Erasmus University Rotterdam

Unpacking the Gender Gap in Entrepreneurship: A Comparative Study of Low, Middle, and High-Income Countries

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Abstract

This research aims to explore the main drivers and motivations for women to start a business with a focus on identifying and understanding the gender gap in entrepreneurship. With the large cross-sectional data of the of the Global Entrepreneurship Monitor (GEM), this paper has been able to do multiple logistic regressions. The results of these analysis's showed that the fear of failure decreases the chances for a woman to become a nascent entrepreneur. However, having connections to individuals who recently started a business, along with recognizing opportunities, significantly increased the likelihood of women to become nascent entrepreneurs. In addition to this, knowledge, skill and experience to start a business also increased the likelihood to start a business. Despites the progress in understanding the motivations, future research should be done focusing on determining the motivations by using panel data and looking at the effect of culture on women's entrepreneurship.

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1. Introduction

1.1 Problem Definition & Research Question

Over the past two decades, there has been a gradual increase in the focus on studying women's entrepreneurship, paralleling the significant rise in the number of women-owned businesses across the globe. However, the gender gap in entrepreneurship still remains of great magnitude. According to a report of the World Bank (2022) are women representing merely 25% of the total new business owners' word wide. Figure 1.1 shows the difference between the number of male and female sole proprietors. The proportion of female participation as sole proprietors is slightly higher, with an average share of one-third. nevertheless, the figure shows the large differences and the relevance of the still present gender gap.
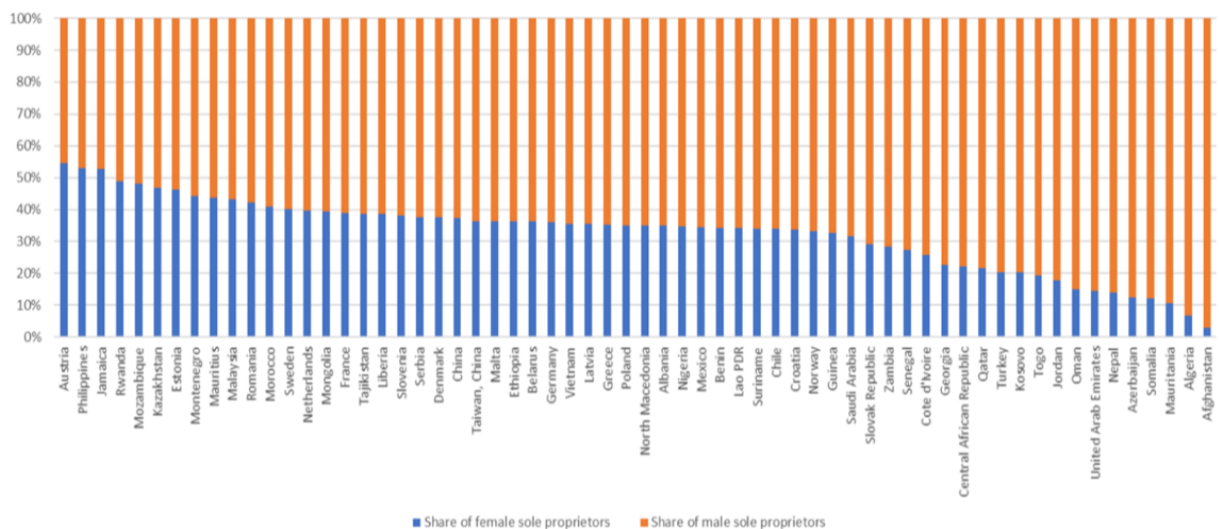

Figure 1.1 representation of new sole proprietors
Source: World Bank, 2022

Entrepreneurship plays an important role in job creation, innovation, and economic growth. Entrepreneurship can be defined as the proactive implementation and creation of a new organization (Diandra & Azmy, 2020). Entrepreneurs can be seen as the driving force behind the creation of numerous services and technologies. Therefore, ascertaining the drivers and motivations for women to start businesses, is not only important, but crucial for economic growth. According to the Global Entrepreneurship monitor report of 2018/2019 are the highest rates of women's entrepreneurial intentions found among low-income countries (Elam et al., 2019). In addition to this, the gender gap

for entrepreneurial intentions is narrower in low-income countries, with an 86% women-to-men ratio. This raises the question whether motivations and drivers differ across various income levels.

Women's entrepreneurship encompasses both their position in society and the importance of entrepreneurship in their society. Women encounter unique challenges that has to be addressed to give them equal access to opportunities. The paper of Brush (1992) highlights the potential and the importance of women starting their own business. By integrating their firms with social and familial connections, are female entrepreneurs able to foster the growth of their businesses. The role of women in entrepreneurship has been gaining increasing recognition and importance. However, women still own fewer businesses than men, especially in developing countries (Minniti & Naudé, 2010). The findings of Solesvik et al. (2019) suggest that women often peruse business opportunities to fulfill social needs, rather than growth or profit. Others address the importance of entrepreneurial intentions into why people enter entrepreneurship. Carsrud and Brännback (2011) concludes that motivation is a critical factor in prediciting and understanding entrepreneurial behaviour. Although it is an important aspect in ultimately starting a business or not, the authors state that entrepreneurial motivation has been largely underreached. There are different elements that influence the choice of a woman to enter entrepreneurship. The complexity and multifaced nature of the behaviour of female entrepreneurs, including their motivations, drivers, traits, and gender-related distinctives makes it challenging to provide a straightforward explanation. Therefore, the following research question is formulated:

Is there a difference in the main drivers and motivations for women to start a business across different income levels ?

Despite the growth in the number of female-owned businesses worldwide, continues entrepreneurship to be male-dominated (Hughes et al., 2012). Women are less likely to start a business, creating a gender gap in entrepreneurship (Dheer et al., 2019). Markussen and Røedand (2017) also explain this gap by to the historically inherited male dominance in entrepreneurship, preserved through gendered peer influences. The paper suggests that men tend to be influenced more by other men, whereas women are more influenced by other women. The research findings indicate that the differences in peer group dynamics between females and males account for approximately half of the gender gap observed in early career entrepreneurship. To address the gender gap in entrepreneurship, this paper has the following sub-question:

Do these drivers and motivations contribute to the gender gap in entrepreneurship?

1.2 Contribution

A multiplicity of research has been done to investigate the drivers and motivations that influences the likelihood of a women to become an entrepreneur (Minniti & Naudé, 2010; Zisser et al., 2019), but not many have used a logistic regression in their methodology, especially in determine the motivations and drivers of female entrepreneurship. This paper uses a logistic regression to investigate the motivations of becoming an entrepreneur. In comparison to Ordinary Least Squares Regression (OLS) that are often used in papers on female entrepreneurship. In addition to this, the logistic regression has not many key assumptions, which increases the overall validity of this paper.

This paper is relevant not only from a methodological standpoint but also from a social perspective. This paper has the potential to enhance the understanding of drivers that contribute to the underrepresentation of female entrepreneurship. This can be beneficial to address broader matters related to gender inequality. Besides that, a rise in female entrepreneurs can stimulate job creation and increase social mobility. Moreover, female role models can provide social support and guidance. In addition to this, women seeing other some succeed as entrepreneur can help overcome traditional gender stereotypes (Mustapha, 2016). Therefore, finding out the motivations and drivers for women to start a business can help the creation of a more socially desirable entrepreneurial environment for women.

In addition to its theoretical significance, this paper also holds practical relevance. Understanding the factors that influence the chance of becoming a nascent entrepreneur is essential for policy makers. It is important for countries to know how the income level of the country affects the decision to become an entrepreneur and therefore what the reasons are for this decision. This knowledge can help and guide the development for specific policies that can help with network opportunities, entrepreneurial education programs or courses for dealing with risk. Moreover, the practical relevance lies in the ability for policy makers to foster an entrepreneurial ecosystem, custom to their income level. In addition to that, policy makers could use the differences found between male and female entrepreneurs to stimulate entrepreneurial activity in both genders, to narrow the gender gap in entrepreneurship. These initiatives can support economic growth and job creation (Malchow-Møller et al., 2011).

2. Theoretical Framework

This chapter provides a representation of the existing literature on women's entrepreneurship. Starting with a clarification of the concept "entrepreneurship" and the different drivers and motivations for entrepreneurship. The chapter then delves into the differences between women and men. Afterwards, the concept country income level will be explained according to the definition of the Word Bank. The chapter also includes a graphical representation of the study for better visualization. Additionally, this chapter will provide an insight into the formulation and development of the hypotheses that will be used in other chapters.

2.1 Type of Entrepreneurship

Entrepreneurship encompasses a diverse array of definition, some view it as a process of successful organization. While others emphasize its role in building a mindset and developing skills. However, the ultimate goal of entrepreneurship remains consistent: creating jobs and economic development (Diandra & Azmy, 2020). Although the goal of entrepreneurship is lucid, there are still different antecedents of entrepreneurship. Opportunity-based entrepreneurship refers to a form of entrepreneurial activity focused on perusing business opportunities with high-growth expectations (He et al., 2020). It entails the creation of new ventures, jobs and out-of-country expectations. Unlike necessity-driven entrepreneurship, which arises due to a lack of better job opportunities (Angulo-Guerrero et al., 2017). He et al. (2020) confirmed that opportunity-driven entrepreneurship has a greater overall effect on the economic growth of a country, compared to necessity-driven entrepreneurship.

 In contrast to other authors, Williams (2008) questions the conventional view that entrepreneurs can be divided into opportunity- or necessity- driven. He motivates that rather than one or the other, it a combination is of both motives that encourage entrepreneurism. In addition, a clear shift from necessity-oriented to opportunity-oriented motivations arises as the firms of entrepreneurs become more establish. Therefore, the motivations changes with the growth of the company.

An additional form of entrepreneurship is market-driven entrepreneurship, this is a combination of both opportunity-driven entrepreneurship and innovative entrepreneurship (Ali et al., 2020). Innovative entrepreneurship refers to the development of new products, services and processes. It is characterized by entrepreneurs who are able to identify and develop original solutions that have not

been offered by any other competitor. Market-driven entrepreneurs are driven by perceived gaps in the market and introduce innovative products and services that serve a new set of customers. These entrepreneurs distinguish themselves from innovation-driven entrepreneurs by their ability to respond to the market demand. This type of entrepreneurship can both occur in developed and developing countries, depending on the market conditions of the country (Ali et al., 2020). Reacting to different market conditions and opportunities requires a certain amount of skill (Mitchelmore and Rowley, 2010). These include idea generation, the ability to recognize and benefit of opportunities, decision making skill and leadership skills.

Understanding the drivers of entrepreneurship provides valuable insights into the motivations that stimulate entrepreneurial activities. However, Şahin et al. (2019) heightens the importance of personality traits. These traits do not only shape the overall decision-making process but also the ability of the entrepreneur to navigate, calculate and face risks. The authors concluded that traits such as conscientiousness, openness to experience, emotional stability and extraversion are positively associated with becoming an entrepreneur. The study considers these traits along with entrepreneurial self-efficacy (ESE) as important factors in the decision of an individual to become an entrepreneur. ESE encompasses the believe of an individual in one's own ability to effectively undertake and accomplish entrepreneurial tasks. ESE is proven to be positively influencing the decision to become an entrepreneur. Therefore, higher levels of ESE could potentially increase the likelihood of starting a new venture (Şahin et al., 2019).

2.2 Difference Between Female and Male Entrepreneurs

When it comes to entrepreneurism, the gender gap remains an unsolved dilemma. Despite the fact that both female and male entrepreneurs share a common goal in achieving entrepreneurial success. A possible explanation for this can come from the differences in their experiences, challenges and approaches. Understanding and comprehending these differences is crucial for fostering inclusivity and reducing the size of the gender gap. This section will identify several aspects that set female and male entrepreneurs apart.

The first difference is the degree to which men and women take risks. Charness and Gneezy (2012) describe risk taking as the willingness of an individual to take on uncertain outcomes or potential losses in pursuit of a desired outcome. The researchers examined the interaction of risk-taking behaviour and the gender of the person making the decision, utilizing data from various countries. The paper sought

to investigate the validity of the common stereotype that women are more risk averse compared to men. The main result of the paper indicates that women tend to invest less and display a greater inclination towards financial risk aversion compared to their male counterparts. These finding aligns with the findings of Hanna and Lindamood (2004). Their study demonstrated a significant difference in the mean level of risk aversion between males and females. The researchers found the mean level of relative risk aversion for women to be equal to 5.1, and 4.1 for their male participants. This result provides significant evidence that women, as a group, are less likely to take risks.

Fear has a pivotal role in forming individuals' perspective towards risk taking, fear can be described as a complex emotion that arises when an individual perceives threats or danger. In addition to this researcher found out that fear tend to decrease overall risk-taking behaviour (Wake et al., 2020). this raises the question, to what extent fear plays a role in taking a risk to set up a company.

Brush et al. (2009) stated that women often have a different kind of networks compared to men, this can lead to them obtaining different sources of information. In addition to this, women tend to have more variety in their networks, containing both men and women. On the other hand, men tend to have more homogeneous networks comprised mostly of men (Aldrich, 1989, as cited in Brush et al., 2009). On top of this, women are also more likely to have a lesser number of entrepreneurs in their network. This means that women are receiving less valuable information through their networks.

2.3 Differences between Income Levels

The differences between country income levels refer to the variations in income per capita of different countries across the world. These differences in income level often indicate a certain level of economic development of the country and the signals the standard of living (Milanovic, 2016). Countries can be categorized into three different groups: low-income countries, middle-income countries and high-income countries. A low- income country has a national income per capita of $996 or less per year and can be categorized by limited access to basic needs (World Bank, 2018). Middle- income countries can be described as counties that have developed a moderate level of economic development. They have a per capita income higher than low-income counties and lower than high-income countries. According to the classification of the World Bank (2018) can a country be classified to middle-income country if the Gross National Income (GNI) per capita is between $996 and $12,055. Therefore, high- income countries are those that have a high level of economic development and have a GNI of $12,055 or more.

Entrepreneurs, especially female entrepreneurs, face a set of different challenges and obstacles that limit their entrepreneurial career (Minniti, 2010). Despite these challenges, are women in developing countries remarkably motivated to successfully build a business. Female entrepreneurs play an important role in stimulating economic growth in developing (low-income) countries. According to a study conducted by Doran et al. (2018), it was discovered that entrepreneurial attitudes in high- income countries lead to a positive effect on the GDP per capita. Interestingly, they also concluded that these entrepreneurial attitudes are negatively correlated to the GDP of low- and middle- income countries. This result aligns with the research of Stam et al. (2009), who similarly concluded that entrepreneurship has a positive effect on the growth of high- income countries. Therefore, both studies confirm the differences in entrepreneurial attitudes in different income-level countries.

2.4 Framework

This section provides an overview of the framework that will be utilized as a foundation of this study. The chosen framework illustrated in figure 2.1 serves as a conceptual structure that guides the research design of this paper. This framework explains how this paper will answer the main research question ' *Is there a difference in the main drivers and motivations for women to start a business across different income levels ?'*

The framework shows that there are multiple motivations and drivers that influence the decision to become a nascent entrepreneur. Two of these motivations and drivers are discussed in section 2.1, He et al. (2020) discussed the importance of opportunity to become an entrepreneur. Furthermore, Şahin et al. (2019) underscored the significance of an entrepreneur embodying their own capacity to undertake entrepreneurial activities. This is why this paper includes both ability and opportunity as an important factor that influences the likelihood of becoming a nascent entrepreneur.

Section 2.2 focusses on the pivotal role of risk aversion and fear in the decision to become an entrepreneur. Wake et al. 2020 found out that fear tend decrease the overall risk-taking behaviour, making it also important to consider the impact of fear on starting a business. The likelihood of becoming a nascent entrepreneur is influenced not only by risk-taking behavior but also by the composition of the individual's social network. This paper assumes that knowing someone who started a business can influence and motivate an individual to start a business. This paper assumes that all of

these factors contribute to becoming a nascent entrepreneur, which is presented with arrow 3 in figure 2.1.

Additionally, gender, when combined with these four drivers, serves as another noteworthy factor that influences the final decision. In section 2.2, is discuses that men and women have different ways at looking at risk and have different surroundings (Brush et al., 2009; Wake et al., 2020). Therefore, this paper assumes that women and man differ in their motivations to become an entrepreneur, which is represented with arrow 2 in figure 2.1. Lastly, in section 2.3, it was demonstrated that countries with varying income levels have noteworthy variations. As a result, this paper presumes that the income level of the country impacts the outcome on becoming an entrepreneur. This is represented in arrow 1 in figure 2.1.
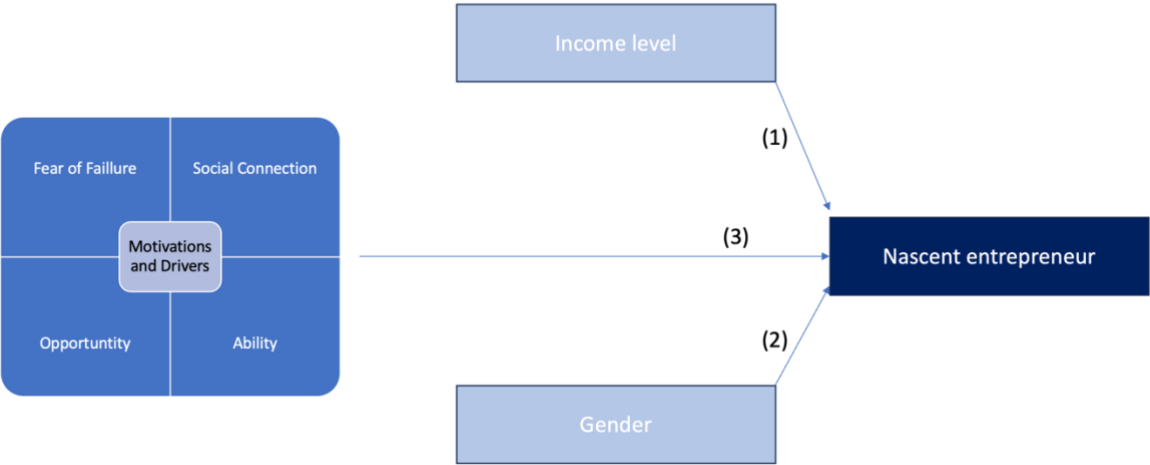
Figure 2.1 Paper's Framework

2.5 Hypothesis Development

Previous research has shown that men and women who intend to become entrepreneurs share many traits, nevertheless women show different behaviour towards entrepreneurship. (Zisser et al., 2019). Additionally, research has focused on the effect of country- level income inequality and whether it facilitates or constraint the emergence of social entrepreneurship. The researchers concluded that county-level income inequality increases the likelihood of individual-level engagement in social

entrepreneurship (Pathak & Muralidharan, 2018). In addition to this, Lakovleva et al. (2011) showed that respondents from developing countries have stronger entrepreneurial intentions than those from developed countries. Therefore, the following hypothesis is developed.

H1: women in lower income countries are more likely to start a business compared to women in middle-income and higher-income countries.

Besides the country's income level, there are other crucial factors that play a role in determining the entrepreneurial engagement of women. Entrepreneurs have been assumed to be more risk-tolerant than other individuals, nevertheless Hanna and Lindamood (2004) demonstrated a significant difference in the mean level of risk aversion between males and females. Therefore, the following hypothesis is formulated.

H2: The fear of failure decreases the likelihood of a women to start a business.

Van Trang et al. (2019) identified a positive association between possessing entrepreneurial knowledge, skills and experience and the likelihood of becoming an entrepreneur, with the perception of feasibility to start a new business in Vietnam. This paper aims to examine whether a similar association exist when considering countries worldwide, with the following hypothesis.

H3: Having knowledge, experience and skills have a positive effect on women's likelihood to start a business.

Besides the abilities of the entrepreneur, the paper of Popescu (2015) concluded that Romanian students who have or had entrepreneurial models in their surroundings are more likely to start their own business in the next years. Peer effects have been demonstrated to be an important aspect, as evidenced by the research conducted by Falk and Ichino (2006). Serra- Garcia and Lahno (2015) show in their paper that peer effects depend on a combination of relative payoffs and preferences. Their findings suggest that the decision- making process of individual under risk can be influences by their peers' choices, due to a norm to conform to the behaviour of others. This research paper is interested in the potential impact of peer effects on the decision making regarding starting a business. Therefore, hypothesis 4 is composed.

H4: Knowing someone who started a business in the past two years has a positive effect on women's likelihood of becoming entrepreneurs.

3. Data

3.1 Data Sources

This paper's dataset consists of Adult Population Surveys (APS) of 2018 collected by the global entrepreneurship monitor (2018). The APS delves into the involvement of individuals in the entrepreneurial process throughout their lifecycle, including the personal drive behind initiating a business. The year 2018 has been chosen, due to the fact that this is the most recent and complete dataset available. The full dataset has information about 162,077 individuals across the globe. This includes 51 different countries, each represented by a minimum of 2000 men and women. The dataset contains information pertaining to the following geographic regions: Africa, Asia & Oceania, Latin America & Caribbean, Europe and North America. All countries, including the exact number of observations for each country can be found in appendix A.

3.2 Outcome Variable

The dependent variable in this paper is denoted as Y this variable will be used as the main outcome variable trough this paper and has a total of 162,077 observations. The variable Y represents 'nascent entrepreneurship'. Nascent entrepreneurship refers to individuals between the age of 18-64 who meet three criteria. Firstly, the individual must have engaged in any concrete activities related to business development within the preceding 12 months. Secondly, the individual should be one of the owners of the business or the sole owner. Thirdly, any financial transactions are considered to be conducted for a period shorter than three months. The outcome variable is binary and can be either 1, that represents that the person became a nascent entrepreneur. Or 0 what means that the individual is I not a nascent entrepreneur. The outcome variable comprises of female nascent entrepreneurs and male nascent entrepreneurs.

3.3 Key Regressors and Control Variables

Each equation will have the same three fixed variables, education, country income level and gender. The variable education comprises three distinct levels: lower education, middle education and higher

education. The level lower education encompasses pre-primary education, primary education, and lower secondary education. The middle education level combines secondary education, post-secondary and short-cycle tertiary education. Higher education consists of the categories of bachelor's, master's and doctorate degrees. The variable country income level is classified into three different categories. The range from one till three represents the progression from low-income level to middle-income level to high-income level.

A set of survey questions will be utilized to investigate the complex the motivations and drivers that influences the decision to start a business, all variables provide a binary response. Starting with the first variable 'Social Connection', this variable represents the survey question.

1. *Do you know someone who started a business in the past two years?*

The inclusion of this variable aids in assessing the importance of knowing a business owner. The subsequent variable is ' Opportunity' This variable represents the question.

2. *In the next six months, will there be a good opportunity to start a business in the area where you live?*

This helps to determine whether the nascent entrepreneur is driven by market conditions to peruse the option of starting a business the driver of the nascent entrepreneur. The variable ' Ability' stands for question 3.

3. *Do you have knowledge, skill or experience to start a business* ?

By utilizing this variable, is this paper able to ascertain the extent to which knowledge, skills and experience contribute to becoming a nascent entrepreneur. The last variable is " failure', this variable stands for question 4.

4. *Would fear stop you from starting a business ?*

This question can help confirm if risk aversion has a part in the decision to become a nascent entrepreneur, and whether it differs between genders.

3.4 Descriptive Statistics

This section provides an overview with all the dependent and independent variables utilized for conducting logistic regressions. Further details on this method will be provided in section 4. Descriptive statistics of these variables encompassing observations, mean, standard deviation, as well as the minimum and maximum values. These are shown in table 3.1, the table provides important insights of the variables. The outcome variable of this paper is presented as 'Nascent Entrepreneur' in panel A, this variable has a total of 162,007 individuals. This panel also shows the variable Gender, this variable has the value 1 for male and 2 for female. The full data set of 162,007 individuals can be subdivided in 80,002 women and 82,075 men. The statistics related to the female entrepreneur are presented in panel B and show a mean value of approximately 0.051, which indicates a relative low occurrence. Panel C shows the statistics related to the male entrepreneurs and a higher mean value equal to 0.071.

The variable income level has three different levels as illustrated in table 3.1, the table shows that the high-income level has the highest mean and therefore the highest occurrence in the sample. The middle-income level is noticeably less frequent in the sample, accounting for approximately 16.5 percent. The low-income level is even less prevalent, accounting of circa 12.2 percent of the sample.

Similar to the variable income level, the variable education also consists of three levels, the lower education level and the higher education level both occur for about a quarter of the observations in the sample. As a result, the middle education level demonstrates the highest prevalence, accounting for approximately 50% of the sample. There can be seen that the variable has slightly less observations than the total number of observations, this is caused by missing values. A missing value can arise due to two reasons, namely that the individual refused to answer the question. Or because the respondent does not know the answer to the question. All other predictor variables in this sample are binary. The mean represents the proportion of the occurrence of the answer yes. A mean closer to 1 indicates a higher occurrence of the variable.

Table 3.1

Descriptive statistics of all variables

Variable	Observations	Mean	Std. dev.	Minimum	Maximum
Panel A					
Income level	162,077	2.592	0.696	1	3
Low-income level	162,077	0.122	0.327	0	1
Middle-income level	162,077	0.165	0.371	0	1
High-income level	162,077	0.714	0.452	0	1
Education	154,234	2.016	0.728	1	3
Lower Education	162,077	0.253	0.435	0	1
Middle Education	162,077	0.463	0.500	0	1
Higher education	162,077	0.269	0.443	0	1
Gender	162,077	1.493	0.500	1	2
Failure	153,860	0.420	0.494	0	1
Ability	154,243	0.487	0.500	0	1
Social Connection	159,007	0.379	0.485	0	1
Nascent Entrepreneurs	162,077	0.061	0.239	0	1
Opportunity	135,120	0.445	0.497	0	1
Panel B					
Female Entrepreneurs	80,002	0.051	0.220	0	1
Panel C					
Male Entrepreneurs	82,075	0.071	0.256	0	1

Note. Std. dev. stands for the standard deviation.

4. Empirical Strategy

4.1 method and equations

This paper uses a multivariable logistic regression, this is regression includes multiple predictors. This method is used on the grounds that multiple factors could influence the probability of becoming a nascent entrepreneur. The model estimates the coefficients of the independent variables by using a maximum likelihood estimation. The magnitude of the coefficients represents the impact of the independent variable on the likelihood of the outcome to occur (Nick & Campbell, 2007). This method provides a probability interpretation, this implies that the coefficients of the predictor variables can be interpret as probabilities.

The logistic regression has several assumptions that must be met. The first key assumption of the logistic regression is that it requires the dependent variable to be binary, this paper meets this requirement. Secondly, logistic regression requires independent observations. This means that the observations must not involve repeated measurements or matched data. Another assumption of this method Is that it demands little to no multicollinearity, in other words the predictor variables should not be highly correlated to other independent variables. Lastly, the method requires a large sample size, this paper uses a sample size of 162,077 individuals. This means that the number of observations is high enough to give an accurate prediction.

The logistic regression does not have many key assumptions compared to the OLS regression. The assumption of linearity is not required, the logistic regression does not demand a linear relationship between the outcome variable and the predictor variables. Nevertheless, the logistic regression requires the outcome variables to be linearly related to the log odds. Furthermore, the logistic regression is less sensitive to outliers and therefore more reliable.

This paper will use different models to test the hypotheses outlined in section 2.4. The first model will assess the likelihood of becoming nascent entrepreneur, using the variables income level education and gender. This model will include a concise equation that incorporates all fixed variables, denoted as:

$$\log odss\ (Y = 1\ |\ education, incomelevel) = \partial + \beta_1 * Education + \beta_2 * Incomelevel + \beta_3 *$$
$$Gender + \varepsilon \tag{1}$$

The second model will center on answering hypothesis 2, examining the outcome variable of becoming a nascent female entrepreneur. In addition to the fixed variables this model will incorporate the variable failure. Model 3 will aim to answer hypothesis 3 and adds to the fixed variables the variable ability. Following this, model 4 will include the variable Social Connection to the fixed variable to answer hypothesis 4. The full model consists of the fixed variables and all the predictor variables, previously mentioned in section 3.3. This equation gives the total effect of the likelihood on becoming an entrepreneur, considering all the motivations and drivers. The structure of the full model is as followed composed:

$$\log odss\ (Y = 1\ |\ Education, Incomelevel, Social\ Connection, Ability, Opportunity, Failure,) = \partial +$$
$$\beta_1 * Education + \beta_2 * Incomelevel + \beta_3 * Gender + \beta_4 * Failure + \beta_5 * Ability + \beta_6 *$$
$$Social\ Connection + \beta_7 * Opportunity + \varepsilon \tag{2}$$

5. Results

The following chapter presents the results of the statistical analyses conducted to test the hypothesizes stated in section 2.4. This section starts with the explanation of model 1, this model uses all the fixed variables of equation 1. Thereafter, model 2 will be explained, this model adds the variable failure and the interaction effect of failure and female to the equation. The same principle applies to model 3, focusing on the variable of ability, and to model 4, considering the variable of social connection. Model 5 represents equation 2 and gives an interpretation of the full model of this paper. This chapter ends with a linear probability model (LPM) that will give an interpretation on the robustness of the outcomes.

Starting with the model 1, this model will provide an answer for hypothesis 1. The outcome of the logistic regression of model 1 is illustrated in the first column of table 5.1. The pseudo-R-squared value of 0.0127 indicates that circa 1.27% of the variation in the outcome variable can be explained by the predictor variables included in the model. Model 1 is showing all the fixed variables tested on the outcome variable 'nascent entrepreneur'. The analysis reveals that individuals with a lower level of education have significantly lower odds compared to individuals with a middle level of education. Similarly, having a higher level of education significantly decreases the odds of becoming a nascent entrepreneur, compared to having a middle level education. Th first column of table 5.1 shows that being a female is significantly associated with a lower likelihood of becoming a nascent entrepreneur. Furthermore, the results indicate that individuals in lower income countries and middle-income countries have higher odds of becoming a nascent entrepreneur, compared to individuals of higher income levels. Resulting in the first hypothesis to be accepted.

The logistic regression illustrated in column 2 of table 5.1 is used to test hypothesis 2, this analysis includes the variable Failure, and it incorporates the interaction effect between Failure and Gender. The fear of failure has an overall significant decreasing odds of becoming a nascent entrepreneur. The coefficient of the interaction term is circa 0.878. The finding of model 2 shows that women who exhibit risk aversion towards failure experience a decrease in the odds of becoming a nascent entrepreneur. Therefore, hypothesis 2 is accepted.

Model 3 includes the variable Ability and adds an interaction effect between Ability and Gender to equation 1. The model shows slight differences in the coefficients of the fixed variables. The variable Ability has an odds ratio of approximately 4.30, suggesting that having entrepreneurial skills

significantly increases the likelihood of becoming a nascent entrepreneur. The interaction term of ability and gender indicates that the odds of the outcome variable depend on the gender. Hereby it can be confirmed that being a woman and having entrepreneurial skill, knowledge and experience has a significant positive effect on becoming a nascent entrepreneur. Therefore, hypothesis 3 is accepted.

Model 4 of table 5.1 includes the variable Social Connection and adds an interaction effect between Social Connection and Gender. Individuals who know someone who started a business have an increase in the likelihood to also start a business, compared to those who do not know someone. The interaction term indicates that the effect of knowing someone who started a business, increases the odds for females to become a nascent entrepreneur compared to men. Therefore, hypothesis 4 is accepted.

Table 5.1

Multilevel logistic regression predicting the likelihood of becoming a nascent entrepreneur (model 1, 2, 3 and 4).

Variable	Model 1	Model 2	Model 3	Model 4
Education level Lower	0.716***	0.710***	0.756***	0.784***
	(0.020)	(0.020)	(0.038)	(0.022)
Education level higher	1.142***	1.125***	1.050	1.065*
	(0.028)	(0.028)	(0.026)	(0.026)
Income level lower	1.791***	1.817***	1.662***	1.646***
	(0.052)	(0.053)	(0.050)	(0.049)
Income level middle	1.489***	1.505***	1.420***	1.416***
	(0.040)	(0.041)	(0.039)	(0.039)
Gender (female)	0.708***	0.768	0.673***	0.700***
	(0.015)	(0.020)	(0.033)	(0.024)
Constant	0.068***	0.082***	0.026***	0.041***
	(0.001)	(0.002)	(0.001)	(0.001)
Faillure (yes)		0.623***		
		(0.019)		
Failure#Female		0.878**		
		(0.041)		
Ability			4.340***	
			(0.160)	
Ability#female			1.302***	
			(0.071)	
Social Connection				2.801***
				(0.082)
SocialConnection#Female				1.146**
				(0.051)

Number of observations	159,578	151,564	151,896	156,582
LR chi2	934.69	1504.00	5280.72	3509.85
Prob > chi2	0.000	0.000	0.000	0.000
Pseudo R2	0.0127	0.0212	0.0743	0.0484

Note.***p<0.001; **p<0.01;*p<0.05; between (..) are the standard errors. All models have the outcome variable " Nascent Entrepreneur."

Model 5 is representing the full model and is illustrated in table 5.2. The model shows that the variables: Education, Ability and Social Connection have a significant increasing effect on the odds. Nevertheless, the model also shows that the variable Failure has a significant decreasing effect on the odds. The variable Education does not appear to have a significant association for people with a higher education level. Although individuals with a lower education level appear to decrease the change of becoming a nascent entrepreneur. The full model shows that living in both low- and middle-income level countries, increases the odds of becoming a nascent entrepreneur, compared to living in a high-income country. Model 5 also adds the variable Opportunity to the model, to examine its impact on becoming an entrepreneur based on the area where the individual resides. There can be seen that this variable shows significant increasing odds. The results indicate a significant effect, which leads to increased odds of becoming a nascent entrepreneur. Compared to the other models there can be seen that in the full model the variable Gender has a significant odds ratio of circa 0.893, which indicates odds ration closer to 1 than the other models. Therefore, being a female considering all the predictors has an overall decreasing effect on the odds of becoming a nascent entrepreneur.

Table 5.2

Multilevel logistic regression predicting the likelihood of becoming a nascent entrepreneur (model 5).

Variable	Model 5
	(1)
	Nascent entrepreneur
Education level Lower	0.800***
	(0.024)
Education level Higher	0.969
	(0.026)
Income level Lower	1.460***
	(0.047)
Income level Middle	1.408***
	(0.042)
Gender (female)	0.893***
	(0.021)
Failure (yes)	0.740***
	(0.019)
Ability (yes)	3.426***
	(0.105)
Social Connections (yes)	2.028***
	(0.050)
Opportunity (yes)	1.689***
	(0.043)
Constant	0.018***
	(0.018)
Number of observations	123,199
LR chi2	6079.58
Prob > chi2	0.000
Pseudo R2	0.0988

Note.***p<0.001; **p<0.01;*p<0.05; between (..) are the standard errors. The outcome variable of the model is 'Nascent Entrepreneur.'

This paper has also conducted a linear probability model (LPM) to assess the robustness of the outcomes, this is represented in table 5.3. The LPM shows a negative effect of the lower education level, consistent with the lower odds represented in table 5.2. Both models 5 and 6 indicate that higher education is not statistically significant. In addition to that, the low- and middle income-level are having a positive significant effect on the becoming a nascent entrepreneur. Furthermore, there can be seen that both gender and failure have a negative effect on the outcome variable, which also aligns with the results presented by table 5.2. Overall, the significancy of the variables remained consistent in the LPM, the variables with an increasing odd remained positive and the variables with decreasing odds

remained negative in the LPM. Therefore, according to this specific test, the outcomes provided of the logistic model seem to be robust.

Table 5.3

Linear probability model predicting the likelihood of becoming a nascent entrepreneur (model 6).

Variable	Model 6
	(1) Nascent Entrepreneur
Education level lower	-0.012*** (0.002)
Education level Higher	-0.002 (0.002)
Income level lower	0.027*** (0.002)
Income level Middle	0.022*** (0.002)
Gender (Female)	-0.006*** (0.001)
Failure	-0.018*** (0.001)
Ability	0.062*** (0.002)
Social Connection	0.046*** (0.002)
Opportunity	0.033*** (0.001)
Constant	0.011*** (0.002)
Number of observations	123199
R-squared	0.047

Note.***p<0.001; **p<0.01;*p<0.05; between (..) are the standard errors. The outcome variable of the model is ' Nascent Entrepreneur.'

6. Discussion

This section will give a better understanding of the findings of this research, the limitations of this paper and possible directions for future research. The research of this paper is based on the ideas and conclusions of other papers. First, the paper of Minniti (2010) concluded that women in lower income countries are extra motivated to start a business, looking at the results of this paper, being in a lower income country significantly increases the odds of becoming an entrepreneur. Secondly, the findings of Hanna and Lindamood (2004) concluded that women are less likely to take risk compared to men. This paper showed that being a woman and exhibiting risk-adverse tendencies significantly decreases the likelihood of becoming an entrepreneur. Thirdly, the paper of Şahin et al. (2019) showed that entrepreneurial abilities influences whether someone becomes an entrepreneur, this result also aligns with the findings of this paper. Lastly, previous research has shown that individuals can be influenced by their peers' choices (Serra- Garcia and Lahno, 2015). This paper does show significant increasing odds if the individual does know someone who started a business, indicating that knowing someone who started a business increases the odds of becoming a nascent entrepreneur.

6.1 limitations and future research suggestions

The data that is used in this paper does have some limitations. The cross-sectional data of the GEM only captures information on one single point in time. This makes it difficult to determine to what extent the predictors influence the outcome variable. Therefore, cross-sectional data cannot establish the direction of causality, or present causal relations. This research paper is only able to give associations.

Another limitation is the potential measurement errors that arise by using surveys. In the descriptive statistics, it is evident that some observations are missing. These missing observations arise due two reasons: the individual refused to answer the question, or because the respondent does not know the answer to the question. Therefore, there could be recall bias or nonresponse bias. Future research should focus on reducing these problems, this could be done by using panel data. This allows for changes over time, which can help capture trends and developments that are not yet captured in this paper.

Based on the results provided of this paper, not all drivers and motivations on female entrepreneurship can be explained solely by the models. The results show that the models could benefit from adding

more variables. The paper of Adom and Anambane (2020) reveals that culture, influenced by gender stereotypes acts as a 'push' motivational force on women's entrepreneurship. They showed that through the gender stereotypes, women hesitate to start a business. The paper of Hechavarría and Brieger (2022) also explores the impact of cultural gender stereotypes on women's entrepreneurship. They showed that female entrepreneurs show a higher tendency to participate in social entrepreneurship when there are lower cultural practices. Therefore, future research should incorporate culture as a motivational factor of women's entrepreneurship among with the other motivations discussed in this paper.

7. Conclusion

This thesis aimed to analyze which drivers and motivations influence the likelihood of becoming a nascent entrepreneur. The results indicate that these motivations differ among genders and income levels. Individuals in low-income levels are more likely to start a business, compared to individuals in middle- and high-income levels. Furthermore, risk-aversion has been shown to lower the likelihood of becoming a nascent entrepreneur, especially in women. In addition, having entrepreneurial skills, knowledge and experience has been shown to increase the likelihood of becoming a female entrepreneur, jointly with knowing someone who started a business. The variation in motivation between women and men could, in a part, explain the existing gender gap in entrepreneurship. Beyond the implications of these factors on final decision, there are still other motivations and drivers that could influence the likelihood of becoming a female nascent entrepreneur. Therefore, future research on other drivers or motivations is a must.

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Appendix A

Table A1

Country Names and Number of Observations

Country name	Observations
United States	3012
Russia	2002
Egypt	2539
Greece	2000
Netherlands	2258
France	2002
Spain	23100
Italy	2003
Switzerland	2448
Austria	4540
United Kingdom	9002
Sweden	5078
Poland	8000
Germany	4250
Peru	2080
Argentina	2003
Brazil	2084
Chile	8948
Colombia	2044

Indonesia	3090
Thailand	2060
Japan	2041
South Korea	2000
China	3828
Turkey	2424
India	4165
Iran	3193
Canada	2184
Morocco	3500
Angola	2023
Sudan	2002
Madagascar	2396
Luxembourg	2008
Ireland	2001
Cyprus	2000
Bulgaria	2000
Croatia	2000
Slovenia	2000
Slovakia	2000
Guatemala	2970
Panama	2003
Uruguay	2009
Puerto Rico	2000
Taiwan	2200
Lebanon	2000
Saudi Arabia	4002
United Arab Emirates	2011
Israel	2000
Qatar	2573
Total	162076