	1,145	5.50
Portugal	60	3.00	644	3.09
Spain	433	21.63	5,274	25.33
Sweden	41	2.05	794	3.81
Switzerland	52	2.60	583	2.80
UK	77	3.85	658	3.16
USA	381	19.03	1,502	7.21
Total	2,002	100	20,820	100

Table I.
Samples' composition

- (2) Are you, alone or with others, trying to start a new business or a new venture with your employer – an effort that is part of your normal work?

Respondents who answered “yes” to Item 1 or 2 were then asked:

- (3) Over the past 12 months, have you done anything to help start this new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money or any other activity that would help launch a business?
- (4) Will you personally own all, part, or none of this business?

The respondents were coded as “entrepreneurs” if, in addition to 1 or 2, they answered “yes” and “all” or “part” to Items 3 and 4, respectively.

In the case of non-entrepreneurs, we identified individuals as follows. In the GEM (2012) APS, all respondents were asked:

- (1) Which of the following describes your current employment status? (employed by others in full-time work, employed by others in part-time work, self-employed, seeking employment, not working because I am retired or disabled, a student, full-time home-maker, other)

Respondents who answered “employed by others in full-time work” were then asked:

- (2) In the past three years, have you been involved in the development of new activities for your main employer, such as developing or launching new goods or services, or setting up a new business unit, a new establishment or subsidiary?
- (3) And are you currently involved in the development of such new activity?

The respondents were coded as “non-entrepreneurs” if, in addition to 1, they answered “no” to Items 2 and 3.

In the case of entrepreneurs, the question regarding the type of entrepreneurship (to take advantage of a business opportunity, no better choices for work, etc.) was also obtained. The final samples of entrepreneurs and non-entrepreneurs are made of 2,002 and 20,820 individuals, respectively, from 19 countries (Table I).

3.2 Methodology

We estimate two logistic regression models, the first for non-entrepreneurs [equation (1)] and the second for entrepreneurs [equation (2)]:

$$\begin{aligned} \text{FearFail} = & \text{const} + \delta_1 \text{Gender} + \delta_2 \text{Age} + \delta_3 \text{GEMEDUC} + \delta_4 \text{GEMHHINC} \\ & + \delta_5 \text{HHSIZE} + \delta_6 \text{SUSKILL} + \alpha_1 \text{PD} + \alpha_2 \text{UA} + \alpha_3 \text{Ind} + \alpha_4 \text{Masc} + \text{error} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{FearFail} = & \text{const} + \delta_1 \text{Gender} + \delta_2 \text{Age} + \delta_3 \text{GEMEDUC} + \delta_4 \text{GEMHHINC} \\ & + \delta_5 \text{HHSIZE} + \delta_6 \text{SUSKILL} + \delta_7 \text{SUREASON} + \alpha_1 \text{PD} + \alpha_2 \text{UA} + \alpha_3 \text{Ind} \\ & + \alpha_4 \text{Masc} + \text{error} \end{aligned} \quad (2)$$

where the *delta* coefficients pertain to individual factors (gender, age, education, household income and size and knowledge), and the *alfa* coefficients pertain to cultural factors. In the case of the model referring to entrepreneurs, we added an additional variable on the type of

entrepreneurship. The variables obtained from the GEM 2012 APS used in these models are presented in [Table II](#).

Culture has been broadly defined by [Hofstede \(2001, p. 9\)](#) as “the collective programming of the mind which distinguishes the members of one group or category of people from another”. According to [El Ghouli and Zheng \(2016, p. 475\)](#), cultural values “serve as fundamental constraints on one’s decision-making”. To account for the cultural context of risk-taking propensity, we include as independent variables four measures of cultural characteristics proposed by [Hofstede \(2001\)](#) that may influence attitudes towards risk in a society ([Russell, 2004](#)). These are individualism vs collectivism (Ind), power distance (PD), uncertainty avoidance (UA) and masculinity vs femininity (Masc). These were the dimensions initially considered by Hofstede. He later added two additional dimensions (long-term orientation and indulgence). We focus on these original four dimensions in view of their more frequent use in the literature and because these are based on Hofstede’s original surveys ([Kirkman et al., 2006](#); [Frijns et al., 2016](#)).

The individualism/collectivism dimension has to do with the relations between the individual and the group. In countries with high levels of individualism, people value their independence and focus on themselves and their immediate families, and their ties with others are loose. On the contrary, in collectivist countries, people are integrated into strong, cohesive groups. Power distance captures “the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally” ([Hofstede, 2001, p. 98](#)). Uncertainty avoidance has to do with the extent to which people tolerate

Variables	GEM indicator	Question	Measurement
Risk-taking propensity	fearfail Qi4	Would fear of failure prevent you from starting a business	0 = no; 1 = yes
Gender	Gender	What is your gender?	1 = man; 2 = woman
Age	Age	What is your current age (in years)?	
Education	GEMEDUC	GEM-harmonized educational attainment	1 = none 2 = some secondary 3 = secondary degree 4 = post-secondary 5 = graduate experience
Knowledge	SUSKILL Qi3	Do you have the knowledge, skill and experience required to start a new business	0 = no 1 = yes
Household income	GEMHHINC		1 = lowest 33% 2 = middle 33% 3 = higher 33%
Household size	HHSIZE	How many members make up your permanent household, including you?	
Type of entrepreneurship	SUREASON	Are you involved in this start-up to take advantage of a business opportunity or because you have no better choices for work?	1 = take advantage of business opportunity 2 = no better choices for work 3 = combination of both of the above 4 = have a job but seek better opportunities 5 = other

Table II.
GEM variables

uncertainty and respond to unstructured situations. Finally, the masculinity vs femininity dimension pertains to the degree to which society values the more masculine features of being assertive and oriented towards material success versus the more feminine aspects of cooperation and minding the quality of life (Frijns *et al.*, 2016). Overall, one may expect that countries presenting high levels of individualism and masculinity, and low levels of uncertainty avoidance and power distance are more prone to entrepreneurship (Hayton *et al.*, 2002).

4. Results

Results of logistic regression using the data on entrepreneurs are reported in Table III. Only the variables GEMEDUC, SUREASON, Suskill and Uncertainty avoidance are statistically significant at conventional levels. When compared with entrepreneurs with graduate experience, those with only secondary and post-secondary experience are less likely to have the fear of failing. Entrepreneurs by necessity and those who consider that they have the skills necessary to start a new business are more likely to experience the fear of failing. In countries with higher levels of uncertainty avoidance, entrepreneurs are more likely to experience the fear of failing.

Variables and model statistics	B	Sig.
<i>Independent variables</i>		
GEMHHINC		
Lowest 33%	0.141	0.333
Middle 33%	0.171	0.165
Highest 33%		(omitted)
GEMEDUC		
None	-0.585	0.171
Some secondary	-0.194	0.359
Secondary	-0.392	0.023
Post-secondary	-0.441	0.007
Graduate experience		(omitted)
SUREASON		
Business opportunity	-0.178	0.376
No better choices	0.421	0.053
Combination of above	0.189	0.415
Have job but seek better opportunities	0.282	0.301
Other		(omitted)
Male	-0.086	0.429
Age	-0.001	0.904
Suskill	0.848	0.000
Hhsize	0.044	0.207
PD	0.004	0.472
UA	0.015	0.018
Ind	0.004	0.543
Masc	0.004	0.210
Constant	-2.541	0.001
<i>Model statistics</i>		
χ^2	121.556	
2 log likelihood	2238.207	
Sig.	0.000	
Nagelkerke R^2	0.085	
% correctly classified	72.5	

Table III.
Results of logistic
regression –
entrepreneurs

Table IV reveals the results of regression analysis in the case of non-entrepreneurs. When compared to the case of entrepreneurs, more variables are statistically significant. GEMEDUC, SUREASON, Suskill and Uncertainty avoidance are statistically significant and present similar results in terms of relation with the fear of failing. Besides these variables, gender, age, Hhsze and GEMHHINC are also statistically significant. In the case of non-entrepreneurs, when compared with women, men are less likely to have the fear of failing. Individuals with households of greater size experience greater fear of failing. In countries with higher levels of power distance and masculinity, non-entrepreneurs are more likely to experience fear of failing. The contrary is the case in countries with higher levels of individualism.

The findings regarding Suskill are consistent with the results of Sepúlveda and Bonilla (2011; 2014). Both in the case of entrepreneurs and in the case of non-entrepreneurs respondents who believe that they do not have the skills necessary to start a new business are more likely to experience fear of failing. Findings on the relation between gender and risk propensity are consistent with the findings of Sepúlveda and Bonilla (2011, 2014), but only for non-entrepreneurs. In the case of non-entrepreneurs, results are also in line with extant studies suggesting that women are more prone to having fear of failure and that this can explain differences in entrepreneurship (Langowitz and Minniti, 2007; Minniti and Nardone, 2007; Wagner, 2007; Koellinger *et al.*, 2013; Noguera *et al.*, 2013).

In the case of entrepreneurs, findings lead us to question, with Nelson (2016), the case for gender differences in risk propensity. Moreover, these results are consistent with studies that instead of analysing the general population use specific samples and do not find significant differences between men and women (Deaves *et al.*, 2009; Sila *et al.*, 2016).

Variables and model statistics	B	Sig.
<i>Independent variables</i>		
GEMHHINC		
Lowest 33%	-0.079	0.082
Middle 33rd %	-0.035	0.285
Highest 33rd %	(omitted)	
GEMEDUC		
None	0.029	0.806
Some secondary	0.115	0.066
Secondary	-0.116	0.026
Post-secondary	-0.081	0.113
Graduate experience	(omitted)	
Male	-0.215	0.000
Age	-0.007	0.000
Suskill	0.357	0.000
Hhsze	0.030	0.002
PD	0.002	0.157
UA	0.004	0.022
Ind	-0.005	0.005
Masc	0.003	0.000
Constant	0.002	0.991
<i>Model statistics</i>		
χ^2		502.336
2 log likelihood		28,356.935
Sig.		0.000
Nagelkerke R^2		0.032
% correctly classified		56.2

Table IV.
Results of logistic regression – non-entrepreneurs

5. Concluding remarks

This research uses the GEM database, an international survey pertaining to entrepreneurship that is widely used in entrepreneurship research, and offers interesting insights based on two samples, one of entrepreneurs and another of non-entrepreneurs. We compared the way in which some factors considered to influence risk propensity are associated with this variable using these two samples. Findings suggest that gender and culture are much stronger in influencing risk propensity among non-entrepreneurs than among entrepreneurs. These also suggest that the case for gender differences in risk propensity is less solid than usually claimed in the case of entrepreneurs. In the case of non-entrepreneurs, men appear to be less risk averse than women.

This study offers some contributions to the literature. It contributes to the literature analysing whether differences between men and women that hold for the general population also hold in specific samples (Deaves *et al.*, 2009; Adams and Funk, 2012; Berger *et al.*, 2014; Faccio *et al.*, 2016; Sila *et al.*, 2016). In particular, it contributes to the literature suggesting that differences between men and women documented for the general population tend to be smaller or not to exist in the case of entrepreneurs (Ahl, 2006; Tan, 2008; Camelo-Ordaz *et al.*, 2016).

Our study presents a number of limitations that should be acknowledged, some of these are related to the characteristics of the database we used. An important limitation is that this study included data only on individuals' own perceptions, not actual abilities (Camelo-Ordaz *et al.*, 2016). A significant limitation is the measurement of fear of failure by using a single item (Cacciotti and Hayton, 2015, p. 170). For example, it is not clear whether individuals responding that fear of failure would not prevent them from starting a business "do not perceive fear of failure, or perceive it, but continue to engage in entrepreneurial action" (*ibid.*). Another limitation pertains to the fact that we have only used cross-sectional data. To address the problem of changing attitudes, future research should use panel data.

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