Effects of gender equality and social costs of failure on early-stage entrepreneurship activity

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Abstract

Purpose – In this study, we question: how do the social costs of failure interact with gendered institutions to affect the early stage entrepreneurship activity? We address this question by employing the institutional theory and a unique dataset of 286,989 entrepreneurs across 35 countries.

Design/methodology/approach – To test our hypotheses, we use a multilevel modeling analysis that nests individual entrepreneurs within the countries. To capture individual and country-level variables, we constructed a unique dataset that combines data from the Global Entrepreneurship Monitor (GEM), European Flash Barometer (EUFB), World Bank Development Indicator (WDI), World Bank Doing Business Report (WBDB) and World Economic Forum (WEF).

Findings – Our analysis confirms that higher levels of the country-level gender equality positively correlate with the early-stage entrepreneurship activity of women. Moreover, we find that this positive relationship is amplified in institutional environments with high social costs of failure, suggesting that societal intolerance for failure can exacerbate the negative effect of gender inequality on the participation of women in entrepreneurship.

Research limitations/implications – Our research contributes to academic interest on the role of legitimacy in women entrepreneurship and is of particular interest to international business scholars, seeking a better understanding of multidimensional construction of institutional frameworks across countries. In this study, we set out to address an important research question: how do the social costs of failure interact with gendered institutions to affect entrepreneurship activity? Our study provides a comprehensive portrait of gendered institutions by including the framework conditions of education, healthcare and political power. We found that in societies with gender equality, the likelihood of individuals engaging in the early-stage entrepreneurship activity is higher and that the positive relationship is strengthened in national environments with high social costs of failure.

Practical implications – Our study findings underscore the need for government policies addressing global gender gaps in economic empowerment. In particular, policies assisting women in obtaining education in high-growth industries like information technology or providing funding to women-dominated industries may foster activity for women seeking to do business in such industries. Such policies connect the early-stage entrepreneurship activities with gender equality concerns and initiatives.

Social implications – Regarding the social costs of failure construct, specifically, prior studies generally focus narrowly on the context of failed entrepreneurs. We cast a wider net on men and women entrepreneurs'

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entry decisions (irrespective of prior experience with business failure) and provide new views on the effects of social costs of failure on entrepreneurial ecosystems. We also extend the research on the legitimacy of women as entrepreneurs with the gender equality construct.

Originality/value – Unlike previous studies, which often focus on the "3Ms" of market, money and management, our research adopts a more holistic perspective. We recognize that the opportunities and challenges faced by entrepreneurs are shaped not only by individual skills and resources but also by the broader macroenvironment. By incorporating the framework conditions of education, healthcare and political power, alongside the intricate interplay of social costs and norms, our study paints a comprehensive picture of the landscape of female entrepreneurship.

Keywords Entrepreneurship, Gender equality, Social costs of failure, Global entrepreneurship monitor

Paper type Research paper

Introduction

Entrepreneurship thrives in supportive environments (Dheer *et al.*, 2019). However, for women, social and institutional barriers often add to the liabilities of doing business that weaken venturing aspirations (Brush *et al.*, 2017). This study delves into how gendered institutions, encompassing economic, political, educational and health dimensions, interact with societal perceptions of failure to influence the early-stage female entrepreneurship. Specifically, we explore how the high social costs of failure – societal punishments and judgments for nonconformity to stakeholder expectations – amplify the negative effect of inequality in gendered institutions on women's entrepreneurial activity (Lee *et al.*, 2021).

Gendered institutions are the ingrained norms and practices within economic, political, educational and health systems that shape opportunities and challenges for women. In many countries, the existence of gendered institutions is very evident from the gaps in labor force participation rates for women and in the wage inequality for similar work performed by women and men (World Economic Forum, Global Gender Gap Report, 2020). We argue that gendered institutional environments (Brush *et al.*, 2017) affect the legitimacy of entrepreneurial efforts and, very importantly, the participation of women entrepreneurs in entrepreneurship activity (Wang *et al.*, 2019).

We leverage the institutional theory (Scott, 1987, 1995; Suchman, 1995) and a rich dataset of 286,989 entrepreneurs across 35 countries to examine the effects of gender equality and the moderation of social costs of failure on women entrepreneurs. This approach allows us to capture the complex interplay between the societal expectations and institutional contexts using multi-item measures (Calza *et al.*, 2020; Phillips and Zuckerman, 2001; Scott, 1987). Our analysis confirms that higher levels of the country-level gender equality positively correlate with the early-stage entrepreneurship activity of women. Moreover, we find that this positive relationship is amplified in institutional environments with high social costs of failure, suggesting that societal intolerance for failure can exacerbate the negative effect of gender inequality on the participation of women in entrepreneurship.

Our study contributes to several scholarly conversations on the effects of legitimacy and socialization contexts on entrepreneurship activity. First, by integrating the multi-item constructs of the social costs of failure and gender equality, we answer the call to move beyond single measures of the institutional drivers of the early-stage entrepreneurial activity (Lee *et al.*, 2021). Second, we extend studies that call for more research on the legitimacy of women as entrepreneurs (Dheer *et al.*, 2019; Brush *et al.*, 2009). Third, our approach of moderating gender equality with social costs of failure informs the quality versus quantity debate on whether societies should motivate productive entrepreneurship activity using tactics that punish business failure (Lee *et al.*, 2021; Simmons, 2012).

Unlike previous studies, which often focus on the "3Ms" of market, money and management (Brush *et al.*, 2019), our research adopts a more holistic perspective. We recognize that the opportunities and challenges faced by entrepreneurs are shaped not only by individual skills

and resources but also by the broader macroenvironment. By incorporating the framework conditions of education, healthcare and political power (World Economic Forum, Global Gender Gap Report, 2020), alongside the intricate interplay of social costs and norms, our study paints a comprehensive picture of the landscape of female entrepreneurship.

Literature review

The relationship between the institutional environment and the rate and types of entrepreneurship activity that emerges or succeeds has been a continuing subject of scholarly investigation. Of particular interest have been the effects of institutions on the entry and growth decisions of women entrepreneurs (Henry *et al.*, 2016; Reutzel *et al.*, 2023; Simmons *et al.*, 2019). In many societies, the under-representation of women in economic, political, educational and health institutions has been shown to negatively impact the legitimacy and start-up activities of women entrepreneurs (Brush *et al.*, 2017). In fact, negative social judgments and gender disparities are important concerns for countries focused on stimulating wealth and job creation through entrepreneurship activity (Matricano, 2022; Terjesen *et al.*, 2016; Vracheva and Stoyneva, 2020).

Theories used in earlier studies to explain the participation of women entrepreneurs vary but generally center around institutional economics (see, e.g. Autio and Acs, 2010; Estrin *et al.*, 2013a), cultural psychology (see, e.g. Autio *et al.*, 2013) and gender role congruity (Reutzel *et al.*, 2023; Vracheva and Stoyneva, 2020). Collectively, these prior studies find that systematic variation across cultures and social structures impact entrepreneurship (Cheraghi *et al.*, 2019; Klyver *et al.*, 2008; Simmons *et al.*, 2019; Thomas and Mueller, 2000). Several of these studies have independently examined key factors such as economic and political influences (e.g. Vracheva and Stoyneva, 2020), specific contexts, such as high technology (e.g. Matricano, 2022; Reutzel *et al.*, 2023) or the industry sector (e.g. Khan *et al.*, 2021; Ringblom and Johansson, 2020). Other studies have attempted to include a broader scope of the institutional environment, focusing on women, immigrant and minority entrepreneurs (Fairlie, 2013), although many of these studies focus on market, money and management ("3Ms") (Brush *et al.*, 2019) and do not analyze the education, health and political factors of the macroenvironment.

Furthermore, the institutional theory perspective typically does not take into consideration that the firms within a specific institutional context are heterogeneous (Barney, 1991; Porter, 1980; Wernerfelt, 1984), such as men vs women-led entrepreneurial ventures, viewing the requirement for legitimacy as uniform. Indeed, an implicit assumption is that individual entrepreneurs embedded within a specific institutional environment will have comparable opportunities to start and grow ventures (Brush *et al.*, 2019). However, the research has shown that heterogeneity in firm attributes can lead to heterogeneous legitimacy concerns (Young and Makhija, 2014; Reutzel *et al.*, 2023), which, in turn, can cause variation in the impact of institutional pressures on entrepreneur's decision-making. In this regard, gender equality in the institutional context plays an important role (Henry *et al.*, 2016; Marlow, 2002) in the early-stage entrepreneurship activity.

Hypotheses development

According to Brush *et al.* (2019), gender can influence entrepreneurial ecosystems at the institutional level by setting boundaries for behaviors and actions (Welter and Smallbone, 2011; Smallbone and Welter, 2012). For instance, regulations that prohibit women from owning property (Hampel-Milagrosa, 2010) or moving freely about some countries (Estrin and Mickiewicz, 2011) can make collateralizing and establishing a business especially difficult. The same is true of informal institutions, often expressed as gender stereotypes and

biases (Eddleston *et al.*, 2016; Marlow and Swail, 2014; Vracheva and Stoyneva, 2020). In addition, gendered social roles allocate different responsibilities to men and women that influence their career perceptions (e.g. Lent *et al.*, 2002; Reutzel *et al.*, 2023). Conformity to social roles impacts the level of stakeholders' trust and hence, the likelihood of starting a business (Dheer *et al.*, 2019; Reutzel *et al.*, 2023).

As such, gender equality will have an influence on entrepreneurial behaviors (Eddleston and Powell, 2008; Gupta *et al.*, 2009). Engagement in entrepreneurship has been shown to increase in the institutional settings with gender-blind regulatory frameworks and government policies (Wang *et al.*, 2019) and where entrepreneurs perceive themselves to fit into the context (Hsu *et al.*, 2019; Yacus *et al.*, 2019). This is important because in environments, where social roles exclude women from participation in economic participation and opportunity, educational attainment, health and survival and political empowerment, they are shown to form different career trajectories (e.g. Lent *et al.*, 2002; Ringblom and Johansson, 2020). Women and men will also form different perceptions of their ability to navigate selection pressures (Fisher *et al.*, 2016; Miner *et al.*, 1990) and attract the human, financial and social capital (Garud *et al.*, 2014) needed to start and survive in new firms (Canning *et al.*, 2012; Greene *et al.*, 2003). The outcome is likely to be that fewer women will enter entrepreneurship. We, thus, argue that gender equality increases the overall supply and engagement of entrepreneurs. We suggest:

H1. Gender equality at the national level increases the likelihood of early-stage entrepreneurship activity.

Moderating effects of social costs of failure

Examples of high social costs of failure include the judgments or actions of stakeholders that lead to constrained access to human, social and financial resources (EOS Gallup Europe, 2010). Social costs of failure are often formally framed into laws, regulations and procedures that have unfriendly consequences for stigmatized entrepreneurs (Kanze *et al.*, 2020; McMullen *et al.*, 2008). High social costs of failure signify societal intolerance for entrepreneurs with spoiled social identities (Goffman, 1963) and for entrepreneurial behaviors that deviate from expected social norms (Lee *et al.*, 2007; Simmons *et al.*, 2014; Sutton and Callahan, 1987; Ucbasaran *et al.*, 2013). Independently, high social costs of failure have been shown to have a negative effect on the early-stage entrepreneurial activity (Lee *et al.*, 2021).

As a moderating variable, high social costs of failure signal a stringent selection process for inclusion into the entrepreneurial ecosystem. Accordingly, we argue that there will be gender differences in the effects of social costs of failure on entrepreneurial behavior because women and men have different concerns with respect to social judgments and punishments for nonconforming behaviors and outcomes (Simmons *et al.*, 2019; Van der Zwan *et al.*, 2016).

In national environments with low levels of gender equality, women face greater risks of nonconformity, since prescribed social roles exclude them from equal participation in economic opportunity, educational attainment, health and survival and political empowerment (Brush *et al.*, 2017; Simmons *et al.*, 2014). As such, women face greater social costs of failure, which include the anticipated consequences for nonconformity than men (Lee *et al.*, 2021; Rafiullah *et al.*, 2023). In these gendered environments, entrepreneurship is more likely to be viewed as a masculine social role that is unsuitable for women (Brush *et al.*, 2017; Simmons *et al.*, 2019).

This greater social cost of failure represents an additional risk of prospective women entrepreneurs. Since women are generally more risk averse than men (Croson and Gneezy, 2009), this additional risk will deter greater numbers of women from engaging in the early-

stage entrepreneurial activity than men. However, in nations with greater gender equality, the social roles and expectations of women and men are more aligned (Brush *et al.*, 2017; Simmons *et al.*, 2014). Thus, the social cost of failure in entrepreneurship activity for women should be more like that for men (Rafiullah *et al.*, 2023; Simmons *et al.*, 2019). Since the social cost of failure for engaging in entrepreneurial activity is more similar for both genders, we expect that the rate at which women pursue entrepreneurship to be more like that of men.

In short, the negative effects of the social cost of failure on the early-stage entrepreneurship activity of women entrepreneurs are strengthened by gender inequality and weakened by gender equality in national environments (see Figure 1). Therefore, as the levels of social costs increase, the disparity in the entrepreneurship activity between men and women is also likely to increase in national environments, where women also must consider the negative social judgment of their participation in economic, political, educational and health institutions. This argument aligns with prior research, which shows that entrepreneurs with less favorable perceptions of their institutional environment are less likely to be opportunity focused entrepreneurs (Van der Zwan *et al.*, 2016). An experiment by Gupta *et al.* (2019) demonstrates the relevance of this need for fit, finding that women consider the social context in their cognitive choice to pursue entrepreneurship activity. We suggest:

H2. As the social cost of failure increases, the positive relationship between gender equality and the probability of engagement in the early-stage entrepreneurship activity at the individual level is strengthened.

Methodology

Research design and sample

To test our hypotheses, we use a multilevel modeling analysis that nests individual entrepreneurs within the countries. To capture the individual- and country-level variables, we constructed a unique dataset that combines data from the Global Entrepreneurship Monitor (GEM), European Flash Barometer (EUFB), World Bank Development Indicator (WDI), World Bank Doing Business Report (WBDB) and World Economic Forum (WEF).

The individual-level data were taken from the GEM Adult Population Survey (APS). The GEM project conducts an ongoing cross-national survey with the purpose of measuring entrepreneurial activities across countries (Bosma, 2013). To increase the stability of the measures, we pooled the GEM data across the four-year period of 2009–2012 and included only the working population between the ages of 18 and 64.

Country-level variables were drawn from the EUFB, WDI, WBDB and WEF. The EUFB #283 and #354 reported public attitudes toward entrepreneurship, such as entrepreneurial education, risk-taking, obstacles to entrepreneurship and business failure for European countries and beyond (EOS Gallop Europe, 2010, 2013). The WDI database is a public dataset published by the World Bank organization, which shows national development indicators including GDP per capita, GDP growth, and population size (World Bank Group, 2018). The World Economic Forum (WEF) provides various data regarding the issues of the world economy to business leaders, international political leaders and intellectuals, including the gender gap in each country (World Economic Forum, 2012). Our final dataset consists of 286,989 GEM respondents between the ages of 18 and 64 from 35 countries. We summarize the variables and present descriptive statistics and correlations in Tables 1 and 2, respectively, and present the list of countries in Table 3.

Variables

Dependent variable. Early-stage entrepreneurial activity is constructed from the Global Entrepreneurship Monitor Adult Population Survey (GEM APS) dataset (Autio *et al.*, 2013;

Level	Variable	Definition	Source
Country	Gender equality	The level of gender equality	WEF Gender Gap Report (2009–2012)
	Social costs of failure	Stigma of bankruptcy + The depth of credit information (Coverage, scope and accessibility of credit information)	Flash Euro Barometer #257 and #354+ World Bank Doing Business (2008–2011)
	per capita GDP ppp (t–1)	per capita GDP at purchasing power parity at 2005 $USD (natural log)	World Bank WDI (2008–2011)
	GDP growth rate (t–1)	GDP growth rate per year	World Bank WDI (2008–2011)
	Population size (t–1)	Total number of population (log)	World Bank WDI (2008–2011)
Individual	Early-stage entrepreneurship	1: individuals engaged in nascent entrepreneurial activity or operating a venture less than 42 months; 0 otherwise	GEM APS (2009–2012)
	Age	Age of respondents (Min = 18, Max = 64)	GEM APS (2009–2012)
	Income	Household income level one (lowest 33%), two (middle 33%) and three (top 33%)	GEM APS (2009–2012)
	Education	Respondent's education: four (graduate experience), three (post-secondary) and two (secondary). one (no secondary degree)	GEM APS (2009–2012)
	Gender	Respondent's gender: 1 (male) and 0 (female)	GEM APS (2009–2012)

Table 1.
Definitions of variables

Source(s): Table by authors

		Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)
Individual-level correlations								
(1)	Early-Stage Entrepreneurship	0.07	0.25	1				
(2)	Age	41.91	12.93	−0.06	1			
(3)	Income	2.20	0.80	0.05	−0.03	1		
(4)	Education	2.20	1.01	0.04	−0.10	0.28	1	
(5)	Gender	0.48	0.49	0.07	−0.03	0.09	0.01	1

		Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)
Country-level correlations									
(1)	Early-stage entrepreneurship	0.07	0.25	1					
(2)	Log GDP PPP	9.99	0.80	−0.08	1				
(3)	GDP growth rate	0.52	3.90	0.08	−0.41	1			
(4)	Population size	17.32	1.57	0.04	−0.36	0.35	1		
(5)	Social costs of failure	−0.15	1.11	−0.06	0.45	−0.14	−0.2	1	
(6)	Gender equality	0.72	0.04	−0.03	0.59	−0.24	−0.36	0.04	1

Table 2.
Descriptive and correlations for individual- and country-level variables

Note(s): All significant at 0.05 level

Source(s): Table by authors

Stephan and Uhlaner, 2010). Early-stage entrepreneurial activity is a combination of nascent entrepreneurs currently involved in starting a new business and the owners of young businesses in operation less than 42 months, and this variable is measured dichotomously, with 1 indicating that the individual is engaged in early-stage entrepreneurial activity.

Country	OECD membership	Gender equality	Social cost of failure	% early-stage entrepreneurship (TEA) out of total population
Austria	Yes	0.74	0.80	9.58
Belgium	Yes	0.75	0.09	4.52
Brazil	No	0.67	−1.72	15.79
China	No	0.69	−1.21	17.51
Croatia	No	0.70	0.35	6.14
Czech Republic	Yes	0.68	0.91	7.64
Denmark	Yes	0.77	0.37	4.35
Estonia	Yes	0.70	−0.22	14.26
Finland	Yes	0.83	−0.15	5.78
France	Yes	0.71	−0.45	5.27
Germany	Yes	0.75	1.03	4.81
Greece	Yes	0.68	−0.70	7.19
Hungary	Yes	0.67	1.41	7.94
Iceland	Yes	0.84	1.36	11.02
India	No	0.64	1.16	10.69
Ireland	Yes	0.78	−0.61	6.72
Israel	Yes	0.70	0.70	5.87
Italy	Yes	0.68	0.56	3.46
Japan	Yes	0.65	1.35	3.94
South Korea	Yes	0.63	1.10	7.01
Latvia	Yes	0.75	−1.24	10.68
Lithuania	Yes	0.71	0.11	8.98
The Netherland	Yes	0.75	1.10	8.23
Norway	Yes	0.84	0.33	7.49
Poland	Yes	0.70	0.41	9.20
Portugal	Yes	0.71	0.16	6.54
Romania	No	0.68	−0.47	6.40
Russia	No	0.70	−0.39	4.18
Slovakia	Yes	0.68	−0.10	12.21
Slovenia	Yes	0.71	−0.60	4.55
Spain	Yes	0.74	0.13	5.23
Sweden	Yes	0.81	−0.90	5.71
Switzerland	Yes	0.76	0.74	6.32
UK	Yes	0.74	0.62	7.11
USA	Yes	0.73	0.46	10.18

Source(s): Table by authors

Table 3.
Country sample description

Independent variable. Gender equality is an institutional variable at the country-level, constructed by utilizing the Global Gender Gap Index (GGGI) from the WEF Gender Gap report for 2009–2012. Prior studies have utilized GGGI from the WEF report in the entrepreneurship context to measure the country-level gender equality differences (Brush *et al.*, 2017; Nagy, 2006; Rouse *et al.*, 2013). In our study, the higher gender equality score is indicative of a higher level of the representation of women in economic, political, educational and health institutions.

The GGGI variable from the WEF report has four dimensions: economic participation and opportunity, educational attainment, health and survival and political empowerment. Economic participation and opportunity measures labor force participation, wage equality for similar work and estimated earned income (World Economic Forum, 2020). Educational attainment measures literacy and enrollment in primary education, secondary education and

tertiary education. Health and survival measures sex ratio at birth and healthy life expectancy data from the United Nations, Department of Economic and Social Affairs and World Health Organization (World Economic Forum, 2020). Political empowerment measures women in parliament, ministerial positions, and head of the state data from the Inter-Parliamentary Union (IPU), (2019) and (World Economic Forum, 2020).

Moderating variable. Social costs of failure is an institutional-level variable that refers to the negative consequences faced by the entrepreneurs, who have experienced business failure and are impacted by the societal stigma associated with failure and the levels of visibility of their business failure (Simmons *et al.*, 2014). As validated by Lee *et al.* (2022), this variable is constructed by combining the standardized score of the stigma of failure and the standardized score of depth of credit information. Specifically, this variable integrates the informal institutional norm of the stigma of business failure and the formal institutional regulation of getting credit (Lee *et al.*, 2022; Simmons *et al.*, 2014). We use the EUFB #283 (EOS Gallop Europe, 2010) from a survey circulated in 2009 and #354 (EOS Gallop Europe, 2013) from a survey collected in 2012, which measured the country-level attitudes in the European Union between 2009 and 2012. The EUFB questions measure societal attitudes about doing business with entrepreneurs who experience business failure. The formal institutional variable constructed for the depth of credit information captures the visibility of entrepreneurial failures (World Bank Group, 2013, 2018; see Lee *et al.*, 2021). "Depth of credit information index measures rules affecting the scope, accessibility and quality of credit information available through public or private credit registries. The index ranges from 0 to 8, with higher values indicating the availability of more credit information, from either a public registry or a private bureau, to facilitate lending decisions" (World Bank, Doing Business project, doingbusiness.org).

Control variables. This study controls for variables on two levels: individual and institutional. As individual differences can influence entrepreneurial decisions (Shepherd *et al.*, 2015), we control for age, education, gender and household income at the individual-level, taken from the GEM APS dataset. Age of the entrepreneur is measured as a continuous variable between 18 and 64 years, since age may influence the entrepreneurial activity (Liang *et al.*, 2018). Research has also shown that human capital has a positive relationship to both new venture growths (Baum and Bird, 2010), and the effectiveness of institutional policies aimed at reducing barriers to high-growth entrepreneurship (Eesley, 2016). We, thus, control for the entrepreneur's education, measured in four categories: (1) no secondary degree, (2) secondary degree, (3) post-secondary degree and (4) greater than graduate-school degree. As financial capital determines entrepreneurial decisions, we control for household income, a categorical variable assessing whether a respondent belongs to the (1) lower, (2) middle or (3) higher tier of a country's distribution of household income. Finally, we control for gender, a binary variable: 1 represents male, whereas 0 represents the female.

This study also controls for the effects of several institutional-level factors. The degree of a country's development influences the rate of entrepreneurial entry (Acs *et al.*, 2008). Hence, we control the economic development of a country by using a natural log of per capita GDP at purchasing power parity (GDP PPP). Second, as a country's GDP growth rate is correlated with entrepreneurship activity (Acs *et al.*, 2008; Estrin *et al.*, 2013a, b), we include GDP growth rate. Finally, we control for population size, as the size of the market can be influenced by the population size of each country, which can play an important role as an institution for entrepreneurial activities (Sato *et al.*, 2012).

Statistical approach

We conducted a series of multilevel random effects logistic regressions. This method is appropriate, given that individuals within the countries share common experiences that differ

from those living in other countries (Davidsson and Wiklund, 2001; Estrin *et al.*, 2013a, b; Stephan *et al.*, 2015) and is consistent with recent uses of multilevel analysis in entrepreneurship and international business studies (Estrin *et al.*, 2013b; Lee *et al.*, 2022; Stephan *et al.*, 2015). We first conducted an intra-class correlation (ICC) analysis to justify using a multilevel regression model. The multilevel techniques are recommended if the ICC estimates reside within the normal range (i.e. between 5 and 20%) (Bliese, 2000). Our results indicate that 5.6% of the total variance for general entrepreneurial activities resided at the country level. In our multilevel regression model, we also examine the variance inflation factor (VIF) statistics to control the possibility of strong multicollinearity influencing our results. We find that all VIF scores are below 10, suggesting that multicollinearity is not a concern for our analysis (Hair *et al.*, 1998). To aid the interpretation, we present our results with odds ratios (OR) *in lieu* of log-odds coefficients.

Results

Before testing our hypotheses, we ran regressions with only control variables. Model 1 in Table 3 shows that a higher probability of individual-level engagement in the early-stage entrepreneurship activity is positively associated with an individual who is more likely to be younger, wealthier or have a higher level of education. Furthermore, we find that a country's wealth level is negatively associated with the probability of individual-level engagement in the early-stage entrepreneurship activity. We did not hypothesize the direct effects of social costs of failure on the early-stage entrepreneurial entry because these relationships have already been tested and supported in the prior literature (Lee *et al.*, 2021).

Because we tested the moderation effects of social costs of failure in Hypothesis 2, we examined the direct effects of the variable to validate the consistency with the prior research (Lee *et al.*, 2021). We find a statistically significant negative association between the social cost of failure at the country-level and the probability of individual-level engagement in the early-stage entrepreneurship, shown in Model 2 in Table 4 ($OR = 0.97$, $p < 0.1$), aligned with Lee *et al.* (2021).

Hypothesis 1 states that gender equality at the national-level increases the likelihood of the early-stage entrepreneurship activity at the individual-level. As shown in Model 2 in Table 4, we find a statistically significant positive relationship ($OR = 6.73$, $p < 0.05$) between the level of gender equality and the likelihood of an individual to engage in the early-stage entrepreneurship. The ICC change can be interpreted as an effect size for the multilevel analysis (Lorah, 2018). Gender disparity and the social cost of failure explained 16.1% of the country-level variance. This result supports Hypothesis 1.

Hypothesis 2 states that the positive relationship between gender equality and the probability of engagement in the early-stage entrepreneurship activity at the individual level is strengthened in institutional environments with high social costs of failure. The result in Model 3 in Table 4 shows that there is a significant positive moderating effect of the social cost of failure on the relationship between the levels of gender equality at the country-level and the probability of engagement in the early-stage entrepreneurship activity at the individual-level ($OR = 6.27$, $p < 0.001$), while increasing 1.2% of additional explanation at the country-level variance. This suggests that when a higher level of social costs of failure exists in a country, the positive relationship between the levels of gender equality and the probability of engagement in the early-stage entrepreneurship activity at the individual-level is strengthened. Thus, Hypothesis 2 is supported (see Figure 2).

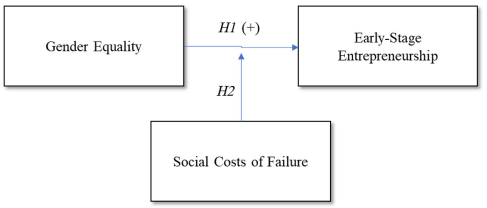
Robustness tests

We conducted additional analyses. First, we included only OECD member countries in our sample. The results were very similar to our main analysis. We ran another regression, by

	Model 1 O.R.	Model 2 O.R.	Model 3 O.R.
Fixed part			
Individual level (control)			
Age	0.983***	0.983***	0.983***
	(0.001)	(0.001)	(0.001)
Income	1.219***	1.219***	1.218***
	(0.012)	(0.012)	(0.012)
Education	1.169***	1.169***	1.169***
	(0.010)	(0.010)	(0.010)
Gender	1.729***	1.729***	1.729***
	(0.026)	(0.026)	(0.026)
Country level (control)			
GDP PPP	0.671┼	0.662***	0.679***
	(0.069)	(0.064)	(0.059)
GDP growth rate	1.004	1.002	1.001
	(0.004)	(0.004)	(0.004)
Population size	0.899*	0.918┼	0.949
	(0.044)	(0.043)	(0.041)
Social costs of failure		0.968*	0.253***
		(0.015)	(0.087)
Country level (independent)			
Gender equality		6.727*	21.20***
		(5.596)	(18.47)
Moderating effect			
Gender equality*Social cost of failure			6.267***
			(2.961)
Random part and model fit			
Intercept	13.989┼	2.878	0.558┼
	(21.955)	(4.491)	(0.068)
Deviance	142041.37	142023.24	142013.49
Wald χ^2	3662.34	3683.61	3695.13
Prob > χ^2	0.00	0.00	0.00
LR Test Prob < χ^2	0.00	0.00	0.00
# of Observation	286,988	286,988	286,988
# of Countries	35 countries	35 countries	35 countries
Obs. per group min.	1,480	1,480	1,480
Obs. per group avg.	8,199	8,119	8,119
Obs. per group max.	58,128	58,128	58,128

Note(s): p-Value: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$ and ┼$p < 0.1$. SE Value: Indicated within the parenthesis
Source(s): Table by authors

Table 4.
Results of logistic multi-level regression for early-stage entrepreneurship



Source(s): Figure by authors

Figure 1.
Conceptual model

Note(s): High Social Costs of Failure + 1 SD and Low Social Costs of Failure – 1 SD
Source(s): Figure by authors

Figure 2.
The moderating effect graph: for engagement in early-stage entrepreneurship

excluding individuals who experienced business failure within a year. The result does not differ significantly from the findings of our main analysis. We also examined the independent effects of the four dimensions of the WEF gender equality. This ad hoc test showed a significant finding for the moderating effects of gender equality in economic participation and opportunity and social costs of failure. Finally, we conducted analyses with samples of men and women only. We found significant direct effects of gender equality on the probability of engagement in the early-stage entrepreneurship activity as well as significant moderating effects for social costs of failure.

Discussion

Our research contributes to academic interest on the role of legitimacy in women entrepreneurship and is of particular interest to international business scholars seeking a better understanding of multidimensional construction of institutional frameworks across countries. In this study, we set out to address an important research question: how do the social costs of failure interact with gendered institutions to affect entrepreneurship activity? Our study provides a comprehensive portrait of gendered institutions by including the framework conditions of education, healthcare and political power (World Economic Forum, Global Gender Gap Report, 2020). We found that in societies with gender equality, the likelihood of individuals engaging in the early-stage entrepreneurship activity is higher and that the positive relationship is strengthened in national environments with high social costs of failure.

In societies with lower gender equality, women face greater social judgment and punishment for engaging in entrepreneurship activities (Brush *et al.*, 2019). If the social costs of failure are high, then women faced with gender inequality could perceive additional risks above that of their male counterparts. Therefore, these women are less likely to pursue the

early-stage entrepreneurship activity, given the general higher level of risk aversion of women entrepreneurs (Croson and Gneezy, 2009).

In this study, we incorporate the multidimensional constructs of the social costs of failure and gender equality (Lee *et al.*, 2021). As scholars, we have more to learn about the effects of cultural institutions on driving the engagement of women entrepreneurs into entrepreneurial projects that have high-growth potential (Shepherd and Patzelt, 2017). At present, the literature focuses more on one-dimensional deterrents, such as the lack of access to childcare in the social sphere (Terjesen *et al.*, 2016) or the lack of access to external funding in the economic sphere (Thébaud, 2010; Bird and Brush, 2002; Gupta *et al.*, 2009). Our study addresses the calls in the literature for a better understanding of the more complex institutional drivers that lead to new or heightened forms of gender inequalities (Ukhova, 2015) or that push entrepreneurs to and from entrepreneurial projects (Shepherd and Patzelt, 2017) in different countries.

Regarding the social costs of failure construct, specifically, prior studies generally focus narrowly on the context of failed entrepreneurs (Simmons *et al.*, 2014). We cast a wider net on men and women entrepreneurs' entry decisions (irrespective of prior experience with business failure) and provide new views on the effects of social costs of failure on the entrepreneurial ecosystems. We also extend the research on the legitimacy of women as entrepreneurs with the gender equality construct (Dheer *et al.*, 2019). For instance, Brush *et al.* (2009) argues that in the institutional contexts, where women are unable to socialize or engage equally in the economy, they have limited decision choices, search processes and perceptions about the existence or accessibility of entrepreneurial opportunities. By exploring the relationship between the country-level gender equality and individual decisions to engage in the early-stage entrepreneurship activities, our study responds to Brush *et al.* (2009)'s call for research on the effects of national and regional level policies, culture, laws, economy and support services on the exercise of choice for women entrepreneurs.

Practitioner and policy implications

Research has shown that public policy decisions can have gendered effects on engagement in entrepreneurship generally (Terjesen *et al.*, 2016). Despite decades of effort on policy reforms aimed at reducing global gender gaps in economic empowerment, especially regarding women accessing necessary entrepreneurship funding (Guzman and Kacperczyk, 2019; Kanze *et al.*, 2020), few countries have closed at least 50% of their gender gaps for economic participation and opportunity (World Economic Forum, Global Gender Gap Report, 2020). Women are also persistently less present in labor markets, with only 18.2% of firms being woman-led globally and 72 countries, where some women cannot access credit or open bank accounts (World Economic Forum, Global Gender Gap Report, 2020).

Our study findings underscore the need for government policies addressing global gender gaps in economic empowerment (Guzman and Kacperczyk, 2019; Shepherd and Patzelt, 2017). Policies assisting women in obtaining education in high-growth industries like information technology or providing funding to women-dominated industries may foster activity for women seeking to do business in such industries (Guzman and Kacperczyk, 2019). Such policies connect the early-stage entrepreneurship activities with gender equality concerns and initiatives (Dheer *et al.*, 2019).

Study limitations

Our study has limitations, which we invite future research to address. First, while we examine our hypotheses with a sample of more than 286,000 individuals from 35 countries and control several country-level institutions such as GDP per capita, GDP growth rate and population size, we limited our sample to developed countries for comparability. As there are differences

between developed and less-developed countries for entrepreneurship activities (Hessels and van Stel, 2011); we join in the call for more studies on the entrepreneurship activities and institutions in emerging economies (Urbano *et al.*, 2020).

Second, while our study findings help us to better understand the unique role that societal attitudes play in moderating entrepreneurial behavior (Meek *et al.*, 2010), future research could take this further, by integrating the social costs of failure construct into a study of the effect of cultural dimensions on entrepreneurial activities. Scholars could explore how dimensions, such as individualism-collectivism or power distance (Hofstede, 1980, 2011; House *et al.*, 2004) interact with social costs of failure in different firm endeavors. This exploration could go beyond entrepreneurship, delving into cultural effects on firms' corporate social responsibility and sustainability efforts, knowledge transfer across subsidiaries of MNEs or entry mode.

Third, future research could also explore the impact of the social cost of failure on high growth entrepreneurship, an important topic due to the impact of this form of entrepreneurial activity on economic growth and job creation (Henrekson and Johansson, 2010; Shane, 2009). Prior studies demonstrate that the social attributes of institutions can foster or discourage high-growth entrepreneurship (Shapero and Sokol, 1982; Shneor *et al.*, 2016). Therefore, the examination of the effect of institutions on entrepreneurial activity is a worthwhile endeavor, as prior work has shown that informal institutions such as controlling corruption, having confidence in one's skills and the ability to access credit have an impact on opportunity entrepreneurship (i.e. high-growth aspirations), which in turn, promotes economic growth (Aparicio *et al.*, 2016).

Conclusion

This study used an institutional framework to examine the effects of gender equality and social costs of failure on the early-stage entrepreneurial activity and found evidence that these framework conditions can affect the quantity and quality of entrepreneurship activity in a region. Just as a rising tide can lift all boats, addressing barriers to women participating in the entrepreneurial activity and having gender equality in the representation of women in economic, political, educational and health institutions can benefit economies worldwide.

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Further reading

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