The Effect of Age and Gender on Entrepreneurial Entry: The Moderating Role of Country Income and Uncertainty Avoidance

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Abstract

Entrepreneurship's complex dynamics have interested academics for decades and drive interdisciplinary research aiming to get a better understanding of which factors shape one's decision to engage in entrepreneurship. Despite extensive research, the impact of age and gender on entrepreneurship remains inconclusive. Therefore, this study addresses these gaps by examining the effect of age and gender on entrepreneurial entry on a global level, considering variations in country income and a country's uncertainty avoidance level. The data for this research was gathered from the Global Entrepreneurship Monitor (N=144441) and was analyzed using several logistic regressions. The analysis shows that age negatively affects entrepreneurial entry and that males are more likely to enter entrepreneurship than females. Moreover, this study shows that both young people and females are relatively more likely to enter entrepreneurship in high-income countries compared to low-income countries and that young people are relatively less likely and females are relatively more likely to enter entrepreneurship in high-uncertainty avoidance countries compared to low-uncertainty avoidance countries. Hence, this study provides empirical evidence on how age and gender affect entrepreneurial entry and how this relationship is moderated by country income and uncertainty avoidance. Thereby, this research provides new insights into entrepreneurial research by showing the interaction of individual characteristics and environmental factors in one's decision whether or not to engage in entrepreneurship.

Keywords: Entrepreneurial Entry, Age, Gender, Country Income, Uncertainty Avoidance

Table of Contents

1. Introduction

1.1 Problem Indication

The question 'Who becomes an entrepreneur?' has been extensively investigated for decades. Entrepreneurship and its impact on society are studied in various disciplines such as economics, strategy, management, geography, finance, sociology, and psychology (Kerr et al., 2018). There are various studies investigating different aspects of what affects entrepreneurship. For example, Stanworth et al. (1989) investigated the sociological determinants of who becomes an entrepreneur, Thornton et al. (2011) looked at the sociocultural factors that affect who becomes an entrepreneur, Morris & Lewis (1995) suggest that infrastructure, turbulence, and personal life experiences determine entrepreneurial activity, and Lamotte & Colovic (2013) suggest that demographics influence entrepreneurial activity. In other words, entrepreneurship is a prominent and thriving research area aiming to better understand which factors drive entrepreneurship.

Entrepreneurs play a crucial role in economic growth because they improve job creation, living standards, government tax income, and per capita income (Pahuja & Sanjeev, 2015). Therefore, entrepreneurship is viewed as a positive economic activity that contributes significantly to both economic and social life (Audretsch & Keilbach, 2004; Autio, 2005; Wong et al., 2005; Pinillos & Reyes, 2011; Rocha, 2004; Stel et al., 2005; Wennekers et al., 2005). Since a country's economic growth and prosperity depend on the entrepreneurial activities within the nation, entrepreneurship has been posited as the engine that drives the economy (Drucker, 1985; Harding & Bosma, 2006; Singh, 2014). Because the number of entrepreneurs in an economy is a key determinant of economic growth and productivity improvements, understanding the drivers of entrepreneurship can help countries form their economic policies (Grilo & Irigoyen, 2006).

A core aspect of an individual's decision whether or not to engage in entrepreneurship is their intention, which is shaped by one's attitudes and perceptions (Krueger et al., 2000). Demographic factors such as age and gender influence these values and behaviors (Ralston et al., 2014). Among all the factors that influence someone's decision to engage in entrepreneurship, age can be considered the most important factor to take into account (Parker, 2004). Over the past fifty years, there has been a major demographic shift since people are getting older, the fertility rate is declining, and the working population is shrinking (Liang et al., 2018). This demographic shift toward an aging and shrinking workforce is a widespread global trend, meaning an aging and shrinking workforce will likely become the norm for most of the world in the near future (Liang et al., 2018). Therefore, understanding how age affects entrepreneurship is now more important than ever. However, the age of entrepreneurs is still a neglected variable in entrepreneurial research (Gielnik et al., 2012). Even though there have been several studies researching the effect of demographic factors on entrepreneurship, there is a lack of studies investigating the impact of age (Ng & Feldman, 2010). Additionally, the scholars that have been researching the effect of age on starting a business have yielded mixed results. Some studies found a positive relationship between age and entrepreneurial intentions (Cuberes et al., 2019; Zhang & Acs, 2018), some studies found a negative relationship between age and entrepreneurship (Aparicio et al., 2019; Arenius & Minniti, 2005), and some studies concluded that the relationship between age and entrepreneurship has an inverted U-shape (Levesque & Minniti, 2006; Taylor, 1996). In other words, the effect of age on entrepreneurship still remains unclear. Therefore, researching how age affects people's decision to engage in entrepreneurship could help to enrich the understanding of entrepreneurship.

Furthermore, research regarding gender differences in entrepreneurship has slowly started to gain more academic attention (Cardella et al., 2020; Foss et al., 2019; Owalla & Al

Ghafri, 2020). Female entrepreneurship makes essential contributions to the socioeconomic development of countries by job creation, increasing the GDP, reducing social exclusion, and reducing poverty (Brush & Cooper, 2012; Cardella et al., 2020; De Vita et al., 2014). To put this into perspective, Woetzel et al. (2015) estimated that if females are equally represented in the economy as males, by the year 2025, the global GDP could increase by 26%, which is equal to 28 trillion dollars. Gaining better insights into female entrepreneurship could potentially help diminish the gender gap. Therefore, understanding the gender differences in entrepreneurship has recently gained prominence in the research field. However, the research regarding gender differences in entrepreneurship has so far yielded mixed results (Wang & Wong, 2004). While some research suggests that women have weaker entrepreneurial aspirations compared to men, other studies find no significant gender differences (Ferri et al., 2018; Kourilsky & Walstad, 1998; Smith et al., 2016; Wilson et al., 2007). Therefore, the effect of gender on entrepreneurship requires further investigation.

Even though different individually relevant determinants of entrepreneurship have been researched, differences across the world remain largely unexplored (Thurik & Dejardin, 2012). According to Kjellman & Ehrsten (2005), one of the most significant aspects that affect entrepreneurship is the person's environment or life space. The number of entrepreneurs varies significantly across countries (Van Stel et al., 2005), and is influenced by economic development and demographic, cultural, and institutional characteristics (Blanchflower, 2000). This means that social variables, such as the norms and values of a society, play a crucial role in shaping individuals' decisions about whether or not to engage in entrepreneurship (Sanditov & Verspagen, 2011). However, most of the performed entrepreneurial research has only been conducted in developed markets. This research in developed markets has formed the basis for policymakers and academics to understand entrepreneurship (Lerner & Schoar, 2010). While many scholars mention the importance of entrepreneurs in emerging economies, there is little

research about it (Lingelbach et al., 2005). To get a better comprehension of what affects entrepreneurship, it is crucial to investigate more than just a select group of developed countries (Iakovleva et al., 2011). With the speed at which developing countries are emerging into modern market economies, it becomes even more relevant to study the background and differences of entrepreneurship across the world (Lerner & Schoar, 2010). This lack of research on cross-country differences in entrepreneurship leaves a gap in the current literature. Therefore, to gain a better understanding of how people's decision to engage in entrepreneurship differs worldwide, this research uses data from countries all over the world.

Previous research has shown that societal support for young people to pursue an entrepreneurial career varies highly across cultures (Minola et al., 2016). Practices such as role modeling, child-rearing, and parenting affect the career choice of the youth (Gibson, 2004), including entrepreneurship (Van Auken et al., 2006; Lafuente & Vailant, 2013). There are significant differences in parenting practices (Wong, 2005), role models (Hisrich, 1990), and socialization processes (Mueller et al., 2002) worldwide. This implies that there may be differences regarding entrepreneurial supportiveness during adolescence and early adulthood across the world (Mueller & Thomas, 2001), affecting youth's decision whether or not to engage in entrepreneurship. Additionally, the way societies view older people differs significantly as well (North & Fiske, 2015). Age-based prejudices vary around the world, with some countries highly respecting older people while other countries typically perceive them as less competent (North & Fiske, 2015). Therefore, people's attitudes toward engaging in entrepreneurship at a later age could differ worldwide as well.

Furthermore, the relationship between gender and entrepreneurship is most likely not unanimous either. When measuring entrepreneurship, it is widely known that in most countries a gender gap remains (Strawser et al., 2021). However, the impact of gender on entrepreneurship could depend on the individual's country of origin (Daim et al., 2016). The

study by Daim et al. (2016) indicates that, based on a person's country, gender differences in one's perception of the desirability and feasibility of entrepreneurship could differ. For example, there are many differences across the world in female status (Dollar & Gatti, 1999) and female opportunities (Holt, 2020), potentially influencing females' decision about whether or not to engage in entrepreneurship. In other words, the current literature requires further elaboration regarding global factors that could affect the relationship between age, gender, and entrepreneurship.

A possible factor that could cause this difference is the economic state of someone's country. Over the last few decades, income distributions around the globe have received increasing attention from economists, politicians, journalists, and critics. However, studies investigating the relationship between income level and entrepreneurship have primarily only been performed in OECD economies (Nkurunziza, 2016), resulting in the characteristics of entrepreneurs in low-income areas remaining largely unknown (Kugler et al., 2017). Therefore, empirical research on entrepreneurship in both low-income and high-income countries could help to get a more in-depth understanding of entrepreneurship around the world. People might engage in entrepreneurship for different reasons at different stages of their lives based on the economic state of the country they live in (Álvarez-Herranz et al., 2011). There are around 1.2 billion youth worldwide aged between 15 and 24, with almost 90% of them living in developing countries (United Nations, 2020). This causes difficulties for the labor market to handle the enormous continuous stream of young people entering the workforce (Taylor, 2009). Therefore, young people living in low-income countries face more difficulties in finding wage employment, potentially influencing their decision whether or not to engage in entrepreneurship at a younger age (Ismail, 2018). On the contrary, youth living in high-income countries have plenty of job opportunities (OECD, 2017), potentially affecting their timing to engage in entrepreneurship as well (Pilkova et al., 2019). Therefore, the decision-making

process when to engage in entrepreneurship could differ based on an individual's country's income. Nevertheless, current literature on youth entrepreneurship is primarily performed in high-income countries with homogenous samples of mostly university students and therefore requires studies with more generalizable datasets (Nungsari et al., 2023). Next, it is commonly known that gender inequality is more prevalent in underdeveloped countries compared to more developed countries (Cuberes & Teignier, 2014). This larger gender gap in low-income countries causes females to typically have fewer legal rights, receive less education, have more difficulties accessing resources, and face more discrimination (Dollar & Gatti, 1999; Moreira et al., 2019). Therefore, the challenges females encounter when engaging in entrepreneurship differ based on their country's income, potentially affecting their decision whether or not to engage in entrepreneurship.

Furthermore, besides the economic state of a country, the level of uncertainty avoidance in a country could affect the relationship between age and gender and entrepreneurship as well. Uncertainty avoidance is one of Hofstede's six cultural dimensions and measures the degree to which people in a society are comfortable with risk, unpredictable situations, and uncertainty (Hofstede et al., 2010). When becoming an entrepreneur, you are accepting a certain level of risk. For example, you are not entitled to receive your monthly salary and you bear the risk of potential losses because you are financially accountable for the company. Thereby, entrepreneurship is seen as a risk-taking venture (Vereshchagina & Hopenhayn, 2009). Since entrepreneurship is seen as a risky enterprise, it seems less appealing to people who prefer to avoid being in uncertain situations (Bate, 2022). Therefore, entrepreneurship is less common and less socially supported in high-uncertainty avoidance countries compared to low-uncertainty avoidance countries (Fuentelsaz et al., 2023). However, the impact of this social support could differ between younger and older people since the effect of social support differs based on a person's age (Edelman et al., 2016; Khayru, 2021; Klyver et al., 2018; Löckenhoff

& Carstensen, 2004). Furthermore, Hofstede (2001) has shown that age correlates with uncertainty avoidance, such that a person's uncertainty avoidance level increases once he becomes older. Based on the different effects of social support and the correlation between age and uncertainty avoidance, uncertainty avoidance could potentially affect the relationship between age and entrepreneurship. Furthermore, uncertainty could play a role in gender differences in entrepreneurship as well. While females tend to be more risk-averse than males (Kanze et al., 2018; Lejuez et al., 2002; Wagner, 2007), gender differences in entrepreneurship are largely influenced by one's macro-level environment (Setti, 2017). For example, compared to males, females have different social networks, support systems, and are affected differently by the cultural norms of society (Moore, 1990; Mueller, 2004). Therefore, the influence of one's either supporting or non-supporting environment could have a different effect based on their gender. So, the impact of a country's uncertainty avoidance level on an individual's decision whether or not to engage in entrepreneurship might differ based on one's gender.

1.2 Academic and Managerial Relevance

This study holds academic relevance as it addresses critical gaps in the field of entrepreneurship. Current entrepreneurial research is mainly categorized into two main approaches: the psychological approach, which emphasizes personality qualities, and the sociological approach, which emphasizes environmental factors (Nungsari et al., 2023). However, the current existing literature lacks scholars combining the two approaches. To fill this gap, this research combines the psychological and sociological approach and recognizes the role of environmental factors alongside individual characteristics in influencing one's decision to engage in entrepreneurship (Kjellman & Ehrsten, 2005). In doing so, this study responds to a frequent oversight in current entrepreneurial studies, which tend to focus predominantly on cognitive factors and personality traits while neglecting the interaction between individual attributes and their environment (Maheshwari et al., 2022; Nungsari et al.,

2023). For example, by neglecting environmental factors, studies such as those by Kristiansen & Indarti (2004), Garaika & Margahana (2019), and Hung & Tran (2020) confine our understanding of entrepreneurship to solely the individual influences of cognitive processes and demographics. Because of this, multiple scholars have argued for the necessity to further explore contextual factors that impact how individual characteristics affect entrepreneurship (Rauch & Frese, 2007; Sánchez, 2012). By investigating the relationships between individual characteristics, specifically age and gender, and environmental factors, specifically country income and uncertainty avoidance, this study constructs a more comprehensive framework for understanding what factors affect one's decision to engage in entrepreneurship.

Moreover, the study aims to fill the gap that exists in the exploration of factors that influence entrepreneurship across the world, resulting in limitations in the generalizability of findings (Nungsari et al., 2023; Thurkik & Dejardin, 2012). Previous studies have predominantly focused on entrepreneurship in developed countries, largely overlooking the importance of entrepreneurs in emerging economies (Lingelbach et al., 2005; Nungsari et al., 2023). For example, this gap is shown by studies of Freytag & Thurik (2010) who analyzed only the United States and European Union nations, or Fernández-Serrano et al. (2018), who compared solely developed nations. However, to get a more realistic view of what factors determine entrepreneurial entry across the world, research including developing countries is required (Bruton et al., 2008; Iakovleva et al., 2011). To address this gap and gain a more thorough understanding of the factors that determine entrepreneurial entry, this study adopts a holistic approach, including both developed and developing countries. Additionally, the scope of this study extends beyond the economic development of countries, as Freytag and Thurik (2010) propose that factors other than merely economic ones are involved, taking into account the consistent differences in entrepreneurial activity. For that reason, scholars highlight the

necessity for cross-cultural studies to research the influence of varying cultures on entrepreneurship (Liñán & Chen, 2009; Maheshwari et al., 2022).

Furthermore, this research also holds several practical implications. Understanding how country income and uncertainty avoidance influence entrepreneurial entry across different age and gender groups can globally help governments, policymakers, and educational institutions design more effective and targeted support programs and policies. By gaining a deeper understanding of entrepreneurial dynamics, targeted initiatives, such as mentorship programs and training workshops, can be developed to address the specific needs and challenges of diverse demographic groups within varying country contexts (Dubey & Sahu, 2022). This in turn fosters an environment where aspiring entrepreneurs are better equipped to thrive, regardless of their age, gender, or the economic and cultural landscape in which they operate. By shedding light on the gender and age gaps in entrepreneurship, this research aims to provide new insights into creating opportunities for minority groups in entrepreneurship.

1.3 Problem Statement

To get a better understanding of how age and gender affect one's decision to engage in entrepreneurship and how country income and uncertainty avoidance could moderate these relationships, the following problem statement is formed.

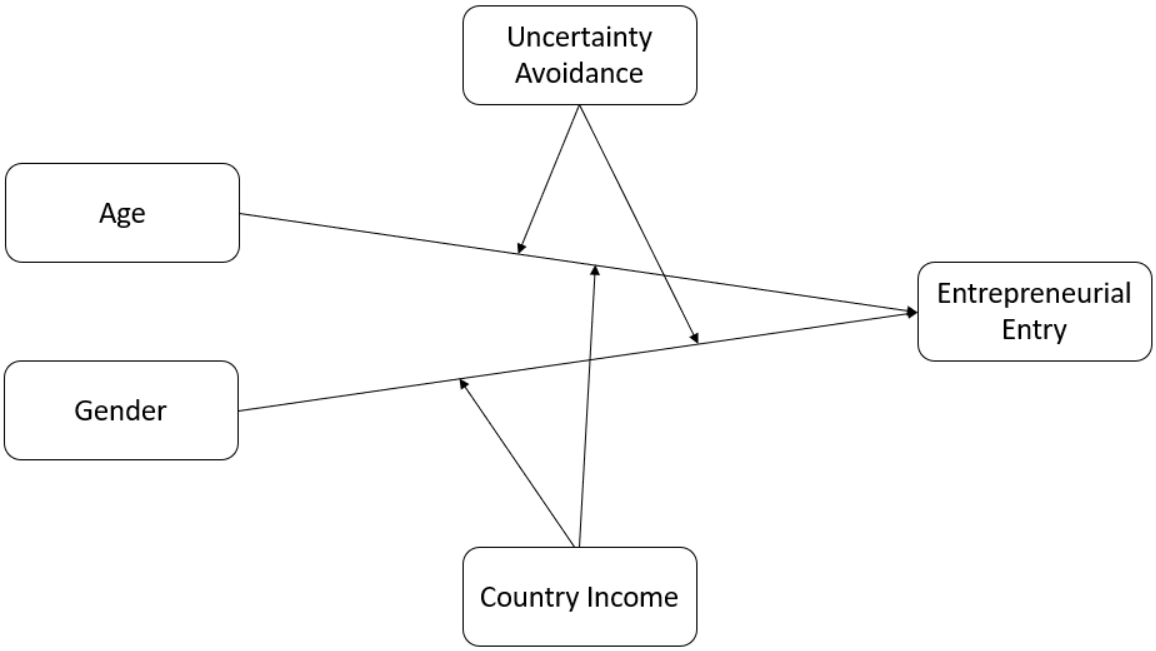
'How do age and gender affect entrepreneurial entry, and how do country income and uncertainty avoidance moderate this relationship?'

1.4 Conceptual Model

The problem statement leads to the conceptual model below.

Figure 1

Conceptual Model



1.5 Research Questions

To answer the problem statement, six research questions were formed

1. How does age affect entrepreneurial entry?
2. How does gender affect entrepreneurial entry?
3. How does country income moderate the relationship between age and entrepreneurial entry?
4. How does country income moderate the relationship between gender and entrepreneurial entry?
5. How does uncertainty avoidance moderate the relationship between age and entrepreneurial entry?
6. How does uncertainty avoidance moderate the relationship between gender and entrepreneurial entry?

2. Literature Review

Chapter two discusses the relevant literature for this research and based on previous studies derives a hypothesis for each research question.

2.1 Introduction to Entrepreneurship

Entrepreneurship is a dynamic and evolving concept in academic literature and has various interpretations and definitions. According to multiple scholars such as Bygrave & Hofer (1991), Bull & Willard (1993), and Shane & Venkataraman (2000), there is no universally accepted definition of entrepreneurship. Schumpeter (1934) defined entrepreneurship as the implementation of new combinations in firm organization, including various aspects such as new services, products, and market approaches. Later, Stevenson et al. (1989) and Barringer & Ireland (2006) described entrepreneurship as the pursuit of opportunity regardless of the resources, and Allen (2006) explained it as a mindset focused on opportunity, innovation, and growth. The common elements in the definitions regarding entrepreneurship include creativity, innovation, resource identification, economic organization, and the pursuit of gain while facing risk and uncertainty. These elements are summarized in the definition of entrepreneurship used by Timmons (1994): "Entrepreneurship is the process of creating or seizing an opportunity and pursuing it regardless of the resources currently controlled". Furthermore, Ejere et al. (2012) state that an entrepreneur can be defined as "a person who risks time and money to start and manage a business". Therefore, to define the dynamic term 'entrepreneurship', this study combines the descriptions by Timmons (1994) and Ejere et al. (2012). Hence, the description of entrepreneurship used in this study is the following: "Entrepreneurship is the process of creating or seizing an opportunity by risking time and money to start and manage a business and pursuing it regardless of the resources currently controlled". Consequently, this study refers to entrepreneurial entry as an individual currently

trying to identify or capture such an opportunity by starting a business, while not being constrained by their current availability of resources.

2.2 Effect of Age on Entrepreneurship

2.2.1 Impact of Age on Entrepreneurial Ability

Entrepreneurial ability refers to the skillset that allows an individual to identify opportunities, create ventures, and navigate the challenges of entrepreneurship (Liang et al., 2018). This entrepreneurial ability depends on two types of skills: one that improves with age and one that decreases with age (Liang et al., 2018). The first factor, "advantages of youth", focuses on creativity aspects that decline with age. Young people often come up with more innovative ideas as a result of their increased social interactions. They can excel in innovative thinking, deviating from conventional products and production methods, and are often more inclined to take risks (Liang et al., 2018). This theory is supported by Ruth & Birren (1995) who found that creativity varies with age, with more disadvantages for older people. Their study showed that older people process information less quickly, digest information at a lower level of complexity, and are less willing to risk unconventional solutions to problems. In other words, younger people have a better ability to store and process information, handle complexity, adapt to new circumstances, and are better at problem-solving (Kaufman & Horn, 1996; Ryan et al., 2000).

However, being a successful entrepreneur requires more than just "advantages of youth". The second factor that has a positive effect on the ability to successfully start a business is called "business acumen". Contrary to advantages of youth, business acumen increases with experience. People who are given positions that allow them to make decisions and get experience in various management circumstances develop greater business abilities that are essential for running a profitable company (Liang et al., 2018). This is in line with the theory of Becker & Lewis (1973) and Becker (1981), where they state that people acquire human

capital throughout their life by for example on-the-job training, which in turn affects their productivity. Entrepreneurship requires a diversified skillset compared to the more specialized knowledge needed for employees (Lazear, 2004). Most of these diverse skills need to be developed through experience, social interaction, and learning by doing. Therefore, instead of just the advantages of youth, multiple aspects regarding human capital are also acquired over time.

2.2.2 Theory of Planned Behavior

So, several advantages of being young decrease when aging such as creativity, innovative thinking, information processing speed, and many more. Contrary, aging also has multiple advantages since aging contributes to the acquisition of human capital, experience, social network, and many other talents. This raises the question of what affects the decision to engage in entrepreneurship. One of the most prominent theories to predict people's behavior is the Theory of Planned Behavior (TPB) of Ajzen (1991). The TPB is a psychological framework used to better understand and predict human behavior and posits that the primary determinants of a person's behavior are the person's intentions to perform the behavior, which are shaped by one's attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). The TPB has been used to predict and explain behavior in various research fields such as marketing (Pavlou & Fygenson, 2006), psychology (Hagger et al., 2003), and health sciences (Godin & Kok, 1996). More importantly, the TPB can be used to predict and explain entrepreneurship as well since entrepreneurship is an intentional process in which people cognitively plan their behavior to create a business (Lortie & Castogiovanni, 2015).

The first indicator of intention is one's attitude toward the behavior. In the context of entrepreneurship, this refers to how the person perceives entrepreneurship. If someone views entrepreneurship positively, by for example believing it leads to personal satisfaction and financial rewards, they are more likely to have a favorable attitude. Conversely, if they perceive

entrepreneurship as too risky or unfavorable, their attitude might be more unfavorable. Following the TPB, one's attitude will significantly affect their intention to become an entrepreneur (Ajzen, 1991). Younger individuals might have a more positive attitude toward entrepreneurship because they often have a stronger appetite for risk, innovation, and a higher need for independence (Adebayo & Kavoos, 2016; Banks et al., 2020; Dioneo-Adetayo, 2006). Contrary, older individuals might have a more negative attitude toward entrepreneurship due to higher concerns regarding financial stability, responsibilities, and the rear of leaving established careers or lifestyles (Banks et al., 2020; Daatland et al., 2012; Steenackers & Guerry, 2016).

The second indicator of intention is one's subjective norms. Subjective norms relate to a person's social influence (Ajzen, 1991). Social influence plays a crucial role in entrepreneurial intentions (Khayru et al., 2021; Nielsen, 2020). If someone is surrounded by supportive networks that value entrepreneurship, they might have stronger intentions to become an entrepreneur. In comparison, if they are surrounded by people discouraging self-employment they might have fewer intentions to pursue an entrepreneurial career. Following the TPB, subjective norms will significantly affect one's intention to become an entrepreneur (Ajzen, 1991). However, the effect of social influence may be less impactful for older people compared to younger people (Klyver et al., 2018). Older people have already acquired more critical knowledge, information resources, and have learned to better regulate and control their emotions, making social support less impactful in their decision to engage in entrepreneurship (Klyver & Schenkel, 2013; Löckenhoff & Carstensen, 2004; Unger et al., 2011).

Lastly, the third indicator of intention is one's perceived behavioral control. This factor reflects an individual's assessment of their ability to perform certain behaviors (Ajzen, 1991). People with high entrepreneurial self-efficacy believe they have the skills and capabilities required to start their venture (McGee et al., 2009). Following the TPB, higher entrepreneurial

self-efficacy will lead to more perceived behavioral control which results in a higher intention to become an entrepreneur (Ajzen, 1991). Previous research has shown that younger people have higher self-efficacy compared to older people (Haddad & Taleb, 2016), suggesting that younger people have more perceived behavioral control.

In conclusion, based on people's attitudes, subjective norms, and perceived behavioral control of the TPB, it is expected that, compared to younger people, older people are less likely to take steps towards acting entrepreneurially (Hart et al., 2004) as well as actually starting a new business (Kautonen et al., 2008). This leads to the following hypothesis.

H1: Age has a negative effect on entrepreneurial entry

2.3 Impact of Gender on Entrepreneurship

2.3.1 Introducing Gender

Academic research has been interested in the idea of psychological gender differences for decades, believing that these differences are significant and unchangeable (Hyde, 2014). Researching these personality differences between males and females is crucial to understanding the diversity of humanity (Weisberg et al., 2011). There are various theories as to why males and females differ in personality. For example, evolutionary and biological theories propose that gender differences result from males' and females' different interests in reproduction and parental involvement (Buss, 2008; Trivers, 1972) while other theories suggest that gender norms are influenced by sociocultural factors since males and females are expected to fill various roles in society and are consequently socialized to behave differently from one another (Eagly & Wood, 2005; Wood & Eagly, 2002). Hence, there are multiple theories and explanations for the differences between males and females.

2.3.2 The Personality Differences Between Males and Females

Personality plays a crucial role in developing theories of the entrepreneurial process, such as entrepreneurial career intentions (Crant, 1996; Zhao et al., 2005), entrepreneurial role motivation (Miner, 2008), and entrepreneurial opportunity recognition (Ardichvili et al., 2003). A commonly used method to measure personality traits is the 'Big Five' or Five-Factor Model (FFM) (De Raad & Mlacic, 2015). The FFM offers a concise yet thorough taxonomy of personality (Zhao & Seibert, 2006). This model categorizes traits into the five broad domains of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness (Digman, 1990; John et al., 2008). Multiple scholars have shown that females tend to score higher on agreeableness, extraversion, and neuroticism compared to males and that there are no significant differences between males and females in openness and conscientiousness (Costa et al., 2001; Feingold, 1994). This suggests that females are, among others, often found to be more altruistic, cooperative, nurturing, self-conscious, assertive, and experience more positive and negative emotions (Weisberg et al., 2011).

Previous research has indicated that the personality dimensions of Agreeableness and Neuroticism negatively affect entrepreneurship (Zhao & Seibert, 2006). So, when comparing the findings of Costa et al. (2001), Feingold (1994), and Zhao & Seibert (2006), one may conclude that male personality is closer related to entrepreneurship compared to female personality. Females tend to score higher on the dimensions of agreeableness and neuroticism (Costa et al., 2001; Feingold, 1994), which are negatively related to entrepreneurial activity (Zhao & Seibert, 2006), suggesting that female personality is less related to entrepreneurship than male personality. Thereby, based on the personality characteristics of males and females, one may argue that males are more inclined to pursue an entrepreneurial career compared to females.

2.3.3 Expectancy Theory

The expectancy theory is one of the most well-known theories of job motivation (Vroom, 1964). In general, the expectancy theory suggests that people act or behave in a certain way if they believe (expectancy) that acting in a certain way will result in a positive outcome that will be rewarded (instrumentality), and they must value that positive outcome (valence). According to previous research, "expectancy theory is particularly relevant in explaining how and why women engage in the process of entrepreneurship" (Sullivan & Meek, 2012). Sullivan and Meek (2012) continue by stating that at various points of the entrepreneurial process, the expectancy theory could explain why women may or may not engage in certain actions.

The expectancy theory has been used as a foundation in several researches to look at the driving forces behind female entrepreneurship. People's perception of their skills and abilities are related to their expectations of themselves, and people will put more effort into things they feel they can handle (Bandura, 1982), and in turn can complete successfully (Gatewood et al., 2002). Regardless of the feedback (positive or negative), males have higher expectations of their entrepreneurial performance compared to females (Gatewood et al., 2002). Furthermore, previous research has shown that females have a lower perception of their self-efficacy to perform entrepreneurial tasks, which leads to them avoiding entrepreneurship more often than males (Chen et al., 1998; Scherer et al., 1990; Wilson et al., 2007). This in turn also results in females spending less time cultivating social capital such as quality relationships with financial institutions to gather financial resources (Fabowale et al., 1995), even though they need more financial help than males when starting a business (Jones & Tullous, 2002). In other words, following the expectancy theory, males have greater confidence in their ability (expectancy) to successfully pursue an entrepreneurial career (instrumentality) and are therefore more likely to pursue this career (valence).

So, when comparing males' and females' different personalities and expectations, one may conclude that males are more likely to engage in entrepreneurship compared to females. This leads to the following hypothesis.

H2: Males are more likely to enter entrepreneurship than females

2.4 Moderating Effect of Country Income

2.4.1 Introduction of Country Income

There are two types of entrepreneurs. On the one side, you have so-called "opportunity entrepreneurs". Opportunity entrepreneurs are entrepreneurs, mostly prevalent in high-income countries, who primarily engage in self-employment as a result of a conscious personal decision, such as having more independence, pursuing a perceived business opportunity, feeling more self-assured, and being in control of their own life (Hessels et al. 2008; Roberts & Robinson, 2010). These opportunity entrepreneurs are often viewed as people belonging to the high end of the income spectrum (Banerjee & Newman, 1993). However, in many low-income countries another type of entrepreneur coexists next to the opportunity entrepreneurs (Kayizzi-Mugerwa et al., 2016). While people with financial resources might be entrepreneurs to tackle opportunities, people with low incomes may be compelled to engage in entrepreneurship for survival reasons. These so-called "necessity entrepreneurs" engage in entrepreneurship because they are unable to find a job that provides a salary and are therefore more prevalent in countries with limited employment opportunities and poor or nonexistent social safety nets (Acs, 2006; Kayizzi-Mugerwa et al., 2016; Van Stel et al., 2005). Hence, it can be expected that there are relatively many necessity entrepreneurs in low-income countries and that there are relatively many opportunity entrepreneurs in high-income countries (Kayizzi-Mugerwa et al., 2016).

2.4.2 Impact of Country Income on the Relationship Between Age and Entrepreneurship

One of the biggest issues facing developing countries is the creation of more and better jobs (Teal, 2016). In low-income countries, the continuous stream of young people to the workforce is often too large for the labor market to handle (Taylor, 2009). There are few opportunities for wage employment and regular job creation is too insufficient to allow the majority of youth to get a job (Ismail, 2018). Since low-income countries often do not have social safety nets, such as unemployment benefits, people trying to enter the labor market are forced to accept any work they can find. This frequently results in young people engaging in entrepreneurship (OECD, 2017). Thereby, youth entrepreneurship makes up a sizable share of low- and middle-income countries (OECD, 2017). Contrary, in high-income countries, there is a much better job availability for young people to enter the workforce and thereby work more often as employees and are substantially less frequently engaged in entrepreneurship (OECD, 2017).

While necessity entrepreneurs often choose businesses with limited to zero required starting capital, opportunity entrepreneurs more often need financial resources to start the business (Kayizzi-Mugerwa et al., 2016; OECD, 2017; Roberts & Robinson, 2010; Van Stel et al., 2005). Compared to older people, young people have less personal savings and resources to finance the launch of a business (OECD, 2017). Therefore, the main obstacle for young opportunity entrepreneurs is to get access to capital (OECD, 2017). Lenders often perceive young people as risky because they lack a history of credit, bank accounts, employment history, and have insufficient collateral to acquire loans (Heidrick & Nicol., 2002). Since it is relatively easier for older people to acquire capital, it is expected that older people more frequently engage in opportunity entrepreneurship compared to younger people.

So, due to the lack of wage employment jobs for young individuals in most low-income countries, it is expected that, compared to high-income countries, a relatively large number of

young people engage in entrepreneurship out of necessity. Contrary, compared to low-income countries, in high-income countries people are expected to engage in entrepreneurship more frequently when they are older. have the required resources, and have spotted a good opportunity. This leads to the hypothesis below.

H3: Country income has a positive moderating effect on the relationship between age and entrepreneurial entry, such that younger people enter entrepreneurship relatively more frequently in low-income countries

2.4.3 Impact of Country Income on the Relationship Between Gender and Entrepreneurship

The gender gap in entrepreneurship is still large in many countries across the world (Meunier et al., 2017). However, the gender gap in entrepreneurship is expected to be relatively more present in low-income countries (Meunier et al., 2017). There has been seen a correlation between females' status and the general socioeconomic development of a country, possibly explaining this gender gap in such countries (Dollar & Gatti, 1999). According to Dollar & Gatti (1999), when compared to more developed countries, it is reasonable to claim that the relative status of females is poorer in developing countries. Females typically receive less education, less investments in their health, less political power, and fewer legal rights compared to males (Dollar & Gatti, 1999). Overall, females face much greater difficulties than males in developing countries compared to developed countries (Afshan et al., 2021; Ammeer et al., 2021; Cardella et al., 200; Crick et al., 2021; Urban & Moloi, 2020; Venkatesh et al., 2017). Examples of these difficulties include balancing work and family obligations (Santos et al., 2018; Surangi, 2018; Zhang & Zhou, 2019), accessing resources (De Vita et al., 2014; Moreira et al., 2019), managing human capital (Afshan et al., 2021; Venkatesh et al., 2017), and discrimination (Moreira et al., 2019).

Besides the gender differences in personality (as discussed in section 2.2), there are also many differences in opportunities for males and females in developed and developing countries (Holt, 2020). For example, in developing countries many females juggle obligations for farming, childcare, and the household, leaving little time or flexibility for beginning a new business (Holt, 2020). There are several theories of how economic development affects the gender gap. The first theory is via the income elastic channel (Becker, 1981; Becker & Lewis, 1973). This theory argues that the income elasticity of a family's decision regarding the number of children is larger than the income elasticity of the education level received by each child. Thereby, it is argued that there must be a certain level of income over which a country's fertility rate drops and the investment in each child rises. This theory claims that the demographic shift of a country is caused by an increase in income. Becker (1981) and Becker & Lewis (1973) conclude that the accompanied reduced fertility rate facilitates females to integrate into the labor market and thereby reduces the gender gap in labor force participation.

The second theory is via the women's property rights channel (Doepke & Tertilt, 2009). They argue that men are given the choice between supporting or opposing females' legal rights. On the one side, husbands prefer to give their wives as few rights as possible to preserve their leverage in the household. According to this model, a female's increase in bargaining power negatively affects the husband because males value their own consumption more and are less concerned about their children's welfare compared to females. However, on the other side, because males are altruistic towards their children, they support the growth of women's rights. They want their daughters to have legal rights because it improves their general well-being and makes it easier for their sons to find wives with legal rights, which is accompanied by higher levels of human capital and ultimately has a positive effect on their grandchildren's educational prospects. So, this model argues that, when the benefits of education are low, males support a patriarchal political system where the husband is the only one who makes decisions for the

family. However, when the value placed on human capital shifts, by for example technological developments, the relative importance of a male's wife and daughters' rights also changes. Once the financial returns on education increase and surpasses the critical threshold, males prefer to support an empowerment-based political system where decisions are made collaboratively by both male and female (Doepke & Tertilt, 2009).

The last theory is via the technology growth channel (Greenwood et al., 2005). This theory argues that as technology advances, labor-saving machines like refrigerators, vacuum cleaners, and washing machines are introduced, allowing females to begin working outside of the home and enter the labor market. In this model, households gain utility from consuming non-market goods that are produced using household capital and labor. Technological advancements in capital goods lead to a decrease in the relative costs of these household durables, which motivates their usage. As a result, using more efficient appliances frees up female's time which was previously spent in the household. This in turn empowers females to increase their presence in the labor market (Greenwood et al., 2005).

The income elastic theory, women's property rights theory, and technology growth theory all showcase that an increase in the economic development of a country is accompanied by an increase in females' opportunities to enter the workforce. So, the gender gap is expected to be larger in low-income countries compared to high-income countries. This leads to the following hypothesis.

H4: Country income has a positive moderating effect on the relationship between gender and entrepreneurial entry, such that females are relatively less likely to enter entrepreneurship in low-income countries

2.5 Uncertainty Avoidance

2.5.1 Introduction of Uncertainty Avoidance

The uncertainty avoidance dimension of culture is defined as "the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity" (Hofstede, 1980; Hofstede, 2001; Hofstede et al., 2010; Hofstede Insights, 2023). So, uncertainty avoidance describes how uncomfortable people get in situations they perceive as being unpredictable, unclear, or unstructured, and how much they try to avoid these situations by adhering to familiar codes of behavior and maintaining their belief in absolute truths (Stohl, 1993).

High-uncertainty avoidance countries view ambiguity and unfamiliarity as frightening concepts. People living in these countries typically prefer to avoid unusual scenarios, are conflict-avoidant, and strive to balance maximal stability with minimal risk. Contrary, low-uncertainty avoidance countries are not as threatened by new situations and new concepts (Frijns et al., 2013; Hancıoğlu et al., 2014; Matusitz & Musambira, 2013). For example, high-uncertainty avoidance countries have a lot of laws, regulations, and policies to manage everything and reduce uncertainty because they believe that official legislation can handle every problem. On the other side, people living in low-uncertainty avoidance countries dislike strict rules and regulations since they believe that problems can be resolved without the need for regulations and rules because it is thought that rules are only helpful when there is no alternative (Frijns et al., 2013; Hancıoğlu et al., 2014; Matusitz & Musambira, 2013).

2.5.2 Impact of Uncertainty Avoidance on the Relationship Between Age and Entrepreneurship

There are various explanations for why some societies have a poor interest in entrepreneurship, of which one of the most significant is the possibility of failure (Khayru, 2021). In high-uncertainty avoidance countries people who take on risky ventures, such as becoming an entrepreneur, are frequently viewed as outliers and receive little recognition from

society. These societies tend to have a negative view of entrepreneurship which in turn negatively affects entrepreneurs' social status (Fuentelsaz et al., 2023). Contrary, low-uncertainty avoidance countries tend to have a more positive view of uncertain circumstances (Schneider & De Meyer, 1991). In those countries, entrepreneurs are highly valued for their crucial contribution to the nation's well-being because they take on the risks of generating more jobs and money (Fuentelsaz et al., 2023).

However, the perception of entrepreneurship within one's social network may affect individuals differently based on their age (Delmar & Davidsson, 2000; Singh & DeNoble, 2003). Social support can be distinguished into two dimensions: instrumental support and emotional support. Instrumental support refers to assistance aimed at solving problems and emotional support refers to listening and providing empathy (Adams et al., 1996; McGuire, 2007; McIntosh, 1991; Suurmeijer et al., 1995). Instrumental support aids entrepreneurs in overcoming challenges, complementing their existing knowledge and human capital (Unger et al., 2011). The added value of instrumental support is influenced by entrepreneur's existing knowledge and experience, being more beneficial when these are limited (Klyver & Schenkel, 2013). Since older individuals have accumulated more human capital and experience through tacit activities, instrumental support might be less advantageous for older people than for younger people (Klyver & Schenkel, 2013; Semrau & Hopp, 2015). Additionally, older people are known to lay greater emphasis on emotional aspects of life and devote more time and energy to obtaining them (Carstensen, 1995; Carstensen & Mikels, 2005). Therefore, older people are better at regulating and controlling their emotions (Klyver et al., 2018). Consequently, emotional support is found to be less impactful for older entrepreneurs compared to younger entrepreneurs as well (Löckenhoff & Carstensen, 2004). This implies that, in the context of entrepreneurship, emotional support is less likely to matter for older individuals engaging in entrepreneurship compared to younger individuals (Löckenhoff & Carstensen, 2004).

Likewise, the influence of a negative perception of entrepreneurship within a person's social network may vary depending on the individual's age as well. When people are younger, they are more sensitive to belonging and earning respect from their social network (Respect & Social Status | Center for the Developing Adolescent, 2023). The still-developing brain causes them to pay greater attention to social status and boosts the pleasure they derive from favorable attention. Experiences that make people feel disrespected or excluded are amplified when young (Respect & Social Status | Center for the Developing Adolescent, 2023).

So, based on previous literature it can be argued that, compared to older people, younger people are more positively affected by positive reinforcement and more negatively affected by negative reinforcement from their social network (Klyver et al., 2018). Based on the risky characteristics of entrepreneurship it is expected that there is more positive reinforcement in low-uncertainty avoidance cultures and more negative reinforcement in high-uncertainty avoidance cultures (Fuentelsaz et al., 2023). This leads to the following hypothesis.

H5: Uncertainty avoidance has a positive moderating effect on the relationship between age and entrepreneurial entry, such that younger people enter entrepreneurship relatively more frequently in low-uncertainty avoidance countries

2.5.3 Impact of Uncertainty Avoidance on the Relationship Between Gender and Entrepreneurship

Most scholars argue that people are less likely to engage in entrepreneurship in high-uncertainty avoidance cultures because people living in high-uncertainty avoidance cultures prefer stability and established norms, which provide challenges for entrepreneurs who naturally participate in riskier endeavors (Mueller & Thomas, 2000). The individual-level characteristic of gender has an impact on a person's degree of uncertainty avoidance (Broeder, 2022). Overall, females tend to be more risk-averse compared to males (Kanze et al., 2018;

Lejuez et al., 2002; Wagner, 2007). Therefore, females living in high-uncertainty avoidance cultures may experience higher levels of anxiety due to uncertainty and ambiguity, which could result in them being less interested in engaging in entrepreneurship (Choo, 2021). Furthermore, in high-uncertainty avoidance cultures, social networks and support systems that are essential for entrepreneurs to succeed are often less available. Since females' networks typically focus primarily on family connections (Moore, 1990), they might encounter more problems in gathering all the different resources required for starting a business. Moreover, in high-uncertainty avoidance cultures, venture capital firms and other societal institutions are less inclined to support businesses run by women (Ozgen, 2012; Vershinina et al., 2018), making the gap between male and female entrepreneurship even larger. Additionally, countries with high-uncertainty avoidance cultures tend to exhibit a stronger emphasis on traditional gender roles, wherein females are assigned the responsibility of childcare, and males are expected to be focused on generating income (Parboteeah et al., 2008). Thereby, high-uncertainty avoidance societies prefer clarity and certainty regarding gender roles, resulting in a reduced tolerance for situations where gender roles are more ambiguous or undefined. These traditional gender roles can further discourage females from engaging in entrepreneurship, especially because entrepreneurship is mostly seen as a male-dominated profession (Gupta et al., 2009).

On the other side, while high-uncertainty avoidance cultures tend to discourage entrepreneurial careers because of their inherent aversion towards uncertainty, low-uncertainty avoidance cultures tend to support entrepreneurship since they are more accepting of uncertainty and risk (Hayton et al., 2002; Kreiser et al., 2010; Shinnar et al., 2012). Thereby, in these cultures, females might feel more encouraged to engage in entrepreneurship, which could result in a smaller gap between male and female entrepreneurship (Ozgen, 2012). Mueller (2004) found that in cultures where risk-taking is more accepted, females are inclined to engage in risk-taking behaviors at similar rates compared to males. This can be explained because,

compared to males, females are less inclined to defy cultural norms, such as traditional gender roles, to pursue an entrepreneurial career (Mueller, 2004). So, in low-uncertainty avoidance cultures, when cultural norms are more open to risk-taking and uncertainty, the gender gap is expected to decrease since females are expected to feel more empowered to engage in entrepreneurship.

Thus, based on previous literature it can be argued that females are, compared to males, expected to be relatively more discouraged to engage in entrepreneurship in high-uncertainty avoidance cultures and relatively more encouraged to engage in entrepreneurship in low-uncertainty avoidance countries. This leads to the following hypothesis.

H6: Uncertainty avoidance has a negative moderating effect on the relationship between gender and entrepreneurial entry, such that females are relatively more likely to enter entrepreneurship in low-uncertainty avoidance countries

3. Methodology

Chapter three explains how this study is conducted. It elaborates on the research design, data collection, data analysis, and the validity and reliability of the research.

3.1 Nature and Research Design

To test the hypotheses formed in the literature review, several data analyses were performed. Therefore, this research was performed following the so-called deductive approach (Pandey, 2019). This study is a quantitative study that uses secondary data. This data was gathered from the Global Entrepreneurship Monitor (GEM) and complemented with data regarding uncertainty avoidance. The GEM is a worldwide research initiative that comprehensively evaluates entrepreneurial activities across the world to gain better insights into entrepreneurship. GEM operates through a network of local teams, each responsible for collecting data from a representative sample of their population (GEM Global Entrepreneurship

Monitor, 2023). GEM's primary goal is to provide comprehensive insights into the entrepreneurial landscape, contributing to a deeper understanding of the factors that influence entrepreneurship across the world. This database was selected since the GEM is one of the most prominent databases regarding entrepreneurship worldwide and has respondents from all over the world (Reynolds et al., 2005). The data used in this study is regarding whether the respondent is trying to become an entrepreneur.

3.2 Data collection

3.2.1 General Information

As explained above, secondary data from the Global Entrepreneurship Monitor (GEM) was used for this study. From the GEM, the data regarding the global individual level from 2019 was used and this dataset consisted of 419 variables and 163006 observations. The survey was performed on an individual level, so each data point represents the response of a single individual. Among others, the data includes information about the respondent's entrepreneurial intention, gender, age, country, relative income of the country, education level, social network, perception towards entrepreneurship, ability to recognize opportunities, and perception of their capabilities. The data collection spans between the 3rd of March 2019 to the 29th of October 2019 and consists of respondents from 50 different countries across the world (see Table 1 in the Appendix).

However, the GEM dataset did not contain a variable regarding uncertainty avoidance. Therefore, to research the moderating effect of uncertainty avoidance, a new variable needed to be computed and complemented to the dataset. The GEM dataset contained a variable indicating the country of the respondent. Thereby, the variable measuring uncertainty avoidance 'uncertainty_avoidance' was based on the respondents' corresponding country uncertainty avoidance level (Almutairi et al., 2020; Hofstede, 1980; Hofstede, 2001; Hofstede et al., 2010; Hofstede Insights, 2023). The countries' uncertainty avoidance levels are based on

survey responses from surveys gathered in different countries over time, ranging from 1967 to 2022 (Hofstede Insights, 2023). The uncertainty avoidance score is on a scale of 1-100 and the latest updated country uncertainty avoidance version from 16 October 2023 was used in this study (Hofstede Insights, 2023). An overview of each country's uncertainty avoidance score can be seen in Table 2 in the Appendix.

3.2.2 Explanation of the Variables

To better understand the analysis of this study, it is pivotal to understand each variable correctly. Therefore, each variable used in this study will be explained and an overview of the variables is shown in Table 1.

3.2.2.1 Dependent and Independent Variables

For the dependent variable, the variable 'bstart' was used. This variable represents the respondent's answer to the question 'Are you, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others', with a value of 0 indicating that the person is not currently trying to start a new business and the variable 1 indicating that the person does (Györfy, & Madaras, 2019)

For the independent variables, the variables 'gender', and 'age', were used. For the variable 'gender', the value 0 indicates the respondent is a male, and the value 1 indicates the respondent is a female (Ali et al., 2023). For the variable 'age', each value represents the respondent's corresponding age (Pawęta & Zbierowski, 2015). Given the variable age had a skewness value of 0.103, the variable was not log-transformed.

3.2.2.2 Moderating Variables

For the moderating variables, two variables were used. First, to measure the country's income, the variable 'WEFIncREV' was used, which indicates the respondent's country

income. The GEM divided countries based on their per capita gross domestic product (GDP) and GDP growth rate on a scale of 1-3 (low, middle, high) (Allen et al., 2007).

Second, as explained above, to measure uncertainty avoidance, the variable 'uncertainty_avoidance' was used. This variable indicates the level of uncertainty avoidance of the respondent's country on a scale of 1-100 (Almutairi et al., 2020; Hofstede, 1980; Hofstede, 2001; Hofstede et al., 2010; Hofstede Insights, 2023).

3.2.2.3 Control Variables

Lastly, several control variables were added to the analysis to reduce the chance of confounding effects. First of all, there have been numerous studies regarding the significant effect of education on entrepreneurship (Bayar et al., 2022; Liñán et al., 2011; Orlova et al., 2016; Passaro et al., 2018; Van der Sluis et al., 2008). Therefore, the variable 'UNEDUC', measuring the education level of the respondent on a scale of 0-8, ranging from pre-primary education to doctor or equivalent, has been used as a control variable (see Table 3 in the Appendix). Second, several studies have shown that knowing an entrepreneur significantly increases the probability of becoming an entrepreneur yourself (Clercq & Arenius 2006; Davidsson & Honig 2003; Guelich & Bosma, 2018; Menzies et al. 2006; Morales-Gualdron & Roig 2005). Thereby, the variable 'KNOWENyy', measuring whether the respondent knows an entrepreneur has been added as a control variable. Third, multiple studies have stated that a person's perception of entrepreneurship affects their entrepreneurial intention (Douglas & Shepherd, 2002; Engle et al., 2010; Khuong & An, 2016; Schlaegel & Koenig 2014; Schwarz et al. 2009; Zampetakis et al. 2009). Based on these findings, the variable 'INDSUPyy', measuring the respondent's individual perception towards entrepreneurship has been added as a control variable. This variable is on a scale of 0-3 with a value of zero indicating the respondent has a very negative perception about entrepreneurship and a value of three indicating the respondent has a very positive perception about entrepreneurship. Fourth,

various studies have revealed that entrepreneurial opportunity identification is significantly related to entrepreneurial intention (Ardichvili et al., 2003; Goktan & Gupta, 2021; Jarvis, 2016). Therewith, the variable 'OPPISMyy', indicating whether the respondent rarely sees business opportunities even though they are very knowledgeable in the area on a 5-point Likert scale has been added as a control variable. Fifth, there have been numerous researches indicating that entrepreneurial intention is affected by people's perceived capabilities (Ebrahim & Schøtt, 2011; Krueger & Day, 2010; Naktiyok & Caglar, 2010; Tsai et al., 2016; Walker et al., 2013). Therefore, the variable 'suskillL', indicating whether the respondent believed that they personally have the knowledge, skill, and experience required to start a business on a 5-point Likert scale has been added as a control variable.

Table 1

Measures Used in the Analysis

Variables	Description	Scale
bstart	1=Currently trying to start a new business	Binary
age	The corresponding age of the respondent	Discrete
gender	0=male 1=female	Binary
WEFIncREV	Country income on a scale of 1-3	Ordinal
Uncertainty_avoidance	Respondent's country uncertainty avoidance level on a scale of 1-100	Discrete
KNOWENyy	1=If the respondent knows at least one person who has started their own business	Binary
INDSUPyy	Respondents individual perception on entrepreneurship on a scale of 0-3	Ordinal
OPPISMyy	If respondent sees business opportunities on a scale of 1-5	Ordinal
suskillL	If respondent thinks they have the knowledge, skill, and experience to start a business on a scale of 1-5	Ordinal
UNEDUC	Respondents education level on a scale of 0-8	Ordinal

3.3 Data Analysis

3.3.1 Cleaning the Data

To analyze the data, the statistical software SPSS Statistics was used. However, before the data was ready to be analyzed, several observations needed to be removed. The complete sample consisted of 163006 observations. Since this study is about entrepreneurial entry, respondents who did not indicate whether or not they were currently trying to start a business were excluded from the data (*N*=1688). This left the data with 161318 observations. Next, respondents who did not indicate their age or were either younger than 15 years old or older than 64 years old were excluded from the data because these people were assumed to be too young or too old to become an entrepreneur (*N*=12623). The cut-off age of 15-64 was implemented because numerous databanks and intergovernmental organizations like OECD classify this as the working-age population across the world (OECD Labour Force Statistics 2022, 2023). However, since the minimum required age to participate in the GEM survey is 18 years old, the age range used in this study varies from 18-64. This resulted in a remaining data set of 148695 observations. Lastly, because there is no academic research that measured the uncertainty avoidance level of Cyprus, Madagascar, and Oman, the observations from these countries needed to be removed (*N*=4254). This left the dataset used in this study with 144441 observations.

3.3.2 Reliability & Validity

In a quantitative study, validity can be defined as to what extent a concept is accurately measured (Heale & Twycross, 2015). Validity is distinguishable into construct validity, face validity, criterion validity, and content validity (Barber et al., 2000; Roy et al., 2023). Furthermore, reliability measures to what extent the research instrument consistently provides the same result if the research is repeated under similar conditions (Heale & Twycross, 2015). This can be estimated using equivalence, stability, and homogeneity.

For this study, several measures were taken to ensure the reliability and validity of the research. First, every step performed before and during the analysis was documented for future researchers so it can be used for replicating this study. Second, respondents from countries that did not have an academically supported uncertainty avoidance level were excluded from the dataset. Thereby, these participants could not influence the moderating effect of uncertainty avoidance. Furthermore, several control variables were added to each analysis to reduce the possibility of other factors explaining the relationships rather than the independent and moderating variables. Lastly, a relatively large dataset (N=144441) was used to reduce the chance of coincidence affecting the results of the analysis.

3.3.3 Regression Analysis

Because bstart is a binary variable, several logistic regressions were used to analyze the data. The statistics of the logistic regressions show both the p-values as well as the odds ratio for each variable. The odds ratio represents the effect of the variable on the odds of entrepreneurial entry (bstart). An odds ratio greater than 1 indicates that the variable increases the chance a person is currently trying to become an entrepreneur and an odds ratio less than one indicates that the variable decreases the chance of a person currently trying to become an entrepreneur. Multiple models were tested to test the different hypotheses.

3.3.3.1 Base Model

First, before introducing the independent and moderating variables, a baseline model was performed. In the baseline model, a logistic regression analysis was performed using only the control variables and the dependent variable to assess how the control variables influence the likelihood of bstart. For respondent j, where μj=Prob(bstartj=1), this leads to the following equation.

$$M0 = \text{Log}\left(\frac{\mu j}{1-\mu j}\right) = \beta 0 + \beta 1 * KNOWENyyj + \beta 2 * INDSUPyyj + \beta 3 * OPPISMyyj + \beta 4 * suskillLj + \beta 5 * UNEDUCj + \epsilon j$$

3.3.3.2 The Direct Effects on Entrepreneurship

Next, to assess the direct effects of the independent variables and moderators, a logistic regression was performed to measure how age, gender, WEFIncREV, and uncertainty_avoidance individually influence the likelihood of bstart. For respondent j and country m, where μjm=Prob(bstartjm=1), this leads to the following equation.

$$M1 = \text{Log}\left(\frac{\mu j}{1-\mu j}\right) = \beta 0 + \beta 1 * agej + \beta 2 * genderj + \beta 3 * WEFIncREVm + \beta 4 * uncertainty\_avoidancem + \beta 5 * KNOWENyyj + \beta 6 * INDSUPyyj + \beta 7 * OPPISMyyj + \beta 8 * suskillLj + \beta 9 * UNEDUCj + \epsilon jm$$

3.3.3.3 The Moderating Effect of Country Income

Third, to examine the moderating effect of country income, the moderating effect of WEFIncREV on the relationship between age and gender and bstart was measured using logistic regression. For respondent j and country m, where μjm=Prob(bstartj=1), this leads to the following equation.

$$M2 = \text{Log}\left(\frac{\mu jm}{1-\mu jm}\right) = \beta 0 + \beta 1 * agej + \beta 2 * genderj + \beta 3 * WEFIncREVm + \beta 4 * agej * WEFIncREVm + \beta 5 * genderj * WEFIncREVm + \beta 6 * KNOWENyyj + \beta 7 * INDSUPyyj + \beta 8 * OPPISMyyj + \beta 9 * suskillLj + \beta 10 * UNEDUCj + \epsilon jm$$

3.3.3.4 The Moderating Effect of Uncertainty Avoidance

Fourth, to measure the moderating effect of uncertainty avoidance, the moderating effect of uncertainty_avoidance on the relationship between age and gender and bstart was measured using logistic. For respondent j and country m, where μjm=Prob(bstartjm=1), this leads to the following equation.

$$M3 = \text{Log}\left(\frac{\mu jm}{1-\mu jm}\right) = \beta 0 + \beta 1*agej + \beta 2*genderj + \beta 3*uncertainty\_avoidancem + \beta 4*agej*uncertainty\_avoidancem + \beta 5*genderj*uncertainty\_avoidancem + \beta 6*KNOWENyyj + \beta 7*INDSUPyyj + \beta 8*OPPISMyyj + \beta 9*suskillLj + \beta 10*UNEDUCj + \epsilon jm$$

3.3.3.5 Complete Model

Lastly, in the final model, all variables were combined into a comprehensive logistic regression to examine the collective effects of age, gender, country income, uncertainty avoidance, and the control variables on the likelihood of bstart. For respondent j and country m, where μjm=Prob(bstartjm=1), this leads to the following equation.

$$M4 = \text{Log}\left(\frac{\mu jm}{1-\mu jm}\right) = \beta 0 + \beta 1*agej + \beta 2*genderj + \beta 3*WEFIncREVm + \beta 4*uncertainty\_avoidancem + \beta 5*agej*WEFInREVcm + \beta 6*genderj*WEFIncREVm + \beta 7*agej*uncertainty\_avoidancem + \beta 8*genderj*uncertainty\_avoidancem + \beta 9*KNOWENyyj + \beta 10*INDSUPyyj + \beta 11*OPPISMyyj + \beta 12*suskillLj + \beta 13*UNEDUCj + \epsilon jm$$

4 Results

4.1 Descriptive Statistics

First, the descriptive statistics of the variables will be discussed to provide a comprehensive overview of the variables used in this study. The data consists of a total of 144,441 participants, of which 17.1% indicated they were currently trying to start a business and 82.9% expressed they were not. The age distribution ranged from 18 to 64 with an average of 40.12 and a standard deviation of 13.17 (see Table 4 in the Appendix for the complete age distribution). Of the respondents, 50.6% identified as male, and 49.4% identified as female. The majority of respondents live in high-income countries (70.7%), followed by the middle-income countries (21.5%), and the lower-income countries (7.9%). Furthermore, the countries' uncertainty

avoidance levels range from 29 to 100 with a mean score of 71.52 and a standard deviation of 19.74 (see Table 5 in the Appendix for the complete uncertainty avoidance distribution). A general overview of the variables used in this study is displayed in Table 2 below.

Table 2

Descriptive Statistics of the Variables

Variable	Frequency	Percentage	Mean	Standard Deviation	Range
Bstart	144,441	100%	0.17	0.38	0-1
Age	144,441	100%	40.12	13.17	18-64
Gender	144,441	100%	0.49	0.50	0-1
Country Income	144,441	100%	2.63	0.63	1-3
Uncertainty Avoidance	144,441	100%	71.52	19.74	29-100
KNOWENyy	139761	96.76%	0.53	0.50	0-1
INDSUPyy	102089	70.68%	1.69	1.01	0-3
OPPISMyy	137137	94.94%	3.20	1.33	1-5
suskillL	142134	98.40%	3.23	1.50	1-5
UNEDUC	143373	99.26%	3.80	1.87	0-8

4.2 Base Model

To establish a fundamental understanding of the impact of the control variables on entrepreneurship, the base model was performed. This model included only the control variables and the dependent variable bstart. The base model allows for a clearer evaluation of how the moderating variables influence entrepreneurship. The results showed that all control variables significantly affect entrepreneurship and there was found no multicollinearity between the control variables (see Table 3).

Table 3

Logistic Regression Measuring the Effect of the Control Variables on Entrepreneurship

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value	Tolerance	VIF
KNOWENyy	0.428	0.026	1.534	1.456	1.615	<0.001	0.452	2.212
INDSUPyy	0.321	0.017	1.379	1.334	1.425	<0.001	0.256	3.904
OPPISMyy	0.038	0.006	1.039	1.026	1.052	<0.001	0.992	1.009
suskillL	0.361	0.009	1.435	1.410	1.460	<0.001	0.439	2.277
UNEDUC	0.034	0.005	1.034	1.025	1.044	<0.001	0.989	1.012
Constant	-3.951	0.041	0.019			<0.001		

Notes. Dependent variable bstart = 1 if the respondent was currently trying to start a new business, including any self-employment or selling any goods or services to others. *N*=144441

4.3 Effect of Age and Gender

In Model 1 the first and second hypotheses were tested using logistic regression. For age, it was found that while holding all other variables constant, the odds of an individual currently trying to become an entrepreneur significantly (p<0.001) decreases by 1.6% (95% CI [0.983, 0.986]) for each year someone's age increases. Hence, hypothesis 1 was supported by the data (see Table 4). Furthermore, for gender, it was found that while holding all other variables constant, the odds of a male currently trying to become an entrepreneur is 13.9% (95% CI [0.832, 0.982]) higher compared to a female (p<0.001). Therefore, hypothesis 2 was also supported by the data (see Table 4).

Table 4

Logistic Regression Measuring the Effect of Age and Gender on Entrepreneurship

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value	Tolerance	VIF
Age	-0.016	0.001	0.984	0.983	0.986	<0.001	0.934	1.060
Gender	-0.149	0.018	0.861	0.832	0.892	<0.001	0.983	1.018
Country Income	-0.341	0.013	0.711	0.692	0.730	<0.001	0.846	1.182
Uncertainty Avoidance	-0.008	0.000	0.992	0.991	0.993	<0.001	0.934	1.071
KNOWENyy	0.531	0.027	1.700	1.613	1.793	<0.001	0.449	2.227
INDSUPyy	0.207	0.017	1.229	1.188	1.272	<0.001	0.251	3.984
OPPISMyy	0.014	0.007	1.014	1.001	1.027	0.037	0.981	1.019
suskillL	0.395	0.009	1.484	1.457	1.511	<0.001	0.434	2.304
UNEDUC	0.040	0.005	1.041	1.031	1.051	<0.001	0.900	1.111
Constant	-1.621	0.069	0.197			<0.001		

Notes. Dependent variable bstart = 1 if the respondent was currently trying to start a new business, including any self-employment or selling any goods or services to others. *N*=144441

4.4 Moderating Effect of Country Income

In model 2 the third and fourth hypotheses were tested using logistic regression. For the moderating effect of country income on the relationship between age and entrepreneurial entry it was found that, while holding all other variables constant, the odds of an individual currently trying to become an entrepreneur significantly (p<0.001) decreases by an additional 0.8% (95% CI [0.990, 0.994]) for each year of aging in high-income countries compared to low-income countries (see Table 5). This indicates that the odds of becoming an entrepreneur decreases more once an individual gets older in high-income countries than it does in low-income countries (see Figure 2). So, the findings showed the opposite results of what hypothesis 3 expected. Therefore, hypothesis 3 was not supported by the data. Furthermore, for gender, it was found that while holding all other variables constant, the odds of a female currently trying to become an entrepreneur significantly (p=0.024) decreases by an additional 5.7% (95%CI[1.008, 1.112]) in low-income countries compared to high-income countries (see Table

5). This indicates that there is a smaller gender gap in high-income countries than in low-income countries (see Figure 3). Hence, hypothesis 4 was supported by the data.

Table 5

Logistic Regression Measuring the Moderating Effect of Country Income on the Relationship Between Age and Gender and Entrepreneurship

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value
Age	0.006	0.003	1.006	1.001	1.011	0.028
Gender	-0.295	0.066	0.745	0.654	0.847	<0.001
Country Income	-0.170	0.055	0.844	0.758	0.939	0.002
Age x Country Income	-0.008	0.001	0.992	0.990	0.994	<0.001
Gender x Country Income	0.057	0.025	1.059	1.008	1.112	0.024
KNOWENyy	0.506	0.027	1.658	1.573	1.748	<0.001
INDSUPyy	0.230	0.017	1.259	1.217	1.302	<0.001
OPPISMyy	0.009	0.006	1.009	0.996	1.022	0.178
suskillL	0.385	0.009	1.470	1.444	1.497	<0.001
UNEDUC	0.055	0.005	1.056	1.046	1.066	<0.001
Constant	-2.627	0.150	0.072			<0.001

Notes. Dependent variable bstart = 1 if the respondent was currently trying to start a new business, including any self-employment or selling any goods or services to others. *N*=144441

Figure 2

The Moderating Effect of Country Income on the Relationship Between Age and Entrepreneurial Entry

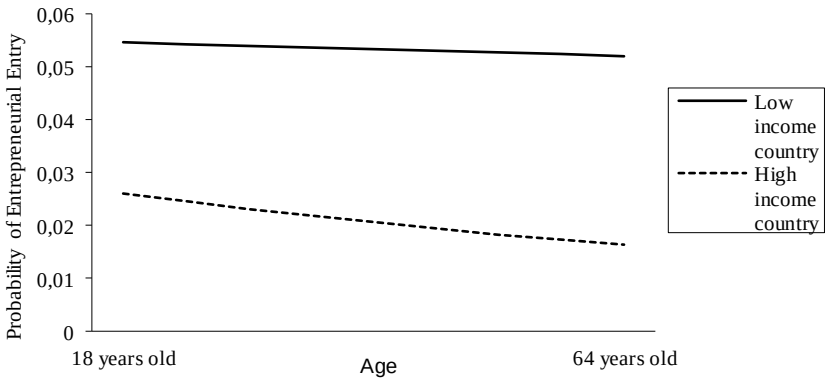
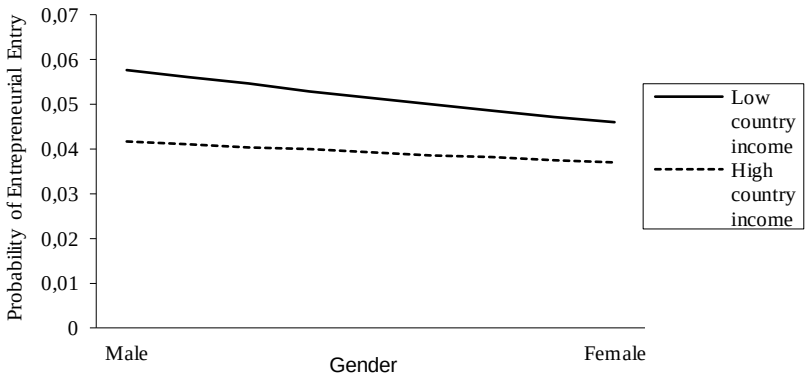


Figure 3

The Moderating Effect of Country Income on the Relationship Between Gender and Entrepreneurial Entry



4.5 Moderating Effect of Uncertainty Avoidance

In Model 3, the fifth and sixth hypotheses were tested using logistic regression. For the moderating effect of uncertainty avoidance on the relationship between age and entrepreneurial entry it was found that, while holding all other variables constant, the odds of an individual currently trying to enter entrepreneurship significantly (p<0.001) increases by 0.02% [95%CI1.000, 1.000] for each year of aging per one-point increase in uncertainty avoidance (see Table 6). This indicates that the chance of an individual becoming an entrepreneur decreases more once an individual gets older in low-uncertainty avoidance countries than it does in high-uncertainty avoidance countries (see Figure 4). Hence, hypothesis 5 was supported by the data. Furthermore, for gender, it was found that, while holding all other variables constant, the odds of a female currently trying to become an entrepreneur significantly (p=0.004) decreases by an additional 0.3% (95%CI[1.001, 1.004]) per one-point decrease in uncertainty avoidance level (see Table 6). This indicates that there is a smaller gender gap in high-uncertainty avoidance countries than in low-uncertainty avoidance countries (see Figure

5). Thus, the findings showed the opposite results of what hypothesis 6 expected. Therefore, hypothesis 6 was not supported by the data.

Table 6

Logistic Regression Measuring the Moderating Effect of Uncertainty Avoidance on the Relationship Between Age and Gender and Entrepreneurship

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value
Age	-0.033	0.003	0.968	0.963	0.973	<0.001
Gender	-0.324	0.065	0.723	0.636	0.822	<0.001
Uncertainty Avoidance	-0.022	0.002	0.978	0.975	0.982	<0.001
Age x Uncertainty Avoidance	0.000	0.000	1.000	1.000	1.000	<0.001
Gender x Uncertainty Avoidance	0.003	0.001	1.003	1.001	1.004	0.004
KNOWENyy	0.474	0.027	1.607	1.525	1.693	<0.001
INDSUPyy	0.238	0.017	1.269	1.227	1.313	<0.001
OPPISMyy	0.033	0.006	1.034	1.021	1.047	<0.001
suskillL	0.395	0.009	1.485	1.458	1.512	<0.001
UNEDUC	0.016	0.005	1.017	1.007	1.026	<0.001
Constant	-1.399	0.147	0.247			<0.001

Notes. Dependent variable bstart = 1 if the respondent was currently trying to start a new business, including any self-employment or selling any goods or services to others. *N*=144441

Figure 4

The Moderating Effect of Uncertainty Avoidance on the Relationship Between Age and Entrepreneurial Entry

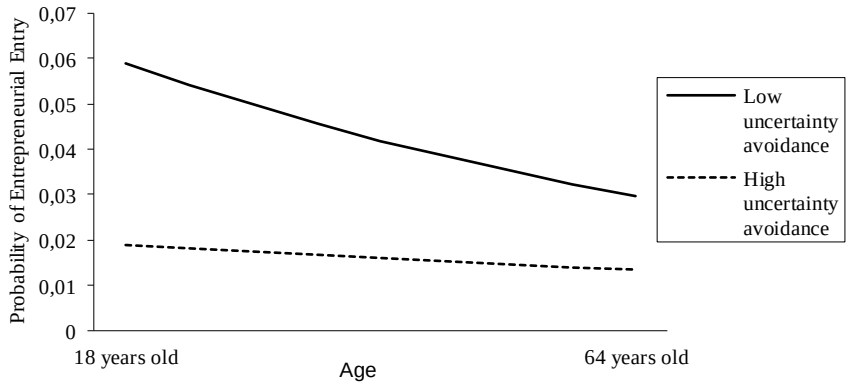
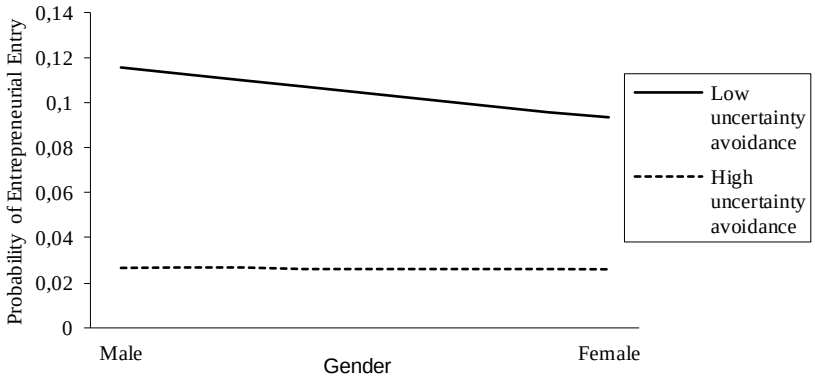


Figure 5

The Moderating Effect of Uncertainty Avoidance on the Relationship Between Gender and Entrepreneurial Entry



4.6 Complete Model

Lastly, to get a comprehensive understanding of how all the variables, including the main effects, interaction effects, and control variables, collectively contribute to explaining the variation of the dependent variable the complete model was performed using logistic regression. The results showed that the moderating effect of country income on the relationship between age and entrepreneurial entry (p<0.001) and the moderating effects of uncertainty avoidance on the relationship between both age and entrepreneurial entry (p<0.001) and gender and entrepreneurial entry (p=0.017) remained significant in the complete model. Additionally, the moderating effect of country income on the relationship between gender and entrepreneurial entry showed weaker support in the complete model, but still remained significant (p=0.082). Hence, in the complete model hypothesis 4 and 5 remain supported and hypotheses 3 and 6 remain unsupported with opposite relationships than expected (see Table 7).

Table 7

Logistic Regression of the Complete Model

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value
Age	-0.008	0.003	0.992	0.985	0.998	0.13
Gender	-0.415	0.084	0.660	0.560	0.778	<0.001
Country Income	-0.063	0.056	0.939	0.842	1.048	0.259
Uncertainty Avoidance	-0.020	0.002	0.980	0.976	0.984	<0.001
Age x Country Income	-0.009	0.001	0.991	0.989	0.993	<0.001
Gender x Country Income	0.045	0.026	1.046	0.994	1.100	0.082
Age x Uncertainty Avoidance	0.000	0.000	1.000	1.000	1.000	<0.001
Gender x Uncertainty Avoidance	0.002	0.001	1.002	1.000	1.004	0.017
KNOWENyy	0.526	0.027	1.693	1.606	1.784	<0.001
INDSUPyy	0.203	0.017	1.226	1.184	1.268	<0.001
OPPISMyy	0.013	0.007	1.013	1.000	1.026	0.054
suskillL	0.398	0.009	1.489	1.462	1.516	<0.001
UNEDUC	0.044	0.005	1.045	1.035	1.055	<0.001
Constant	-1.470	0.188	0.230			<0.001

Notes. Dependent variable bstart = 1 if the respondent was currently trying to start a new business, including any self-employment or selling any goods or services to others. *N*=144441

4.7 Robustness Checks

To enhance the reliability and generalizability of the results, several robustness checks were performed. In total three robustness checks were carried out by altering the dependent variable of the complete model. First, the variable 'ownmge' was used, which measures whether the respondent is, alone or with others, currently the owner of a business they help manage, self-employed, or selling any goods or services to others. This variable was chosen since it is closely related to the dependent variable bstart used in this study. In the robustness check hypotheses 4 and 5 remain supported, hypotheses 6 remains unsupported with significant opposite results, and hypotheses 3 becomes unsupported with insignificant results in the first robustness check

(see Table 6 in the Appendix). Additionally, the second and third robustness checks test how the variables used in this study affect entrepreneurial businesses based on the age of the business. These variables were chosen since they provide a more detailed insight into how entrepreneurial businesses are affected and because they are closely related to the dependent variable bstart used in this study as well. For young businesses the variable 'babybuso' was investigated, measuring whether the person manages and owns a business that is up to 42 months old. In the robustness check hypothesis 5 remains supported, hypotheses 3 and 6 remain unsupported with significant opposite results, and hypothesis 4 becomes unsupported with insignificant results (see Table 7 in the Appendix). Next, for more established businesses the variable 'estbbuso' was investigated, measuring whether the person manages and owns a business that is older than 42 months. In the robustness check hypotheses 4 and 5 remain supported, hypothesis 6 remains unsupported with significant opposite results, and hypothesis 3 becomes supported (see Table 8 in the Appendix). In summary, the three robustness checks provide, overall, similar results as the analysis of this study. The overall consistent alignment of the outcomes in the three robustness checks lends robust support to the study's findings, emphasizing the resilience and credibility of the analytical framework.

5 Discussion and Conclusion

5.1 Discussion and Academic Relevance

Even though entrepreneurship has become a prominent research topic in various fields (Kerr et al., 2018), there remains a gap in the current literature. While previous research has delved into entrepreneurial dynamics, the interplay between environmental factors and individual characteristics remains largely unexplored (Lerner & Schoar, 2010; Lingelbach et al., 2005; Thurik & Dejardin, 2012). Therefore, this study aims to shed light on how the relationship between individual characteristics and one's decision to engage in entrepreneurship could differ based on their environment. Consequently, this research

investigated how age and gender affect entrepreneurial entry and how country income and uncertainty avoidance moderate this relationship. Understanding how the environment affects one's decision to engage in entrepreneurship can help policymakers, researchers, and entrepreneurs, as it provides a more sophisticated picture of the impact of different socio-economic and cultural contexts on an individual's decision whether or not to engage in entrepreneurship.

First, the results of this study showed that age negatively affects entrepreneurial entry, such that younger people are more likely to engage in entrepreneurship compared to older people. This finding is in line with the expectations following the Theory of Planned Behavior of Ajzen (1991), supporting the theory that, based on the different characteristics of younger and older individuals, younger people have a more positive attitude, subjective norm, and perceived behavioral control regarding entrepreneurship, resulting in higher intentions to become an entrepreneur. Therefore, this study provides empirical evidence that age is negatively related to entrepreneurial entry. By providing evidence that age indeed negatively affects entrepreneurial entry, this study supports the previous studies of Aparicio et al. (2019) and Arenius & Minniti (2005) and contradicts the studies of Zhang & Acs (2018) and Cuberes et al. (2019). Therefore, this study expands the existing literature regarding the mixed findings about the relationship between age and entrepreneurship by providing additional evidence using a large sample with respondents from all over the world that age indeed negatively affects entrepreneurial entry.

Next, the results indicated that older people are relatively less likely to enter entrepreneurship in high-income countries compared to low-income countries. It was originally expected that due to the lack of wage employment opportunities for young people in low-income countries, relatively many young people engage in entrepreneurship out of necessity (Ismail, 2018; OECD, 2017; Taylor, 2009; Teal, 2016). Contrary, in high-income countries it

was originally expected that because it is easier to access required financial resources for engaging in opportunity entrepreneurship when you are older, people engage relatively more frequently in opportunity entrepreneurship at a later stage in their lives (Heidrick & Nicol., 2002; OECD, 2017). Hence, because of the different environmental factors, the negative effect of age on entrepreneurial entry was expected to be more prevalent in low-income countries compared to high-income countries. However, the empirical results signal that this relationship is the other way around. A possible explanation could be a more significant impact of personal motivations**.** Opportunity entrepreneurship primarily takes place in more optimistic situations since people are more likely to have the possibility of going back to paid employment job if their entrepreneurial venture fails (Chang et al., 2023). However, the likelihood of returning to paid employment declines with age, making it harder for older people to find employment (Wanberg et al., 2016). Consequently, the increased risk of unemployment when engaging in entrepreneurship at a later stage could decrease the desire for opportunity entrepreneurship once you get older. Furthermore, compared to younger people, older people have greater family responsibilities and higher healthcare costs (Bloom et al., 2015). As a result, as people age, they increasingly prefer security and stability rather than the pursuit of wealth and achievements (Chang et al., 2023), potentially discouraging engaging in a risky entrepreneurial adventure. Conversely, age is less likely to negatively impact necessity entrepreneurship since necessity entrepreneurship is driven by the need to survive, and is therefore not a well-considered trade-off between the pros and cons of different ways to obtain financial resources (Kayizzi-Mugerwa et al., 2016). Therefore, the empirical findings of this study suggest that environmental factors such as job availability and resource availability may play a less significant role in shaping the decision to engage in entrepreneurship than originally assumed. Instead, personal motivations such as the desire for security and stability seem to have a more

substantial influence on one's decision to engage in entrepreneurship, explaining the increased negative effect of age on entrepreneurial entry in high-income countries.

Furthermore, the findings demonstrated that older people are relatively less likely to enter entrepreneurship in low-uncertainty avoidance countries than in high-uncertainty avoidance countries. This finding can be explained because supportiveness and discouragement are more impactful for younger people than for older people (Delmar & Davidsson, 2000; Klyver & Schenkel, 2013; Respect & Social Status | Center for the Developing Adolescent, 2023; Singh & DeNoble, 2003). Since there is a more positive view towards entrepreneurship in low-uncertainty avoidance countries than in high-uncertainty avoidance countries (Schneider & De Meyer, 1991; Fuentelsaz et al., 2023), younger people receive more social support and thereby engage in entrepreneurship relatively more frequently. Hence, by showing that uncertainty avoidance moderates the relationship between age and entrepreneurial entry this study contributes to the existing literature supporting previous studies of Contiua et al. (2012), Lee (1999), and Oh et al. (2016) by providing empirical evidence that culture indeed affects entrepreneurship.

Moreover, it was found that males are more likely to enter entrepreneurship compared to females. This can be explained by the fact that, compared to males, female personality is less closely related to entrepreneurship (Costa et al., 2001; Zhao & Seibert, 2006), females have lower perceptions of their self-efficacy (Chen et al., 1998; Scherer et al., 1990; Wilson et al., 2007), and females have lower expectations of their entrepreneurial performance (Gatewood et al., 2002), which in turn reduces their willingness to engage in entrepreneurship (Bandura, 1982). Therefore, this study finds empirical evidence that gender indeed affects entrepreneurship. By showing that males are more likely to engage in entrepreneurship compared to females this study supports the previous studies of Startienė & Remeikienė (2008), Vossenberg (2013), and Wilson et al. (2007) and contradicts Kourilsky & Walstad (1998) and

Smith et al. (2016) in which they claim gender does not significantly affect entrepreneurship. A possible explanation for the different results could be the samples used. The samples of Kourilsky & Walstad (1998) and Smith et al. (2016) consisted of only participants from the United States. On the contrary, this study uses a larger sample with participants from countries all over the world and found overall significant gender differences for entrepreneurial entry as well as fluctuating gender differences based on different country characteristics. Therefore, this study extends previous research by showing that country characteristics interplay with gender and this study further elaborates the mixed findings about the relationship between gender and entrepreneurship by providing additional evidence that a gender gap in entrepreneurship remains.

Additionally, the findings revealed that females are relatively less likely to enter entrepreneurship in low-income countries compared to high-income countries. This finding can be explained because, compared to high-income countries, in low-income countries females tend to have less status, fewer career opportunities, and face more difficulties in entering the workforce than males (Dollar & Gatti, 1999; Holt, 2020). Hence, engaging in entrepreneurship is relatively more accessible for females in high-income countries, decreasing the gender gap. Therefore, this study supports the existing theory of Meunier et al. (2017) by providing empirical evidence that female entrepreneurship is less profound in low-income countries than it is in high-income countries. Accordingly, this finding can also potentially explain the insignificant findings regarding gender differences in entrepreneurship of Kourilsky & Walstad (1998) and Smith et al. (2016) because both studies used respondents from the United States, which is a high-income country.

Lastly, it was observed that females are relatively less likely to enter entrepreneurship in low-uncertainty avoidance countries compared to high-uncertainty avoidance countries. Since in high-uncertainty avoidance countries, females have relatively more trouble accessing

financial resources (Ozgen, 2012), experience higher levels of anxiety, and there is a stronger emphasis towards traditional gender roles (Parboteeah et al., 2008), it was expected that females would be less likely to engage in entrepreneurship in high-uncertainty avoidance countries than in low-uncertainty avoidance countries. However, the empirical results signal that this relationship is the other way around. A possible explanation could be the higher predictability of business activities in high-uncertainty avoidance countries. High-uncertainty avoidance cultures emphasize orderliness and adhering to the rules (Frijns et al., 2013; Hancıoğlu et al., 2014; Matusitz & Musambira, 2013). Therefore, high-uncertainty avoidance countries typically have risk-reduction measures such as formalized policies and procedures to manage resource allocation and functional cooperation (Qiu, 2018). Consequently, there is more predictability of business activities in high-uncertainty avoidance countries (Venaik & Brewer, 2010). If the entrepreneurial landscape is more predictable and there are more formalized policies and procedures, there is more security and regulated protection for female startups, which in turn provides more support systems for female entrepreneurs (Qiu, 2018). On the contrary, low-uncertainty avoidance countries have fewer policies and provide less support for female entrepreneurs, leaving female entrepreneurs struggling (Qiu, 2018). So, even though high-uncertainty avoidance countries are overall more unfavorable for creative endeavors like starting a business (Frijns et al., 2013; Hancıoğlu et al., 2014; Matusitz & Musambira, 2013), by being more predictable they increase the social support and security for female entrepreneurship and thereby create a stable social environment that fosters the startups of female entrepreneurs, potentially reducing the gender gap (Qiu, 2018). Hence, the empirical findings of this study suggest that the increased number of difficulties females face in high-uncertainty avoidance countries might be less pronounced than originally assumed. Instead, the increased predictability of the business environment in high-uncertainty avoidance countries might have more impact on females' decisions to engage in entrepreneurship. Therefore, by

providing empirical evidence that the probability of a female entering entrepreneurship is higher in low-income countries compared to high-income countries, the results of this study support the previous studies of Anlesinya (2019) and Qiu (2018) while contradicting the studies of Autio et al. (2013) and Harms & Groen (2016). Hence, this finding expands the existing literature regarding the mixed findings about the effect of uncertainty avoidance on the relationship between gender and entrepreneurship, providing additional evidence that the gender gap is less significant in high-uncertainty avoidance cultures.

5.2 Practical Implications

In the face of ongoing global unemployment, which outpaces job creation, there is a recognized need to stimulate new opportunities and foster entrepreneurial behavior (Liang et al., 2018; Martins et al., 2023). To guide individuals toward entrepreneurship, several specialized programs and initiatives have been developed (Al-Jubari, 2019). However, this study underscores that these policies should not view entrepreneurship in isolation but rather consider the interplay between individual characteristics, such as age and gender, and environmental factors, like country income and uncertainty avoidance (Minniti, 2009). Hence, policymakers, educators, and practitioners should adopt a comprehensive approach to entrepreneurship, recognizing the dynamic relationship between personal traits and contextual influences and adapt policies to the diverse needs and challenges faced by different demographic groups and their contexts. The study confirms the persistent gender gap in entrepreneurship, with males showing a higher inclination to engage in entrepreneurial activities (Strawser et al., 2021). To narrow this gap, policymakers and practitioners should prioritize empowering female entrepreneurs. To be more precise, the findings of this study show that particularly in low-income and low-uncertainty avoidance countries intensified efforts are required to offer additional support and resources for female entrepreneurs. To reduce the gender gap policymakers should acknowledge the unique challenges faced by

females in these settings and work toward creating a more inclusive and supportive entrepreneurial environment for them. Furthermore, in high-income and low-uncertainty avoidance countries, policies and educational initiatives should focus on facilitating and encouraging entrepreneurship among older individuals. This emphasis is based on the study's findings of a larger age gap in such countries and the relatively lower involvement of elderly individuals in entrepreneurial activities. Therefore, high-income and low-uncertainty avoidance countries can benefit from specialized training programs tailored to individuals aged over 50 who aspire to create new businesses (Römer-Paakkanen & Suonpää, 2023).

5.3 Limitations and Future Research Suggestions

Based on the nature of the research design and the findings of the analysis this research has some limitations and suggestions for further research. First, this research only empirically investigated the effect of age and gender on entrepreneurial entry and the moderating effects of country income and uncertainty avoidance. Even though multiple explanations of these relationships are given, the results of this study do not provide proof of the reasoning behind the different factors that affect entrepreneurial entry. Therefore, future research could perform qualitative studies to further investigate these explanations and get a more in-depth understanding of how the decision-making process regarding entrepreneurial entry works. Next, besides age, gender, country income, uncertainty avoidance, and the control variables used in this study, more variables could potentially affect entrepreneurial entry and therefore influence the results of this study. Hence, future research could investigate how other variables, such as government policies (Gentry & Hubbard, 2000; Obaji & Olugu, 2014) and previous entrepreneurial experience (McCann & Folta, 2012; Ucbasaran et al., 2006), affect entrepreneurial entry. Furthermore, this study investigated GEM's entrepreneurial data from 2019 and the country's uncertainty avoidance scores from 2023, not taking into account possible changes over time that could affect the results. Consequently, future research could

perform a longitudinal study to investigate multiple time periods to analyze trends in country characteristics and the number of entrepreneurs, aiming to get a more comprehensive view of the entrepreneurial landscape and better predict who becomes an entrepreneur based on certain environmental factors. Additionally, this paper provided empirical evidence that environmental factors and individual characteristics interact with one another when predicting one's decision to engage in entrepreneurship. Therefore, it would be interesting for future research to further investigate other environmental factors that could potentially affect entrepreneurial entry, such as other cultural dimensions (Hofstede, 1980) and a country's technological advancement (Daraojimba et al., 2023). Moreover, this study only investigates entrepreneurial entry. However, since many start-ups fail to reach success (Krishna et al., 2016), further investigating the success rate of the people who enter entrepreneurship would enrich the current entrepreneurial knowledge and provide additional insights into what affects entrepreneurship. Lastly, the robustness checks of this study had some interesting insights. The robustness checks showed that the direct effect of country income on owning and managing a business is negative for businesses older than 42 months and positive for businesses up to 42 months. Additionally, it showed that country income has a positive moderating effect on age for businesses older than 42 months whereas it has a negative moderating effect for businesses up to 42 months. These results signal that country income either affects businesses' survival chances or that the effect of country income on people's decision whether or not to engage in entrepreneurship has changed over the last few years. Therefore, this could be interesting for future research.

5.4 Conclusion

In conclusion, this thesis contributes to the existing literature by providing empirical evidence that individual characteristics interact with environmental factors when determining one's decisions whether or not to engage in entrepreneurship. This study found that, overall, age negatively affects entrepreneurial entry and that males are more likely to enter

entrepreneurship than females. Moreover, this study shows that both young people and females are relatively more likely to enter entrepreneurship in high-income countries compared to low-income countries and that young people are relatively less likely and females are relatively more likely to enter entrepreneurship in high-uncertainty avoidance countries compared to low-uncertainty avoidance countries. These findings provide more insights into the mixed results of previous studies regarding how individual characteristics and environmental factors affect the decision to engage in entrepreneurship by showing that they interact with one another. Thereby, future research could further investigate how the decision to become an entrepreneur differs based on one's characteristics and environments and governments can adjust their policies regarding entrepreneurship more appropriately based on their country's characteristics.

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Appendix

Table 1

Country Representation of the Complete Sample

Country	Frequency	Percentage	Cumulative Percentage
Armenia	2000	1,2	1,2
Australia	2000	1,2	2,5
Belarus	2001	1,2	3,7
Brazil	2000	1,2	4,9
Canada	9304	5,7	10,6
Chile	9110	5,6	16,2
China	3841	2,4	18,6
Colombia	2109	1,3	19,9
Croatia	2000	1,2	21,1
Cyprus	2014	1,2	22,3
Ecuador	2063	1,3	23,6
Egypt	2540	1,6	25,1
Germany	3004	1,8	27,0
Greece	2000	1,2	28,2
Guatemala	2958	1,8	30,0
India	3398	2,1	32,1
Iran	3122	1,9	34,0
Ireland	2000	1,2	35,3
Israel	2036	1,2	36,5
Italy	2000	1,2	37,7
Japan	2027	1,2	39,0
Jordan	2000	1,2	40,2
Latvia	2000	1,2	41,4
Luxembourg	2100	1,3	42,7
Madagascar	2395	1,5	44,2
Mexico	5361	3,3	47,5
Morocco	3510	2,2	49,6
Netherlands	2252	1,4	51,0
North Macedonia	2000	1,2	52,2
Norway	2000	1,2	53,5
Oman	2000	1,2	54,7
Pakistan	2000	1,2	55,9
Panama	2024	1,2	57,2
Poland	8000	4,9	62,1
Portugal	2013	1,2	63,3
Puerto Rico	2000	1,2	64,5
Qatar	3063	1,9	66,4
Russia	2006	1,2	67,6
Saudi Arabia	4003	2,5	70,1
Slovakia	2001	1,2	71,3
Slovenia	2001	1,2	72,5
South Africa	2991	1,8	74,4

South Korea	2000	1,2	75,6
Spain	23300	14,3	89,9
Sweden	5067	3,1	93,0
Switzerland	2015	1,2	94,2
Taiwan	2343	1,4	95,7
United Arab Emirates	2002	1,2	96,9
United Kingdom	2032	1,2	98,2
United States	3000	1,8	100
Total	163006	100	100

Table 2

Uncertainty Avoidance Score per Country

Country	Uncertainty avoidance score
Armenia	88
Australia	51
Belarus	95
Brazil	76
Canada	48
Chile	86
China	30
Colombia	80
Croatia	80
Cyprus	N/A
Ecuador	67
Egypt	55
Germany	65
Greece	100
Guatemala	98
India	40
Iran	59
Ireland	35
Israel	81
Italy	75
Japan	92
Jordan	65
Latvia	63
Luxembourg	70
Madagascar	N/A
Mexico	82
Morocco	68
Netherlands	53
North Macedonia	87
Norway	50
Oman	N/A
Pakistan	70
Panama	86

Poland	93
Portugal	99
Puerto Rico	38
Qatar	80
Russia	95
Saudi Arabia	64
Slovakia	51
Slovenia	88
South Africa	49
South Korea	85
Spain	86
Sweden	29
Switzerland	58
Taiwan	69
United Arab Emirates	66
United Kingdom	35
United States	46

Table 3

Description of Each Value of UNEDUC

UNEDUC value	Description
0	Pre-primary education
1	Primary education or first stage of basic education
2	Lower secondary or second stage of basic education
3	(Upper) secondary education
4	Post-secondary non-tertiary education
5	Short-cycle tertiary education
6	Bachelor or equivalent
7	Master or equivalent
8	Doctor or equivalent

Table 4

Age Distribution

Age	Frequency	Percentage	Cumulative Percentage
18	3044	2,1	2,1
19	2736	1,9	4,0
20	2890	2,0	6,0
21	2672	1,8	7,9
22	3142	2,2	10,0
23	3287	2,3	12,3
24	3686	2,6	14,9

25	3715	2,6	17,4
26	2891	2,0	19,4
27	3056	2,1	21,5
28	3209	2,2	23,8
29	3205	2,2	26,0
30	4283	3,0	29,0
31	3031	2,1	31,0
32	3683	2,5	33,6
33	3423	2,4	36,0
34	3423	2,4	38,3
35	3790	2,6	41,0
36	3016	2,1	43,1
37	2934	2,0	45,1
38	3177	2,2	47,3
39	2876	2,0	49,3
40	4386	3,0	52,3
41	2654	1,8	54,1
42	3625	2,5	56,7
43	3486	2,4	59,1
44	3478	2,4	61,5
45	3435	2,4	63,9
46	2462	1,7	65,6
47	2509	1,7	67,3
48	2732	1,9	69,2
49	2607	1,8	71,0
50	4117	2,9	73,8
51	2430	1,7	75,5
52	3330	2,3	77,8
53	3154	2,2	80,0
54	3245	2,2	82,3
55	3023	2,1	84,4
56	2409	1,7	86,0
57	2323	1,6	87,6
58	2448	1,7	89,3
59	2098	1,5	90,8
60	3146	2,2	93,0
61	1887	1,3	94,3
62	2453	1,7	96,0
63	2481	1,7	97,7
64	3354	2,3	100,0
Total	144441	100	100

Table 5

Uncertainty Avoidance Distribution

Uncertainty Avoidance Score	Frequency	Percentage	Cumulative Percentage
29	3607	2,5	2,5
30	3149	2,2	4,7
35	3514	2,4	7,1
38	1989	1,4	8,5
40	3364	2,3	10,8
46	2588	1,8	12,6
48	7119	4,9	17,5
49	2673	1,9	19,4
50	2000	1,4	20,8
51	3438	2,4	23,2
53	1736	1,2	24,4
55	2532	1,8	26,1
58	1540	1,1	27,2
59	3074	2,1	29,3
63	1618	1,1	30,4
64	3971	2,7	33,2
65	4825	3,3	36,5
66	1895	1,3	37,8
67	2062	1,4	39,3
68	3495	2,4	41,7
69	2324	1,6	43,3
70	1992	1,4	44,7
75	1994	1,4	46,0
76	1999	1,4	47,4
80	7027	4,9	52,3
81	1954	1,4	53,6
82	5339	3,7	57,3
85	1990	1,4	58,7
86	33320	23,1	81,8
87	1994	1,4	83,2
88	3532	2,4	85,6
92	1896	1,3	86,9
93	7980	5,5	92,4
95	3945	2,7	95,2
98	2958	2,0	97,2
99	2008	1,4	98,6
100	2000	1,4	100
Total	144441	100	100

Table 6

Logistic Regression for robustness check with ownmge as dependent variable

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value
Age	-0.006	0.004	0.994	0.987	1.001	0.085
Gender	-0.825	0.091	0.438	0.366	0.524	<0.001
Country Income	-0.330	0.060	0.719	0.639	0.809	<0.001
Uncertainty Avoidance	-0.018	0.002	0.982	0.978	0.986	<0.001
Age x Country Income	-0.000	0.001	1.000	0.998	1.003	0.677
Gender x Country Income	0.170	0.028	1.186	1.122	1.254	<0.001
Age x Uncertainty Avoidance	0.000	0.000	1.000	1.000	1.000	<0.001
Gender x Uncertainty Avoidance	0.002	0.001	1.002	1.000	1.004	0.027
KNOWENyy	0.751	0.027	2.118	2.008	2.234	<0.001
INDSUPyy	0.035	0.017	1.035	1.001	1.071	0.046
OPPISMyy	-0.053	0.006	0.948	0.936	0.960	<0.001
suskillL	0.451	0.009	1.570	1.542	1.598	<0.001
UNEDUC	0.013	0.005	1.013	1.004	1.023	0.006
Constant	-1.842	0.200	0.159			<0.001

Notes. Dependent variable ownmge = 1 if the respondent is currently the owner of a business they help manage, self-employed, or selling any goods or services to others. *N*=144441

Table 7

Logistic Regression for robustness check with babybuso as dependent variable

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value
Age	-0.015	0.006	0.986	0.973	0.998	0.021
Gender	-0.611	0.154	0.543	0.402	0.734	<0.001
Country Income	0.187	0.099	1.206	0.993	1.466	0.059
Uncertainty Avoidance	-0.010	0.003	0.990	0.984	0.997	0.003
Age x Country Income	-0.005	0.002	0.995	0.991	0.999	0.009
Gender x Country Income	0.063	0.047	1.065	0.970	1.168	0.186
Age x Uncertainty Avoidance	0.000	0.000	1.000	1.000	1.000	0.006
Gender x Uncertainty Avoidance	0.004	0.002	1.004	1.001	1.007	0.008
KNOWENyy	0.807	0.047	2.240	2.043	2.457	<0.001
INDSUPyy	0.143	0.029	1.153	1.091	1.220	<0.001
OPPISMyy	-0.029	0.010	0.971	0.952	0.991	0.005
suskillL	0.441	0.016	1.555	1.507	1.604	<0.001
UNEDUC	0.018	0.008	1.018	1.002	1.034	0.027
Constant	-4.295	0.333	0.014			<0.001

Notes. Dependent variable babysuo = 1 if the respondent manages and owns a business that is up to 42 months. *N*=144441

Table 8

Logistic Regression for robustness check with estbbuso as dependent variable

Variable	Coefficient (B)	Standard Error	Odds Ratio (OR)	95% CI Lower	95% CI Upper	p-value
Age	-0.006	0.005	0.994	0.984	1.004	0.227
Gender	-0.984	0.131	0.374	0.289	0.484	<0.001
Country Income	-0.434	0.086	0.648	0.547	0.767	<0.001
Uncertainty Avoidance	-0.022	0.003	0.978	0.972	0.984	<0.001
Age x Country Income	0.006	0.002	1.006	1.003	1.009	<0.001
Gender x Country Income	0.106	0.041	1.112	1.027	1.204	0.009
Age x Uncertainty Avoidance	0.000	0.000	1.000	1.000	1.000	<0.001
Gender x Uncertainty Avoidance	0.005	0.001	1.005	1.003	1.008	<0.001
KNOWENyy	0.610	0.037	1.840	1.713	1.977	<0.001
INDSUPyy	-0.055	0.023	0.946	0.904	0.990	0.017
OPPISMyy	-0.070	0.009	0.933	0.917	0.948	<0.001
suskillL	0.445	0.012	1.561	1.523	1.599	<0.001
UNEDUC	0.009	0.006	1.009	0.996	1.022	0.162
Constant	-2.574	0.284	0.076			<0.001

Notes. Dependent variable estbbuso = 1 if the respondent manages and owns a business that is older than 42 months. *N*=144441