International Entrepreneurship and Management Journal (2023) 19:1921–1945
https://doi.org/10.1007/s11365-023-00889-8

The role of individual capabilities, workplace, and national culture on corporate entrepreneurship: A gender perspective

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Accepted: 16 August 2023 / Published online: 1 September 2023

Abstract

This cross-country study proposes conceptualizing and measuring the engagement of a gendered workforce in corporate entrepreneurship by examining the influence of individual capabilities, workplace environment perception, and national culture. The study uses information from the Global Entrepreneurship Monitor and World Bank from 22 countries among a sample of employees managing projects within established firms. Results reaffirm the importance of having a job that fully aligns with the interests of employees regarding their gender; in this case, the perception of having a meaningful job and having the autonomy to develop novel activities are strong determinants. However, gender differences may be more pronounced when considering work-life balance satisfaction. These findings enrich the literature on corporate entrepreneurship and gender and establish important insights for corporations wanting to develop a workplace environment promoting entrepreneurial activity.

Keywords Women entrepreneurs · Corporate entrepreneurship · Work satisfaction · National culture

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Introduction

Corporate entrepreneurship refers to an entrepreneurial activity (development of new products or services or strategic renewal of existing processes) that occurs in a workplace context within an established organization. (Guth & Ginsber, 1990; Antoncic & Hisrich, 2001). Given the potential growth benefits of these programs or projects, diverse organizations have adopted corporate entrepreneurship as a strategy to diversify their portfolios, create jobs, and be competitive (Guerrero et al., 2019). Consequently, having employees with entrepreneurial skills becomes highly relevant for developing many types of organizations (Hornsby et al., 2013; Stam, 2013). It explains why corporate entrepreneurship has attracted the attention of scholars who have dedicated their efforts to advance in the field.

An ongoing academic debate suggests that women possess abilities (i.e., transformational leadership, cooperation, and partnership) that are related to the achievement of good leadership (Powell et al., 2008; Orser et al., 2015) and entrepreneurial outcomes when they are in top management teams (Lyngsie & Foss, 2017). In this regard, extant studies have provided insights into the underrepresentation of women in corporate entrepreneurship worldwide. First, many independent women entrepreneurs have experimented with job dissatisfaction or work-life imbalance in their previous jobs (Hewlett & Sa, 2002; Mattis, 2004; Patterson & Mavin, 2009). It implies that workplace environments with an entrepreneurial orientation should encourage diversity/inclusion in their human management systems (Judge et al., 2001; Ruiz et al., 2023), as well as in the design of favorable conditions towards entrepreneurship and innovations like autonomy, a meaningful job, and work-life balance (Guerrero et al., 2019; Shipton et al., 2006). Second, the role of national culture is relevant when analyzing the role of entrepreneurs (Urbano et al., 2022). Attah-Boakye et al. (2020) have suggested that national culture influences gender diversity and innovation (highly related to corporate entrepreneurship) in organizations. As the national culture represents the beliefs/norms that differentiate one country from others (Achtenhagen & Zu Knyphausen-aufsess, 2003; Welter & Smallbone, 2006; Turró et al., 2014), there is an assumption that national culture determines the flourishing of both independent and corporate entrepreneurship (Welter & Smallbone, 2008). However, some areas remain unexplored, such as exploring the multilevel conditions that influence the engagement of a gendered workforce in the development of corporate entrepreneurial activities (Guerrero et al., 2019; Ruiz et al., 2023; Urbano et al., 2022). Consequently, understanding gender differences will help encourage gender equality.

Inspired by this research gap, this study aims to conceptualize and measure the engagement of a gendered workforce in corporate entrepreneurship by examining the influences of individual capabilities, workplace environment perception, and national culture. We test our proposed theoretical framework using a cross-country individual-level dataset. Our findings provide insights into the conditions that encourage the development of entrepreneurial opportunities within established organizations. The main results show that individual factors like

entrepreneurial skills and some organizational factors of the work environment are relevant to incentive corporate entrepreneurship. Results also illustrate the role of national culture for innovative organizations that desire to establish corporate entrepreneurship strategies. This study contributes in two folds. First, the study conceptualizes the gendered workforce's contribution to corporate entrepreneurship, which has been a topic not sufficiently explored in the literature (Ruiz et al., 2023; Urbano et al., 2022). Second, the study tested the multilevel effect of individual capabilities, workplace environment perceptions, and national culture on a gendered workforce's engagement in corporate entrepreneurship, which has also been a topic not sufficiently explored in the literature (Guerrero et al., 2019; Urbano et al., 2022).

Following this introduction, this paper is organized as follows. In the Literature review section, the conceptualization with a gender lens and the hypotheses are proposed. In the Methodology section, the methodological design and the operationalization are described. In the Results section, the descriptive statistics and findings are described. In the Discussion and conclusions section, the academic contributions and implications are discussed. Finally, the Limitations and future research are explained in the conclusion section.

Literature review

As we mentioned, corporate entrepreneurship is defined as entrepreneurial activity that occurs in a workplace context. In line with this definition, organizations that are considered entrepreneurial usually combine their business sustainability efforts based on reducing costs with efforts to engage in innovative activities. This strategy, by consequence, provides high organizational performance (Hornsby et al., 2009) and improves the company's reputation (Shu et al., 2019). Corporate entrepreneurship may involve introducing new products and processes to renew the organization and new business development to satisfy the continued market demands (Guth & Ginsberg, 1990). Similarly, Morris et al. (2008) describe entrepreneurial corporations as entities that are exploring and exploiting new business opportunities.

Zahra (2015) proposes that corporate entrepreneurship should be viewed as a process through which individuals enhance creativity, intelligence, knowledge creation, and the possibility of seeing things in a new way. Putting the focus on individuals (employees), they play an essential role when corporations desire to engage in these activities. Entrepreneurial employees who engage in the corporate entrepreneurship process must develop their entrepreneurial skills (Liu et al., 2018) and work under organizational conditions that stimulate these activities (Foss et al., 2013). Organizations may provide autonomy to employees, allowing them to seek freely entrepreneurial opportunities without many restrictions (Burcharth et al., 2017; Lumpkin et al., 2009). Corporations may also work with employees to enhance job satisfaction (Kuratko et al., 2005) and achieve better outcomes. Combined with an appropriate context, these elements are essential when starting and developing entrepreneurial activities under the corporate umbrella.

Corporate entrepreneurship and gender

With the increasing presence of women in the labor force and their growing managerial roles in many organizations, it could be relevant to inquire why and how women employees are engaged (or not) in corporate entrepreneurship efforts. Recent studies show that women in higher hierarchical organizational positions bring about more entrepreneurial outcomes (Lyngsie & Foss, 2017) and better firm financial performance (Moreno-Gómez & Calleja-Blanco, 2018). However, specific factors may cause women to be at a disadvantage when developing independent or corporate entrepreneurship (Adachi & Hisada, 2017). Specifically, in corporate entrepreneurship, Adachi and Hisada (2017) describe that conditions within the workplace have particular relevance and may be contributing to the gender gap. More recently, other authors have also looked into employee entrepreneurial activity paying attention to the role of gender because of the gender gap in the activity, suggesting differences are also due to antecedents (Turró et al., 2020). However, more research is needed to understand factors at individual and institutional levels (Urbano et al., 2022) that influence corporate entrepreneurship gender differences. Based on these studies and the scarcity of gender analysis in corporate entrepreneurship (e.g., Zhang et al., 2020), in the following sections, we develop a series of hypotheses trying to get relevant insights that allow us to understand the gender gap in corporate entrepreneurship described by another research (e.g., Adachi & Hisada, 2017).

Individual factors and entrepreneurial behavior

In the previous section, we highlighted the relevance of understanding individuals'/employees' factors in corporate entrepreneurship. For example, Lyngsie and Foss (2017) analyzed the structure of top management teams and entrepreneurial outcomes. They concluded that gender-heterogeneous teams might be associated with corporate entrepreneurial activities because women provide helpful perspectives on these activities. These findings suggest that many elements, such as creativity and innovation, interact when looking for extraordinary performance (Hunter et al., 2012). Although few studies have explored the determinants of entrepreneurial behavior within organizations by adopting a gender perspective, Adachi and Hisada (2017) found that women tend to engage in less corporate entrepreneurial activities than their male counterparts. The main explanation is related to different women's interests. Focused on analyzing independent entrepreneurship, Wagner (2007) relates that women may tend to find a situation riskier than men. In this respect, Brindley (2005) associated these differences by explaining that women decide to take risks in specific activities influenced by different societal factors. Another explanation is due to self-perception regarding a lack of entrepreneurial skills and confidence (Langowitz & Minniti, 2007; Maxfield et al., 2010). However, some management studies recognized that women possess effective leadership styles (Eagly, 2007) and collaborative behaviors (Rosener, 1990; Orser et al., 2015) that are crucial for corporate entrepreneurial activities. We assume that both, women and men possess the required capabilities/skills to explore

and exploit corporate entrepreneurial opportunities (Ardichvili et al., 2003). However, the potential differences might be associated with the propensity of women to avoid failures (Antoncic & Hisrich, 2003; Wood et al., 2008) and less confidence in their entrepreneurial skills than men (Koellinger et al., 2013). Consequently, women may have reduced participation in entrepreneurial activities within corporations. Turró et al. (2020), who analyzed the fear of failure for employee entrepreneurs, found that women who considered themselves with lower tolerance to failure are less likely to participate in entrepreneurial activities within corporations.

Based on these assumptions, we propose the following hypotheses.

H1 A favorable perception of having the required entrepreneurial skills will increase women's and men's engagement in corporate entrepreneurship activities. The effect is stronger in men.

H2 A favorable tolerance of fear of failure will increase women's and men's engagement in corporate entrepreneurship activities. The effect is stronger in men.

Organizational factors perceptions of the workplace environment

Sustained innovation outcomes may depend on entrepreneurial orientation and innovative behaviors within organizations. More recently, women have shown an important advancement in education and progress by reaching higher corporate ranks. Accordingly, women are more prepared to develop corporate and entrepreneurial achievements; even though there are still gender differences in terms of growth within independent entrepreneurship, those differences may be due to contextual factors (Coleman, 2016). In this vein, organizations should implement mechanisms to create a favorable environment for entrepreneurship and innovation (Do & Shipton, 2019). Job satisfaction is the first workplace condition that promotes entrepreneurial behaviors, which positively evaluates employees regarding their job responsibility (Janssen, 2001). Previous studies found positive effects of job satisfaction on organizational outcomes like customer satisfaction (Fu & Deshpande, 2014), commitment (Firth et al., 2004), effectiveness (Koys, 2001), and job performance (Judge et al., 2001). In this respect, Kuratko et al. (2005) argue that managerial support and rewards (pay and promotions) may lead to employee job satisfaction. As a consequence, individuals may show more entrepreneurial behavior.

Similarly, Akehurst et al. (2009), Antoncic and Antoncic (2011), and Van Wyk and Adonisi (2012) found a direct relationship between job satisfaction and employees' entrepreneurial behaviors. Previous studies have found that women may feel more satisfied in the workplace than men (Gazioglu & Tansel, 2006). In this regard, women's satisfaction may be associated with gratification, good relationships with coworkers/superiors, and finding the job meaningful (Crossman & Abou-Zaki, 2003; Konrad et al., 2000), while men's satisfaction is perceived in economic terms (Donohue & Heywood, 2004). We assume interested organizations in entrepreneurial outcomes should retain talented employees and improve their experiences, job satisfaction, and entrepreneurial initiatives. Based on this assumption, we propose the following hypotheses.

H3 A favorable job satisfaction in the workplace will increase women's and men's engagement in corporate entrepreneurship activities.
H3a A favorable perception of ng a meaningful job will increase women's and men's engagement in corporate entrepreneurship activities. The effect will be stronger in women.
H3b A favorable retribution satisfaction will increase women's and men's engagement in corporate entrepreneurship activities. The effect will be stronger for men.

A second workplace condition that promotes entrepreneurial behavior is balancing work and family responsibilities (St-Arnaud & Giguere, 2018). Previous studies suggest that women find independent entrepreneurship as the solution to their work-life balance (Kim & Ling, 2001; Kirkwood & Tootell, 2008; McClelland et al., 2005). Therefore, work-life balance is crucial for women with dependents, children, or elderly parents (Duberley & Carrigan, 2013; Schindehutte et al., 2003; Venkataraman & Venkataraman, 2020). In a study, Ko et al. (2021) highlight the importance of work-life balance by analyzing the research outcomes of scientists. Similarly, Cochis et al. (2021) describe the positive impact of work-life balance on creativity. Authors argue that this is probably caused by reducing stress levels by providing the opportunity to manage the interface between work and life, which, in turn, causes individuals to enhance creativity. Other studies have studied the essential and positive role of work-life balance on employee performance, concluding this is an essential factor to consider by decision-makers (e.g., Johari et al., 2018). Therefore, we deduce that the quality of experiences at work, like the perception of having a good work-life balance, is crucial in promoting entrepreneurial outcomes, so special attention must be paid to the entrepreneurial behavior of employees within the workplace regarding work-life balance. Based on previous arguments, we propose the following hypothesis.

H4 A favorable perception of a balance between work and family responsibilities will increase women's and men's engagement in corporate entrepreneurship activities. The effect will be stronger in women.

A third workplace condition that promotes entrepreneurial behaviors is the degree of autonomy. This condition is associated with specific outcomes like innovation performance or strategic tasks (Brock & Birkinshaw, 2003; Lassen et al., 2006), as well as employee well-being (Chirkov et al., 2003) or employees' engagement (Littman-Ovadia et al., 2013). Lange (2012) suggests that autonomy has been used as a synonym for freedom and independence to develop activities at the best convenience. Previous studies have also analyzed autonomy and independence as motivators of the new venture creators, agreeing that these variables are strongly associated with the desire to become an entrepreneur (Edelman et al., 2010; Hornsby et al., 2002; Shane et al., 2003). Corporate entrepreneurship scholars find that organizations provide opportunities for employees to work independently to engage them in entrepreneurial activities (Lumpkin et al., 2009) and promote opportunity-seeking behaviors (Ireland et al., 2003). Based on this assumption, we propose the following hypothesis.

H5 A favorable perception of job autonomy will increase engagement in corporate entrepreneurship. The effect will be similar between women and men.

Institutional context national culture

The national context is considered a key determinant of innovation and entrepreneurial activities developed within/outside organizations across countries (Kemppainen, 2019). Diverse scholars have dedicated their efforts to exploring the impact of context on entrepreneurship activity (Garrett & Holland, 2015; Lumpkin & Dess, 2001; Wiklund & Shepherd, 2005). In this way, scholars have found important implications of national culture to motivate or even discourage entrepreneurial and innovative initiatives (Welter & Smallbone, 2008, 2011). Culture is understood as collective behavior/norms that distinguish the population of one country from the population of other countries (Hofstede, 1980, 2011). National culture (behaviors and norms) also influences how workplaces are configured. In a more recent study, Attah-Boakye et al. (2020) describe the influence of national culture and organizational-level variables on corporate innovation. Suggesting organizations need to be aware of these influences and delineate strategies to continue developing innovative activities. In this respect, Hayton et al. (2002) recognized the national culture's influence on different attributes of corporate entrepreneurship. For Kreiser et al. (2010), national culture is related to risk-taking and proactive behaviors within organizations. Specifically, risk-taking has long been considered one of the main factors for entrepreneurship (Covin & Slevin, 1989), so it is deduced that societies that tend to be more risk-takers will have an impact on the development of corporate entrepreneurship activities. For other scholars (e.g., Turró et al., 2014), culture needs to be analyzed with care since the effect could act as a moderator on the activity. Aware of the implications of national culture on corporate entrepreneurship, we seek to test them from a gender perspective; based on this argument, we propose the following hypotheses.

H6 A risk-taking culture influences the engagement of corporate entrepreneurship for both women and men. The effect will be similar between women and men.
H6a The impact of individual antecedents on the engagement of corporate entrepreneurship will be moderated by a risk-taking culture. The effect will be similar between women and men.

A Summary of the model can be found in Fig. 1.

Methodology

Data collection

The individual and organizational data come from the Global Entrepreneurship Monitor, GEM, database. Concretely, in the 2013 edition, GEM introduced a set of questions to capture workplaces' characteristics and entrepreneurial employees' activities (Bosma et al.,

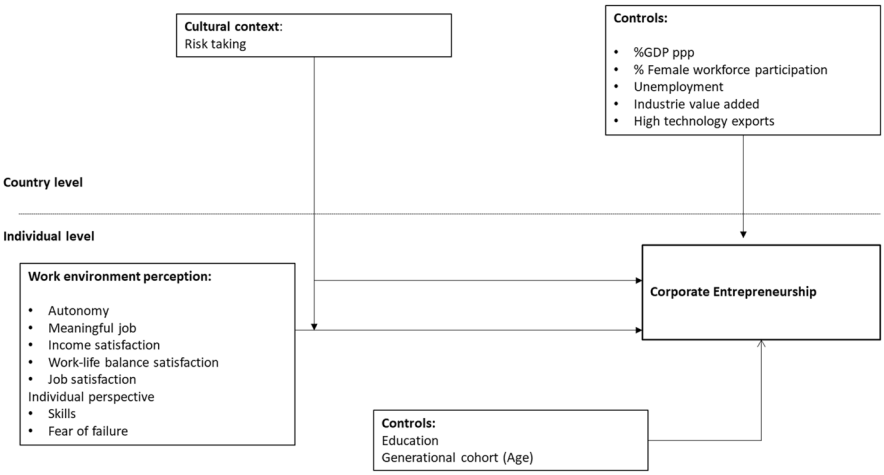

Fig. 1 Research Model

2011; Amorós et al., 2014; Guerrero et al., 2019). A total of 51 countries participated in this edition, but only 26 countries reported information about the mentioned set of questions. Our final representative sample consisted of 19,124 part-time/full-time employees from 22 countries after excluding countries with missing data for specific variables (see Appendix, Table 5).

Description of variables

Our dependent variable is binary, indicating whether an employee has engaged in corporate entrepreneurship activities during the last three years. The variable is coded as one if an employee has been active as a corporate entrepreneur and 0 otherwise. GEM introduced this variable as a proxy to analyze employee entrepreneurial behavior. Different authors have also used it similarly when evaluating entrepreneurial activity (Bosma, 2013; Urbano & Turró, 2013).

Regarding the independent variables, we used a set of multilevel variables that mainly comes from the GEM database and The World Bank as follows at the individual level, two variables operationalize individual capabilities. The first one, skills, refers to whether individuals perceive that they possess the right skills and experience to start a new business. It is defined as a binary variable, with 1 indicating that the participant perceives having the right skills and 0 otherwise. Different authors like Koellinger et al. (2013) have used this variable. The second one, fear of failure, describes whether fear of failing prevents an individual from starting a business. GEM operationalizes it as a binary variable, where 1 indicates that the fear of failure prevents an individual from starting a business, and 0 indicates that it does not. This variable has also been studied by diverse authors like Guerrero and Peña-Legazkue (2013 and 2019), Urbano and Turró (2013) and Ruiz et al. (2023).

At the organizational level, we also used a set of variables to operationalize the employee perception of the role of the work environment in corporate entrepreneurship. First, the autonomy variable refers to whether an individual perceives that they have control to perform her assigned job tasks or responsibilities. The job control or autonomy variable has been emphasized by different authors as important when evaluating diverse organizational outcomes (Mauno et al., 2006). This variable has also been considered one of the main constructs when evaluating corporate entrepreneurship (Hornsby et al., 2002). GEM operationalized the variable with the statement," I can decide on my own how I go about ng my work," measured on a scale from 1 (strongly disagree) to 5 (strongly agree). Second, the meaningful job variable describes whether individuals consider their job as important to them. GEM said, "The work I do is meaningful to me." It was assessed using a scale from 1 (strongly disagree) to 5 (strongly agree). This question is also part of the Job Survey developed by Hackman and Oldham (1975). Third, the income variable refers to individuals' satisfaction with their income (1 = strongly disagree; 5 = strongly agree). GEM assessed it by asking participants about their degree of satisfaction with their current income from work. Income was part of the job dimensions developed in the Job Survey (Hackman & Oldham, 1975). Finally, a fourth variable related to job satisfaction was assessed using a scale from 1 (strongly disagree) to 5 (strongly agree) and was captured from the following sentence" I am satisfied with my current job." GEM also introduced three variables that refer to work-life balance satisfaction. We used the average of the three variables in our models. The first, the work-life balance (time) variable, refers to the perception of having sufficient time to perform one's professional and personal responsibilities (operationalized on the same 1–5 scale as above). Second, the work-life balance (needs) variable refers to the perception of balancing work and personal responsibilities (operationalized on a 1–5 scale). Finally, the third one refers to whether a person is satisfied with the opportunity to perform their work well and contribute to home-related responsibilities (operationalized on a 1- 5 scale). Valcour (2007) initially used work-life balance items, who originally developed a five item-scale to assess overall satisfaction with the work-life balance.

At the country level, we use NES (National Expert Survey) from 2013, which is also part of the Global Entrepreneurship Monitor (GEM). In this survey, several experts in the entrepreneurship area are asked about their perception of the development of entrepreneurial activity. This research used the variable" In my country, the national culture encourages entrepreneurial risk-taking." Entrepreneurship often involves taking risks; therefore, we decided this variable is well suited to analyze from an institutional perspective.

Regarding control variables, we included a set of control variables. The age measures a generational cohort as a continuous variable ranging from 18–86. This variable has been analyzed as an essential predictor of entrepreneurial behavior. Bosma and Levie (2010) have suggested that most entrepreneurial individuals are middle age. Recently, Guerrero et al. (2019) found the highest propensity of younger generations in the development of corporate entrepreneurship. The education variable ranges from 0–6, where 0 indicates pre-primary education, 1 indicates primary education on the first stage of basic education, 2 indicates lower secondary or second

stage of basic education, 3 indicates upper secondary education, 4 indicates post-secondary no tertiary education, 5 indicates the first stage of tertiary education, and 6 indicates the second stage of tertiary education. Individuals with higher education may use their knowledge to detect entrepreneurship opportunities. We also control at the country level for the GDP per capita, PPP. This variable is used as a control variable since higher innovation or entrepreneurial activity rates are usually associated with economies that are constantly growing (Reynolds, 2010). We also include a set of control variables that have been used in previous research studies (Guerrero, 2020), Industry value added per country, which the World Bank calculates based on the net output of a sector after adding up all outputs and subtracting intermediate inputs; high technology, describes manufactured exports with high R&D intensity. Another country-level control variable is the % Female employment refers to the percentage of female labor force participation between ages 15 and 64.

Data analysis

Hierarchical logistic regression was used to test our proposed hypotheses. This type of analysis is well suited for data information that is nested into countries, as in the case of this study. The information was analyzed by running models from the simplest to the most complex, in which all variables are included. For this analysis, we ran a model where gender was included as a variable, and then we run the models for women and men separately.

Variables at the individual level are group-mean centered, while variables at the country level are grand-mean centered. Intra-class correlation (ICC) was calculated to support the use of hierarchical analysis in the null model. The present paper presents results via odds ratio. We decided to use odds ratios since they represent the probability of the occurrence of the dependent variable (corporate entrepreneurship) under the presence of the described explanatory variables. The present paper also reports -2Log likelihood as an indicator of model fit.

Results

Descriptive statistics

Table 1 shows the descriptive statistics of the sample, and Table 2 the correlation between variables. On average, about 38% have upper secondary education, 1.28% have pre-primary education, 4.5% have primary education, 13.93% have lower secondary education, 14.21% have post-secondary education, 25.54% have the first stage of tertiary education, and 2.36% declares to have the second stage of tertiary education. About 83% of our population works full-time, and 16% works part-time (retired individuals, students, homemakers, and self-employed individuals are not considered in the sample). The mean age is around 38 years old.

In the organizational context, 65% somehow agree that they have the autonomy needed to accomplish their tasks, while 20% do not, and the remaining neither agree

Table 1 Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Dependent				
Corporate Entrepreneurship	0.185	0.388	0	1
Gender	1.448	0.497	1	2
Individual capabilities				
Fear of failure	0.414	0.492	0	1
Skills	0.493	0.499	0	1
Workplace conditions				
Autonomy	3.680	1.274	1	5
Meaningful Job	4.080	1.069	1	5
Income	3.088	1.289	1	5
Work-life satisfaction	3.686	0.971	1	5
National culture				
Culture-Risk-Taking	2.494	0.971	1.75	3.22
Individual controls				
Education	3.455	1.266	0	6
Generational cohort (age)	38.17	1.266	18	86
National controls				
Unemployment	9.498	6–794	1.32	27.49
% GDPppp Growth	21454.28	10358.29	5253	41493.1
% Female at work	49.494	15.582	5.14	73.6

nor disagree. Approximately 77% of employees consider the job they perform to be important or meaningful to them. Around 66% are satisfied with their job, and 44% are satisfied with their incoming. Around 55% of employees feel that they can balance work and personal responsibilities.

At the country level, risk-taking culture has an average of 2.49. In addition, Variance Inflation Factors (VIFs) were calculated using ordinary least squares, ranging between 1.04 to 2.25, which is below the maximum threshold of 10 (Kutner et al., 2004). We also run a Wald test for checking coefficient similarities between women and men.

Results of the multilevel regressions.

Table 3 and 4 show the results of the multilevel regressions. In Table 3, model 1 refers to the null model or an empty model. The intra-class correlation resulted in 0.1364. This indicates that 13.4% of our dependent variable's variance is attributed to country-level differences. According to Aguinis et al. (2013), ICCs over 0.05 suggest individual variation across countries; there is enough evidence to pursue multilevel modeling since a higher correlation was obtained. Results from the Wald test indicate there is a statistical significance by rejecting the null hypothesis that indicates similarities, so we can deduce there are statistical differences between genders ($chi = 484.80$ $prob > chi = 0.000$).

Table 2 Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1- Corporate Entrepreneurship	1																
2- Gender	-0.040*	1															
3- Skills	0.123*	-0.129*	1														
4- Fear of failure	-0.003	0.069*	-0.163*	1													
5- Education	0.190*	-0.036*	0.045*	0.021*	1												
6- Age	0.018*	0.019*	-0.046*	0.005*	-0.088*	1											
7- Autonomy	0.066*	-0.045*	0.153*	-0.102*	0.019*	0.046*	1										
8-Meaningful Job	0.101*	-0.015*	0.069*	-0.049*	0.115*	0.099*	0.426*	1									
9-Job satisfaction	0.071*	0.004	0.017*	-0.056*	0.081*	0.088*	0.323*	0.538*	1								
10-Incoming satisfaction	0.053*	-0.037*	0.030*	-0.071*	0.041*	0.003	0.229*	0.275*	0.476*	1							
11-Work-life balance	0.019*	0.020*	0.036*	-0.061*	0.027*	0.068*	0.340*	0.422*	0.502*	0.409*	1						
12-Culture	-0.123*	-0.056*	0.065*	-0.087*	-0.036*	-0.013*	0.069*	-0.024*	-0.057*	0.065*	-0.022*	1					
13- Industry value added	-0.089*	-0.008*	0.040*	-0.051*	-0.055*	-0.102*	0.017*	-0.043*	-0.045*	0.043*	0.016*	0.185*	1				
14-High technology	-0.106*	0.063*	-0.160*	0.053*	0.104*	0.106*	-0.066*	-0.087*	-0.025*	-0.027*	-0.041*	0.002	-0.763	1			
15- Unemployment	0.0563*	0.0022	-0.019*	0.066*	0.059*	0.003	-0.025*	0.069*	0.048*	-0.087*	0.008*	-0.529*	-0.347	0.218	1		
16-GDGppp	0.0901*	0.0137*	-0.170*	0.036*	0.141*	0.221*	-0.043*	0.081*	0.120*	0.001	0.009	-0.188*	-0.021	0.117	-0.179	1	
17-%female working	-0.031*	-0.009*	0.059*	0.006	-0.063*	-0.121*	-0.020*	-0.069*	-0.064*	-0.055*	-0.013*	-0.047*	-0.434	0.398	-0.209	0.301	1

*$p < .05$

Table 3 Hierarchical regression analysis

Dependent variable	**Model 1**		**Model 2**		**Model 3**	
Female corporate entrepreneurship	Odds ratio	Se	Odds ratio	Se	Odds ratio	Se
Gender			0.765***	0.032	0.766 ***	0.032
Individual capabilities						
Skills			1.663***	0.071	1.72***	0.080
Fear of failure			0.964	0.040	0.967	0.044
Workplace conditions						
Autonomy	1.094***			0.019	1.087***	0.022
Meaningful work	1.161***			0.029	1.166***	0.032
Income satisfaction	1.065***			0.019	1.062***	.0213
Work-life balance satisfaction	0.923***			0.023	0.927***	0.024
Job Satisfaction	0.995			0.024	0.993	0.025
National culture						
Culture- Risk-taking	0.535***			0.123	0.931***	0.0242
Interactions						
Skills*culture-risk-taking	1.191					0.129
Fear of failure*culture-risk-taking	1.054					0.112
Autonomy*culture-risk-taking	0.969					0.045
Meaningful work*culture-risk-taking	1.031					0.063
Income satisfaction*culture-risk-taking	0.983					0.046
Work-life balance satisfaction*culture-risk-taking	1.063					0.067
Job satisfaction*culture-risk-taking	0.979					0.059
Individual controls						
Education	1.524***			0.027	1.522***	0.027
Generational cohort (age)	0.998			0.001	0.998	0.002
National controls						
% GDP ppp			1.000*	0.000	1.000**	0.000
% Female workforce participation			0.989*	0.005	0.989**	0.005
Unemployment			0.989	0.015	0.985	0.014
Industry value added			0.965**	0.014	0.963***	0.014
High technology exports			0.979**	0.007	0.977***	0.008
Constant	-1.72***	0.1431	0.061***	0.009	0.0522***	0.007
Country variance	0.519	0.1484	0.128	0.045	0.119	0.043
-2log likelihood	-13043.719		-8015.782		-8013.1302	

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

At the individual level, Model 2 shows individual variables as potential factors to promote corporate entrepreneurship; as stated previously, generational cohort (age) and education were used as control variables. Per previous research studies, there is evidence that the perception of having the right skills is critical for employees to

Table 4 Hierarchical regression analysis by gender

Dependent variable, Corporate entrepreneurship	**Model Men**		**Model Women**	
Individual capabilities	Odds Ratio	Se	Odds Ratio	Se
Skills	1.720***	0.107	1.528***	0.043
Fear of failure	0.945	0.057	0.996	0.069
Workplace conditions				
Autonomy	1.067**	0.028	1.114***	0.034
Meaningful work	1.151***	0.041	1.182***	0.0497
Income satisfaction	1.046*	0.028	1.083***	0.033
Work-life balance satisfaction	1.001	0.035	0.849***	0.033
Job Satisfaction	1.013	0.034	0.963	0.038
National culture				
Culture- Risk-taking	0.555**	0.126	0.441***	0.088
Interactions				
Skills*culture-risk-taking			1.694	0.122
Fear of failure*culture-risk-taking			0.997	0.069
Autonomy*culture-risk-taking	0.925	0.057	1.039	0.072
Meaningful work*culture-risk-taking	0.957	0.079	1.133	0.105
Income satisfaction*culture-risk-taking	0.915	0.058	1.071	0.076
Work-life balance satisfaction*culture-risk-taking	1.097	0.094	1.019	0.096
Job satisfaction*culture-risk-taking	1.059	0.086	0.888	0.082
Individual controls				
Education	1.522***	0.035	1.528***	0.043
Generational cohort (age)	0.997	0.002	0.999	0.003
National controls				
% GDP ppp	1.000**	0.000	1.000	0.000
% Female workforce participation	0.991*	0.005	0.990**	0.005
Unemployment	0.980	0.015	0.992	0.014
Industry value added	0.959***	0.014	0.956***	0.013
High technology exports	0.971***	0.008	0.986**	0.007
Constant	0.063***	0.009	0.042***	0.007
Country variance	0.116	0.044	0.075	0.035
-2log likelihood	-4540.305		-3471.66	

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

pursue such activity. Contrary to traditional entrepreneurship activities, however, the fear of failure does not seem significant. In this regard, we found evidence to support Hypothesis 1 but not Hypothesis 2. Gender also showed a statistically significant in the overall model, and the effects are stronger in men.

The individual perception of workplace conditions positively impacts the activity, such as having the autonomy to develop activities and finding a job to be meaningful, being satisfied with their income, and workplace balance conditions. We could not find support for our general Hypothesis 3; we did not have enough evidence

that job satisfaction leads to corporate entrepreneurship activities. But we support Hypotheses 3a and 3b since we find statistical significance in the overall model and women and men models (See Tables 3 and 4). The effects are stronger for men than women. In the work-life balance, statistical significance is present in the women model. However, the likelihood of engaging in corporate entrepreneurship activities is associated with less work-life balance satisfaction; in this regard, we did not find support for Hypothesis 4. We find support for Hypothesis 5 since autonomy is related to corporate entrepreneurship activities for both women and men. The effect is stronger for men.

At the country level, we found the culture of risk-taking to have a negative direct effect on the activity. Model 3 shows the interactions of the national risk-taking culture over the variables. In this last model, we found at the individual level consistency of results with Model 2. Similarly, we also found the negative direct effect of the national culture variable. We did not find any interaction to be statistically significant. In this regard, we could not accept Hypothesis 6; likewise, we did not find support for Hypothesis 6a. The control variables indicate a statistical significance in education, % GDP ppp, industry value-added, and high technology exports; we did not find any significance in the generational cohort (age) and unemployment variables.

Complementary analysis

To complement the analysis, we run two subsamples of logistic regressions on the countries above and under the average on the level of GDP per capita (PPP); the cut-off is 437.60. We resulted in 9 countries for above average[1] and 13 for countries under the GDPppp average.[2] We could not pursue the multilevel approach because the resultant ICC values are under the critical threshold of 0.05 (Aguinis & Culpepper, 2015). The results also provide evidence for the negative statistical significance of the gender variable, similar to the results of the hierarchical analysis. In those countries under the average the GDPppp, having the right skills, autonomy, meaningful jobs, and satisfaction with the income also resulted statistically significant. The culture variable also resulted in a direct effect. For those countries above the GDPppp, we noticed similar results except for the work-life balance variable; in this case, the variable was statistically significant. Regarding the control variables, a similar pattern is shown in the hierarchical analysis; differences resulted in the high technology exports and unemployment variables (see Appendix, Table 6).

[1] Countries above the GDP (PPP per capita) average: Chile, Finland, Hungary, Korea, Lithuania, Malaysia, Slovakia, Slovenia, United Kingdom.

[2] Countries under the GDP (PPP per capita) average: Algeria, Bosnia and Herzegovina, Botswana, China, Ecuador, Iran, Namibia, Nigeria, Peru, Romania, South Africa, Uruguay, Vietnam.

Discussion and conclusions

Academic contributions

This study contributes in two folds. First, *the study conceptualizes the gendered workforce's contribution to corporate entrepreneurship*, which has been a topic not sufficiently explored in the literature (Ruiz et al., 2023; Urbano et al., 2022). Since gender seems to have a negative influence, it is important to deep into the manner and understands differences. For example, our study revealed that gendered employees' perceptions of entrepreneurial skills, workplace, and culture represented significant determinants for corporate entrepreneurship for women and men. Second, *the study empirically tested the influence of multilevel perceptions of individual capabilities, workplace environment, and national culture on a gendered workforce's engagement in corporate entrepreneurship*, which has also been a topic not sufficiently explored in the literature and could help to understand differences on gendered workforce's contribution to corporate entrepreneurship (Guerrero et al., 2019; Urbano et al., 2022).

Our study shows that a combination of employees' capabilities and employees' perceptions of workplace conditions (e.g., a meaningful job, autonomy, and retribution) is favorable for women and men in corporate entrepreneurship. Previous research found that entrepreneurship may result from having the right skills to detect opportunities (Ardichvili et al., 2003) and developing job satisfaction in organizations (Ahmed et al., 2013; Antoncic & Antoncic, 2011). We assume that women's and men's engagement in corporate entrepreneurship is associated with developing a significant job and autonomy. Dikkers et al. (2010) argued that women usually benefit the most from having control over their jobs. However, we did not find a positive influence of work-life balance variables on corporate entrepreneurship activities. A possible explanation for this is the perception of having more responsibilities to attend to when engaging in these practices, which causes those female employees to be afraid of losing the balance between work and life they have achieved.

At the country level, results show that risk-taking culture negatively affects corporate entrepreneurial behavior. In this regard, we contribute to those studies that emphasize the importance of considering the role of the national culture (e.g., Attah-Boakye et al., 2020). Foss et al. (2013) suggested that women may find more barriers to engaging in entrepreneurial activities in highly masculine environments. Therefore, skilled entrepreneurial women should be retained in the workplace because of their contribution to innovation and entrepreneurial outcomes. Even though culture dimensions demand in-depth analysis, it is confirmed that the effect of individual capabilities and workplace conditions are superior to national culture. In the study, we did not find any interaction of national culture with the individual-level variables. An explanation and future research may be the consideration of organizational-level variables.

Implications

Several implications emerge from this study.

For a gendered workforce, at the individual level, our findings show that skills and experiences matter in corporate entrepreneurship. It suggests that, directly or indirectly, the need for a better gender configuration of teams, projects, and promotion programs within organizations.

For corporate managers, at the organizational level, our findings show a negative relationship between work-life balance conditions and corporate entrepreneurship. It suggests that entrepreneurial-oriented organizations could implement more inclusive human capital strategies and policies regarding work-life balancing conditions. These sensitive organizational actions would be useful to reinforce engagement in entrepreneurial activities of those skilled entrepreneurial women who are feeling worried within their organizations because of concern of losing their work-life balance conditions may harness to develop their entrepreneurial potential. Directly or indirectly, the impact of these actions may be transformed into better organizational performance.

For policymakers, at the country level, our findings show the relevant interplay between the national culture and a gendered workforce's engagement in corporate entrepreneurship. It suggests that policymakers could reinforce or implement effective workplace policies that would increase women's participation at work, especially for those interested in retaining talented and entrepreneurially minded individuals to have innovative organizational outcomes. Directly or indirectly, the impact of these actions may be transformed into better labor conditions and policies that contribute to gender equality, decent work, and economic growth sustained development goals.

Limitations and future research

This research has several limitations. First, the source of information was gathered by the 2013 GEM database, which included questions regarding workplace conditions and corporate entrepreneurship. In this vein, the GEM survey delimited the definition and measuring of our dependent/explanatory variables. Therefore, a natural extension of this study implies the need to explore novel metrics to capture individual, organizational, and country dimensions by implementing both objective and subjective variables (Hughes & Parkes, 2007; Hornsby et al., 2002; Carree & Verheul, 2012). Second, the national culture was measured using GEM National Expert Survey. Future studies may include different variables. Therefore, a future extension of this study should be the identification of new metrics to capture the effect of national culture and formal institutional conditions across countries (i.e., inclusion and diversity in workplace regulations or innovation support programs). Third, the current composition of workplaces demands the analysis of new dimensions as the composition of the workforce across multiple generational cohorts and the level of digitalization (Guerrero et al., 2019). Both characteristics are related to the employees' engagement in (digital) corporate entrepreneurship.

This study will likely motivate new studies linking corporate entrepreneurship and gendered workforce contributions.

Appendix

Table 5 Countries included in the study

	Country	Freq.	Percent	Cum.
1	South Africa	974	5.09	5.09
2	Hungary	1,073	5.61	10.70
3	Romania	925	4.84	15.54
4	United Kingdom	976	5.1	20.64
5	Peru	512	2.68	23.32
6	Chile	1,331	6.96	30.28
7	Malaysia	895	4.68	34.96
8	Korea	860	4.5	39.46
9	Vietnam	1,271	6.65	46.10
10	China	1,411	7.38	53.48
11	Iran	770	4.03	57.51
12	Algeria	84	0.44	57.95
13	Nigeria	231	1.21	59.16
14	Botswana	606	3.17	62.32
15	Namibia	649	3.39	65.72
16	Finland	1,336	6.99	72.7
17	Lithuania	1,074	5.62	78.32
18	Slovenia	990	5.18	83.50
19	Bosnia and Herzegovina	782	4.09	87.59
20	Slovakia	1,045	5.46	93.05
21	Ecuador	557	2.91	95.96
22	Uruguay	772	4.04	100

Table 6 Logistic regression results of countries above and under the average of the GDP (PPP per capita)

	Countries under GDP average Odds ratio		Countries above GDP average Odds ratio	
Dependent variable Corporate entrepreneurship	B	Se	B	Se
Gender	0.841***	0.066	0.743***	0.036
Individual capabilities				
Skills	1.797***	0.157	1.691***	0.095
Fear of failure	0.958	0.079	0.971	0.053
Workplace conditions				
Autonomy	1.117***	0.039	1.074***	0.026
Meaningful work	1.097**	0.041	1.218***	0.042
Income satisfaction	1.047	0.035	1.075***	0.027
Work-life balance satisfaction	1.005	0.048	0.904***	0.028
Job Satisfaction	1.005	0.042	0.974	0.032
National culture				
Culture- Risk-taking	0.351***	0.053	0.708	0.057
Interactions				
Skills*culture-risk-taking	1.000	0.213	1.261	0.164
Fear of failure*culture-risk-taking	0.969	0.191	1.076	0.140
Autonomy*culture-risk-taking	0.934	0.078	0.974	0.056
Meaningful work*culture-risk-taking	0.908	0.097	1.133	0.088
Income satisfaction*culture-risk-taking	0.974	0.080	1.000	0.059
Work-life balance satisfaction*culture-risk-taking	1.035	0.119	1.056	0.082
Job satisfaction*culture-risk-taking	1.052	0.108	0.924	0.074
Individual controls				
Education	1.520	0.051	1.524***	0.031
Generational cohort (age)	0.996	0.003	0.998	0.002
National controls				
% GDP ppp	0.999***	0.008	1.000***	0.000
% Female workforce participation	0.997	0.004	0.992***	0.002
Unemployment	1.084***	0.016	0.024***	0.009
Industry value added	1.141***	0.030	0.982**	0.008
High technology exports	0.934***	0.008	0.965***	0.003
Cons	0.0003***	0.000	0.100***	0.014
Observations	7847		11277	

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Interest to declare The authors declare they have no financial interests.

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