The effect of overconfidence and underconfidence on entrepreneurial intent

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Abstract

In this paper we introduce a new method to determine overconfidence (OC) and underconfidence (UC) in (potential) entrepreneurs based on their belief if they have the necessary skills, knowledge, and experience to start a new business, compared to their estimated probability based on characteristics of successful entrepreneurs. We found that both OC and UC have significant positive odds for intention to start a business. The odds for OC are high compared to the mean as well as to an established base category. We found no significant effect for the odds ratios of OC and UC for the opportunity- and necessity-driven entrepreneur. We also found no significant coefficients for OC and UC for the number of expected jobs offered in the next five years for nascent entrepreneurs. We tested for different definitions of a 'successful' entrepreneur as well as controlled for several personal characteristics and country variables.

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1 Introduction

Entrepreneurial mindset is a much talked about subject. Possibly the most famous example is 'The American Dream', first coined by J. T. Adams (1931), but is dreaming advantageous or should we wake up? This mindset has come under scrutiny in the last few years (Rifkin, 2013). But what personal characteristics nourish and hinder entrepreneurship? We recognize that entrepreneurship is positively related to innovation (Zhao, 2005), it generates productivity growth and creates high employment (Van Praag & Versloot, 2007). Zhao (2005) explored through interviews with various senior managers of startups that innovation is at the base of new ventures to accommodate to the current environment. Think of the steam engine to reduce child labor, vaccines to reduce virus related deaths, and more recent, the access to internet to spread knowledge faster than ever before. Stimulating entrepreneurship begins with understanding could be entrepreneurs, since more is known about a useful skill set than personal attributes we will focus on the latter. We will specifically focus on the effect of overconfidence, which manifests itself in many different positive and negative ways , and underconfidence, which could hinder entrepreneurial entry and success.

The effects of both overconfidence (OC) and underconfidence (UC) on the chance of starting a company and successfully developing it has not yet been researched. Overconfidence is often seen as a hindrance as entrepreneurs take too much risk in exchange for little return (Salamouris, 2013) and often exhibit overconfidence in judgment (De Bondt & Thaler, 1995). A majority of people (81%) believe their chance of entrepreneurial success are 70% according to research done by Cooper et al. (1988). This could be a first sign of overconfidence in the form of overplacement, only around 10% of new businesses turn out to be successful (Patel, 2015).

For our research will make use of the Global Entrepreneurship Monitors database and their Adult Population Survey (APS) data, we will discuss this in further detail in section 4. We will use a data set first introduced in 1999 and last updated online in 2019 as our sample. This data set contains information on entrepreneurs and non-entrepreneurs with a realistic representation of the general public. This survey is conducted in many different countries, and people are interviewed on many different personal- and business-related topics such as individual beliefs, industry or business size, and many more parameters. The intent of this research is to find out the effect of under- and overconfidence on entrepreneurial intentions and success as well as to provide a framework to prematurely assess entrepreneurial intentions based on personal psychological characteristics. It is known that overconfidence will more likely result in overly enthusiastic decisions (Malmendier & Tate, 2005b), positive bias when predicting the future (Sharot, 2011; Taylor, 1989), and in more general terms a widespread belief of people being better than average (Beer & Hughes, 2010; Dunning, 2012; Sharot, 2011; Taylor, 1989) which could hinder accurate assessment of situations. Especially for entrepreneurs this could be detrimental, assessing business opportunities realistically could mitigate the risk of overestimating the potential demand for their own product. This is one of the main reasons entrepreneurs go out of business (Patel, 2015). Underconfidence could have the adverse effect, not realizing the potential your product might have. For example, Douglas Engelbart invented the first computer mouse but always claimed he had "no idea of its value". We would not claim this is solely due to underconfidence, but one could argue more confidence in the potential of the product could have helped him commercialize it.

Researchers have historically focused more on other accelerators of entrepreneurship, for example, they have proven

differences in entrepreneurial intentions between genders (Díaz-García & Jiménez-Moreno, 2010), cultures (Moriano et al., 2012), and - for students - the educational and structural support factors (Turker & Selcuk, 2009). We will go into further details on determinant of market entry in the literary review.

Previous research concerning our research has focused more on (self-) confidence and (self-) efficacy (Asoni, 2011; Bernoster et al., 2018; Gelaidan & Abdullateef, 2017). Asoni (2011) found that intelligence increases business survival, while self-confidence increases business creation. Bernoster et al. (2018) focused more on the differentiation between overconfidence and optimism, which according to them are often conflated. They found that overconfidence is related to intended market entry but not to market orientation. These papers, among others, are almost always based on qualitative interviews with nascent entrepreneurs, students, or other groups of individuals.

More general methods of determining over- and underconfidence have been explored (Michailova, 2010; Murphy, 1973). These methods are mostly based on the same principle of comparing the respondent to a mean value of the group they are a part of or a realistic prediction of a range or specific value they should have answered to be correct. Examples of this are the respondents perception of being a 'better than average driver' or answering a set of questions and then predicting how accurate they were. The research that has been done surrounding the subject of entrepreneurship has used different measures for personal overconfidence unrelated to entrepreneur success probability based on previously successful entrepreneurs. Seeing that the information on successful entrepreneurs could in general be a good predictor of success expectations of new entrepreneurs, this leaves room for new analyses. This could be useful for managing risk when investing in start-ups based on the entrepreneurs' characteristics, as well as warn future entrepreneurs for the negative effect of a wrong mindset. Firstly, we will review existing literature on entrepreneurship, overconfidence, and underconfidence, this can be found in section 2. We will then discuss our methods and research questions in the methodology, section 3. In section 4 we will discuss our data set, followed by the results in section 5. In sections 6 and 7 we will discuss our results and robustness tests and we will conclude our main findings and consider possible ventures for future research.

2 A Review of the Literature on Entrepreneurs, Overconfidence, and Underconfidence

In this section we will assess the relevant literature on the subject of entrepreneurs, overconfidence, and underconfidence. We will give a brief summary of accelerators and barriers for entrepreneurship, followed by a review of the literature about necessity-driven entrepreneurs and opportunity-driven entrepreneurs. We will finish this by discussing the effects entrepreneurship has on job creation and job growth. We will then focus more on the general concept of overconfidence and underconfidence. For each type of overconfidence, we will summarize existing research findings. Specifically focused on entrepreneurship, we will discuss the positive and negative effects of overconfidence and underconfidence. Methods of measuring over- and underconfidence will be discussed and we will conclude our findings from the literature at the end of this section.

2.1 The Entrepreneur

Firstly, it is important to understand the definition of an entrepreneur. "Someone who starts their own business, especially when this involves seeing a new opportunity" is the definition given by the Cambridge Dictionairy (2023). We are especially interested in the words 'new opportunity' because that seems to be at the forefront of entrepreneurial intentions. Shane et al. (2003) and Segal et al. (2005) have written well-received papers about the motivation and hindrances of (potential) entrepreneurs. Other notable papers on the entrepreneur are by Sarasvathy (2001) about how to detect entrepreneurs, Blanchflower and Oswald (1998) on the characteristics and constraints of entrepreneurs, and Peredo and McLean (2006) with an examination on the concept of 'social entrepreneurship'. However, in the literature much has been written about hindrances as more market-wide or even national barriers for market entrants, but much less about personal determinants of success. Cooper et al. (1988) used a list of indicators for high-performing new and small businesses, including college education (Ferrante, 2005), prior ownership of a company, and initial capital. Family characteristics might also play an important role in the choice of becoming an entrepreneur (Djankov et al., 2008). Other sources also cite 'the incubator organization' and external factors as some of the determinants of successful entrepreneurship in the technical sector (Cooper, 1973). On top of that, it seems that individual unemployment encourages entrepreneurship, while aggregate unemployment has the adverse effect (Berglann et al., 2011). This is likely due to the individuals being 'financially forced' to resort to entrepreneurship (Andersson & Wadensjö, 2007). However, research has shown that the search for independence and the desire to fully exploit their own skills are some of the key factors in new firm formation (Arrighetti, 2007; Audretsch & Vivarelli, 1998; Santarelli & Vivarelli, 2007; Vivarelli, 2004). The authors do recognize that 'textbook determinants' such as profit expectations are also important. Norwegian research even proved that the most successful quartile gains much more than the least successful quartile lose (Berglann et al., 2011). They also found that occupational qualifications, family resources, gender, and work environment are key determinants for entry into self-employment and employment in partly self-owned limited liability companies. Similar reasons for entrepreneurship were found by Carter et al. (2003), in comparison, nonentrepreneurs rated roles and recognition as more important reasons for entrepreneurship. Even in culturally vastly different countries, attitudes toward entrepreneurial career intentions are similar (Moriano et al., 2012). Less than one fifth of the firms indicate that the introduction of product- or process innovation is a fundamental raison d'être. Entrepreneurs are very heterogeneous when it comes to their reasoning for entrepreneurship. As is often the case, entrants do not make rational evaluations when it comes to entering the market, these can lead to 'entry mistakes' (Cabral, 1997; Geroski & Mazzucato, 2001). Santarelli and Vivarelli (2007) link the high failure rates also to possible overconfidence, causing excess entry (Dosi & Lovallo, 1997). In our research we have strived to control for most of the drivers and barriers discussed previously.

2.1.1 Necessity-Driven and Opportunity-Driven Entrepreneurship

Within the literature about entrepreneurship a distinction is made between necessity-driven and opportunity-driven entrepreneurship. This same distinction is adopted by GEM. As is often the case, entrepreneurship is commonly used to protect against career uncertainty and this regularly dictates how they make use of social technologies (Hui et al., 2018). The authors described this as individuals being 'pushed' into entrepreneurship. Some of the push

factors that induce entrepreneurship have been discussed (Tipu, 2012). The 'pulling' factor of entrepreneurship is known as opportunity-driven entrepreneurship. Both types also show similarities, both necessity- and opportunity drivers play a significant role in the decision to start new ventures (Williams, 2008). They also find a change from necessity-oriented to opportunity-oriented motivations as the ventures becomes more established. Tipu (2016) found that opportunity-driven entrepreneurs are more likely to experience counterfactual thinking. Necessity-driven entrepreneurs exhibited more realistic expectations and did not imagine outcomes other than those which actually occurred.

For both types of entrepreneurs, the socio-economic situation in the country is important. It has been proven that inward foreign direct investment (FDI) positively influences the opportunity-driven entrepreneurs (Albulescu & Tămăşilă, 2014). Outward FDI, on the contrary, has a positive effect on the necessity-driven entrepreneurs and a negative impact on the other type of entrepreneurs. They also found that opportunity entrepreneurship is linked to better developed, innovation-driven economies. Necessity entrepreneurship is more associated with European efficiency-driven economies. Higher liberalization in the credit market is also associated with more entrepreneurship by opportunity (Bárcena-Martín et al., 2021). Hessels et al. (2008) found that if 'increase-wealth-motivated entrepreneurs' are more frequent in a country, it tends to have an increased prevalence of high-job-growth and export-oriented entrepreneurship. They conclude that those for whom increasing wealth is the main motive for becoming self-employed are more likely to be job growth- and export-oriented. This suggests that such a strategy is needed for these types of entrepreneurs to achieve the financial gains they strive for.

The GEM executive report of 2004 also found that as a country's national income increases, its relative percentage of opportunity-driven entrepreneurship rises (Acs et al., 2004). In other words, opportunity entrepreneurs tend to be more dominant in the high-income countries while necessity-driven entrepreneurs are more prevalent in low-income countries. Furthermore, they found that for necessity entrepreneurship there is much less gender distinction. However, firms started by females in Canada are generally smaller in size and show a lower growth level than for male-controlled firms (Robichaud et al., 2010). They found that certain characteristics that are related to opportunistic entrepreneurs in Canada are more present in males, such as self-confidence, income, and networking. The importance of the last characteristic has been discussed by Urban (2011).

On the contrary, necessity-motivated entrepreneurs exhibit lower levels of aspiration compared to their counterparts (Hay et al., 2002). Also because of this reason, opportunity-driven entrepreneurship is expected to provide a stronger long-term positive impact (Cervelló-Royo et al., 2020).

However, scholars warn us not to generalize these two types of entrepreneurs, as both types are subject to change (Williams, 2008; Williams et al., 2006). When looking at early-stage transition economies, with slow market reform and institutional deficiencies, Smallbone and Welter (2019) showed that these definitions pay insufficient attention to factors such as social context, dynamic influences, and learning capacity of the individuals.

We are interested in the effect of overconfidence and underconfidence on the type of entrepreneur. This is especially interesting because opportunity-driven entrepreneurs, or 'pulled' entrepreneurs, would likely be more susceptible to these characteristics. On top of that, we know that gender and overconfidence and underconfidence are linked, and gender and the type of entrepreneur are linked, giving our research societal relevance.

2.1.2 Entrepreneurship and Job Creation

As discussed, most new ventures are started for career- or financial stability. Increase-wealth-motivated entrepreneurs tend to provide more job growth in an economy (Hessels et al., 2008). But even entrepreneurs who have started a business out of necessity tend to think more like opportunity entrepreneurs when their business becomes more established (Williams, 2008). With the increase of social entrepreneurship, we have also seen that some firms see job creation as a value added to society, and thus a motive for entrepreneurship (Rey-Martí et al., 2016).

The Dutch Government aims to cement its position as one of the world's top five most competitive economies (Government of the Netherlands, 2023). To accomplish this, they focus on innovative businesses and entrepreneurs wanting to expand fast. Among the incentives the government provides are increasing cooperation between researchers and the private sector, reducing the regulatory burden (Arzeni, 1997), and better education and links with the labor market. We can see that also governments acknowledge the importance of entrepreneurship in job creation and innovation. This approach follows from papers examining the value of entrepreneurship (Badal, 2010; Kritikos, 2014; Schumpeter & Backhaus, 1934; Van Praag & Versloot, 2007). The first of these papers found that entrepreneurship generates relatively much employment creation. Other upsides are productivity growth and the production and commercialization of high-quality innovations. These process- and product innovations bring about vital spillover effects, also increasing job growth for all ventures in the region in the long run. Research from Portugal found a larger than usual lag of eight years on subsequent employment growth after new firm formation (Baptista et al., 2008).

It cannot be neglected that established firms offer higher paying- and more secure jobs. These findings were supported by Kritikos (2014) who added to this that entrepreneurs accelerate structural change by replacing established, sclerotic firms. Furthermore, he underlines what we have found previously that only a few people have the drive to become an entrepreneur, they face high risk of failure, and in the medium term it can lead to job destruction for established firms. Entrepreneurship is harder to exist in over-regulated economies as well, meaning that new ventures benefit from less rules and regulations. A good example of this is the company Uber, who created a large amount of new and flexible jobs, caused massive layoffs for existing taxi companies, and could flourish because this market was stagnant and not very well regulated.

Expanding employment with interventions in already existing firms is generally difficult but it becomes easier in somewhat larger firms compared to very small firms (Grimm & Paffhausen, 2015). Although expanding employment is not at the forefront of entrepreneurial goals, because income stabilization is, it is indicative of business success. Danish research found that, although entrepreneurial establishments only account for 8% of total gross job creation, they will generate more additional jobs than other new establishments in the years after the market entry (Malchow-Møller et al., 2011). However, in the US they found that the share of employment accounted for by young businesses has decreased over the last three decades by nearly 30 percent (Decker et al., 2014). Still, most people are employed by small and medium-sized enterprises (SME). This can be seen even more clearly in low- and middle-income countries such as South Africa (Kongolo, 2010).

We have found literature suggesting that job creation is both in the interest of entrepreneurs and society. Because of these reasons we are interested at looking at the possible effects overconfidence and underconfidence have on

expected job generation, a variable that is present in our dataset.

2.2 The General Concept of Overconfidence (OC)

To dissect the general topic of overconfidence we will use the framework as explained by Moore and Schatz (2017). The three types of overconfidence they discuss are *overestimation*, *overplacement*, and *overprecision*. We have also gathered literature on consequences on business practices.

2.2.1 Overestimation

People exhibit a positive bias when it comes to predicting the future (Sharot, 2011; Taylor, 1989), which could drive overestimation. It is unclear whether self-deception is self-serving in actuality. The opposite effect has however been proven, since biased or false beliefs can cause outcomes that are less favorable (Chance et al., 2011). Self-efficacy, an individual's belief in their capacity to act in the ways necessary to reach specific goals (Bandura, 1977, 1986), has also been proven to be strongly linked to motivation; increasing the resources directed towards a goal, but reducing the magnitude of resources allocated to accepted goals (Vancouver et al., 2008). Self-efficacy is influenced by education and role models, among others, and in combination with self-personality, and self-confidence influence entrepreneurial intentions (Garaika et al., 2019). Nonetheless, overestimation it not always the effect of self-deception, since less skilled performers overestimate their performances because their incompetence deprives them of the attributes needed to recognize their shortcomings (Ehrlinger et al., 2008), and in a more specific case for students the same holds (Miller & Geraci, 2011). In the case of entrepreneurial intentions, it is likely they would exhibit wishful thinking, but this effect has not been proven empirically (Gur & Sackeim, 1979) and proving this effect is difficult (Krizan & Windschitl, 2007). There is further evidence suggesting that overconfidence could hinder obtaining certain results (Benoît et al., 2015; Vosgerau, 2010).

The opposite, underestimation, has been proven in multiple studies to exist for many individuals. Evidence has been provided on the underestimation of performance - especially in easy tasks (Clark & Friesen, 2009)- and on how good the future will be (D. Moore & Small, 2008). The two concepts of underconfidence and overconfidence as a result of task difficulty are described by the hard-easy effect by Lichtenstein and Fischhoff (1977) and later generalized by Gigerenzer et al. (1991). The distinction between easy and hard tasks, where a person tends to exhibit more overestimation, and thus more overconfidence, helps to explain the possible effects we might see. Starting a new venture can be considered a challenging task, thus making it more prone to overestimation.

In summary, overconfidence in the form of overestimation is very prominent in individuals. Therefore, it is likely that both nonentrepreneurs and entrepreneurs exhibit this behavior in different ways. Generally, nonentrepreneurs will overestimate their chances of becoming an entrepreneur and capabilities but this will make them more motivated because of a high self-efficacy. As for entrepreneurs, it is plausible they will overestimate predictions about the future.

2.2.2 Overplacement

The most apparent example of overplacement as one of the forms of overconfidence is known as the "better-than-average" belief. This is so widespread among individuals that research has concluded it is nearly universal (Beer & Hughes, 2010; Dunning, 2012; Sharot, 2011; Taylor, 1989). Although those results should be interpreted with some caution because of individual (risk) judgments (Harris & Hahn, 2011; D. A. Moore & Small, 2007) and because of the distribution of measurement methods (Benoît & Dubra, 2011), this does give us some insight into the inherent bias entrepreneurs would have. However, a gap in the research exist because of what is known as self-selection. This bias comes from the individual's decision to participate in a study.

Hogarth and Karelaia (2012) stated that overconfidence can lead to excess entry of new businesses, but that excess entry due to judgmental fallibility does not always constitute overconfidence. Since half of the businesses exit within the first 4 years (Headd, 2003), many entering entrepreneurs were probably wrong about their chances of success. 'Underplacement' as a term is not present in current literature, but as can be seen by the above explained hard-easy effect, this could very well exist based on the underestimation of performance when it comes to easy tasks.

In summary, almost all individuals tend to believe they are above average when it comes to a multitude of tasks. This can lead to excess entry of new businesses, but since this is so common amongst individuals, we do not yet know if this is more apparent among (nascent) entrepreneurs than for the general population.

2.2.3 Overprecision

Overprecision is defined by the academic literature as the excessive faith in knowing the truth. Especially for entrepreneurs this can be relevant since they are often convinced that their product is the absolute best product. It has been proven that people are often wrong even though they claim to know the answer for certain (Fischhoff et al., 1977). Although research is scarce, erroneous confidence about one's own accuracy has been proven to negatively affect individuals (D. A. Moore et al., 2015). They state that overprecision leads people to rely too much on their judgment despite many flaws (Bazerman & Moore, 2012). The over-reliance on flawed judgments reduced the ability to protect oneself of errors in judgment. In practice one of the repercussions is, for example, economic agents are often too confident about their ability to accurately predict the value of assets, reducing their ability to effectively react to economic signals (Daniel et al., 2001). Excessive market prices could even be caused by this, with some authors stating that this is the most important bias to effect economic markets (Odean, 1999; Rubinstein, 1985). Unluckily, measuring this in individuals is hard because of individuals inherent misunderstanding of accuracy (Juslin et al., 2000) and the self-reporting of individuals that is necessary for these studies. Since knowing whether individuals are prone to over-precision would require individual questionnaires and new methods, this is hard for us to measure and accommodate for. In summary, overprecision is harder to measure than the previously discussed forms of overconfidence. Nonetheless, research has proven that, in general, this can lead to excessive pricing of products, over-reliance on flawed judgment, and a failure to protect from risks whose probability has been underestimated (Silver, 2012).

2.3 Underconfidence (UC)

Far less is known about the implications and measurement of underconfidence in general and on entrepreneurial intentions. As people are often bad at accurately predicting their own abilities, underconfidence can often be seen as 'the other side of the coin' of overconfidence. As mentioned before, underestimation has been proven in some cases, especially in easy tasks (Clark & Friesen, 2009), and on how good the future will be (D. Moore & Small, 2008). We can only speculate on the impact this could have on entrepreneurial intentions and success, but entrepreneurs could be hesitant to make important decisions, since they fear failure, causing decisions to be delayed and missed opportunities. The question whether someone that is underconfident would ever start a business is a very relevant one, since the definition of underconfidence induces the reluctance of commitment to new business ventures.

Financial necessity could be a factor. Also, global sustainability concerns are important drivers of new businesses (Tur-Porcar et al., 2018), reducing the negative effects of barriers such as underconfidence.

Liquidity constraints are a substantial factor when starting a business with owners bearing most of the risk (Evans & Jovanovic, 1989). Wealthier people tend to be more inclined to become entrepreneurs, not because they make better entrepreneurs, but because they are less constraint by financial limitations. One could therefor theorize that given higher financial barriers for less wealthy people, risk aversion would negatively impact starting chances. We also know that risk attitudes are significantly correlated with self-reported confidence, especially for the "hard-easy" effect" (Murad et al., 2016). Kan and Tsai (2006) have proven that risk aversion is not correlated with wealth, but it does have a negative impact on the decision to become self-employed. Historically the negative effect of risk aversion on entrepreneurship has been theorized (Blanchflower & Oswald, 1998; Kihlstrom & Laffont, 1979) and more recently empirically proven by Cramer et al. (2002). This is in line with existing literature that less risk averse individuals are more likely to become entrepreneurs (Kanbur, 1979; Knight, 2013; Marshall, 1890). In summary, underconfidence has also been difficult to measure, especially in an entrepreneurial context. Especially at the forefront is the generally accepted conclusion that people tend to underestimate their abilities when it comes to easier tasks. We also know that risk attitudes are correlated with confidence levels, a complex interaction that might play a role in entrepreneurial intentions and success.

2.4 Overconfidence and Underconfidence in Practice

2.4.1 Negative Effects of OC

Optimistic bias among entrepreneurs is present (Kahneman & Lovallo, 1993), but often optimistically biased predictions are seen as ideal (Armor et al., 2008). But they also carry a risk, because of delusions of control as recognized by many authors (Duhaime & Schwenk, 1985; March & Shapira, 1987; Salamouris, 2013). According to Riabacke (2006), many managerial decisions are based on gut feeling, making optimism bias more dangerous. In companies, pessimism can often be interpreted as disloyalty towards the company and thus it is often suppressed. Negative messages can be demoralizing, creating an environment of even more optimism bias. Especially when new businesses start, this could be damaging since the teams are small, communication lines short, and uncertainty is likely high. More confident actors often start new ventures even in the light of high venture failure rate due to hubris (Hayward et al., 2006). This is often due to the decision to allocate, use, and attain resources leading to increased likelihood

of their businesses failing (Hayward et al., 2006). The same authors theorized in a later paper that highly confident entrepreneurs are also better positioned to start and succeed in future ventures (Hayward et al., 2010).

2.4.2 Positive Effects of OC

On the other hand, we can see that a positive mindset can help with overcoming adversity in stressful situations (Taylor & Armor, 1996). Optimism goes hand in hand with the feeling of control, leading management towards taking more risks, not in the last place because individuals exhibit more overconfidence when they are in a position to influence the outcome (Howell, 1971). Taylor and Brown (1988) examined the psychological effect of self-deception and well-being, concluding that unrealistic optimism is prevalent in most humans. However, they also state that this is helpful when coping with life's challenges. This has also been documented by Seligman (1991). People also tend to be more confident when provided with more and stronger information (Koriat et al., 1980; Oskamp, 1965) and with longer observation time (Ryback, 1967), however, the accuracy of their answers does not improve. This does lead to higher uncertainty because of the persons beliefs about the variability of possible outcomes (Peterson & Pitz, 1988). People also tend to believe irrelevant variables influence their accuracy when it does not or fail to attribute sufficient weight to relevant information (Kahneman et al., 1982). For the GEM questionnaire we assume that respondents are well-informed about the subject of entrepreneurship and had plenty of time to overthink their answers.

The effect of overconfidence is often conflated with optimism when it comes to entrepreneurial intentions. Bernoster et al. (2018) found that overconfidence is related to intended market entry but not to market orientation. Their research focused on students from different universities whose overconfidence was measured on the overconfidence scale of Russo and Schoemaker (1989). Other research strengthens these findings, concluding that optimism and overconfidence are both beneficial when deciding to become an entrepreneur, but overconfidence could be harmful when making decisions in response to setbacks (Trevelyan, 2008). Similar research in northwest Italy concluded that overconfidence, as measured by the disparity between estimated financial parameters and the actual outcomes, could be advantageous during start-up, but could also lead to overoptimistic forecasts, and non-optimal outcomes and even firm failure (Invernizzi et al., 2017).

Not a large body of research exists on the difference in overconfidence and underconfidence between sexes. Although some results indicate higher overconfidence for boys compared to girls (Jakobsson et al., 2013), some suggest robust gender differences in risk taking and overconfidence, others indicate no difference between male and female auditors (Hardies et al., 2012), or even no differences between males and females in general (Gigerenzer et al., 1991). In achievement settings, though, women are more likely to show low self-confidence (Maccoby & Jacklin, 1974), but this is also very dependent on the situational variables such as the ability area, the availability of performance feedback, and the emphasis placed on the social setting (Lenney, 1977). Entirely unscientifically, folklore still denotes males as being more overconfident, something which might interest us in our research outcomes. Appropriate self-confidence (denoted by SC in scientific literature) has the potential to influence performance and leadership qualities. We know that self-confidence have been found to positively influence performance whereas the adverse effect could be found for a lack of self-confidence, for example in athletes (Feltz, 2007). Self-confidence can also lead a person to become a de-facto leader in peer groups when it comes to decision making (Greenacre et al., 2014). Moreover,

business creation seems to be positively influenced by SC (Asoni, 2011). Luckily, self-confidence, as part of the positive psychological capital, can be developed further (Hollenbeck & Hall, 2004). Some research has not found any significant effect of self-confidence on entrepreneurial intentions, but only on relational- and educational supports to influence the entrepreneurial intention of university students (Gelaidan & Abdullateef, 2017). Still, self-confidence might also be of influence on the low proportion of female entrepreneurs (Statista, 2023). The World Bank (2023b) states that the share of female entrepreneurs has increased over the last year and that financial constraints are often the cause of lagging female entrepreneur numbers. However, Kirkwood (2009) also notes that females exhibit a lack of SC in their own abilities as entrepreneurs compared to the other sex. The risk for females to start business operations in male dominated areas brings a lot of risk, and often strong moral support and an established track record are needed to succeed (Hisrich, 1986), which might also damage self-confidence.

2.4.3 Positive and Negative Effects of UC

Significantly less is known about underconfidence as it is less frequent in humans and might be more difficult to measure. It is known that people believe themselves to be below average on more difficult skill-based tasks since they are often unaware of information regarding the larger population thus making more conservative estimates (D. A. Moore & Cain, 2007). Scholars also state that entrepreneurs find it difficult to recognize problem areas and make major changes, this could reduce inclinations to continue working for firms during - inevitable - start-up difficulties. As mentioned in the introduction, underconfidence might also hinder new innovations being introduced because of the lack of belief in its necessity.

2.5 The Measurement of Overconfidence

A definitive method to estimate overconfidence has not yet been established but some scholars have posed suggestions. Some methods include comparing investment decisions to a benchmark of 'sensible investment time' (Malmendier & Tate, 2005a). However, different analysis methods can obtain varying results even when using the same data set (Erev et al., 1994). Pulford (1996) described a quantifiable way as 'converting the degree of strength of belief/certainty into an estimate of the subjective probability that the judgment is correct'. They base their method on a previous study by J. K. Adams and Adams (1961) and Murphy (1973), who measured realism in confidence judgments by assigning probabilities of outcomes with accuracy. The question whether an individual thinks he has the abilities to become an entrepreneur is a choice between two mutually exclusive answers, they would use a half-range scale of 50-100%, since a 60% confidence in 'yes' would mean a 40% confidence in 'no'. They concluded that confidence is often measured as an estimate of the subjective probability in the correctness of the judgment. However, in our case there is no such thing as a factually correct answer since successful entrepreneurship is not solely determined by some personal characteristics. We will use a similar theory by comparing potential entrepreneurs' expectations of their capabilities to a benchmark, which will be discussed in further detail in the methodology.

Michailova (2010) has summarized various methods from financial literature about the measurement of over-

confidence. They divide it in to four distinct categories: miscalibration, the better than average effect, illusion of control, and unrealistic optimism.

Miscalibration is described as a cognitive bias that states that people tend to overestimate the precision of their own knowledge. The tendency of people to exaggerate their talents is defined by the concept of the better-than-average effect. Illusion of control is linked to the overestimation of the degree to which one can control one's fate. The methods they use to calculate will be discussed in the methodology.

2.6 Conclusion of the Literature

As we have seen, many different types of overconfidence are present in individuals with many more different ways in which it manifests itself. As for our research we assume that overestimation will have the biggest effect. Individuals will overestimate their predictions for the future causing bias when determining to start a business. Inaccurate individual risk assessment, as a part of overplacement, will also influence people's perception of their chances as they are often based on their assessment of their own abilities. This does however also have a positive side, with people being extra motivated and driven to succeed. In the early stages of entrepreneurship, which we will not focus on, overprecision will be more important. Being overconfident in your own accuracy and thus neglecting critique from others could hinder business development. As for underconfidence, much less is known how this will influence intent of entry to businesses. Based on what we read underconfidence is much less visible and prominent in individuals. It could make individuals more hesitant about making important decisions, but since we are focused on entrepreneurial intent this might be less of an influence.

3 Methodology

In this section we will discuss the three steps of the analysis that we will undertake. The first step is identifying the characteristics of a successful entrepreneur. The second step is to calculate for each potential entrepreneur the probability of becoming a (successful) entrepreneur. This will allow us to define whether the subject in question has overconfidence (OC) or underconfidence (UC). Lastly, we will analyze whether overconfidence and underconfidence cause a higher or lower odds of entrepreneurial intentions. We will also look at the effects OC and UC have on the type of entrepreneur and the expected jobs provided. To accomplish this, we will divide our data set into two main groups, the established entrepreneurs, and people who are not an entrepreneur. For the first group we will only use the entrepreneurs that have been successful, as defined in section 3.1. The latter group we will use as the group for which we estimate OC and UC, as described in section 3.2.

3.1 Identifying the Successful Entrepreneur

Although much research has been done on barriers and predictors for entrepreneurs (Bhaskar & Garimella, 2017), a generalized definition for a 'successful' entrepreneur has not been established. Some of the motivators for starting a new venture they discovered were financial gain, family tradition, and helping others. Among the barriers were

things such as low confidence, lack of help, lack of knowledge. In section 2 we also discussed differences between cultures, gender, and entrepreneurial history.

We will sort the data set to include only successful entrepreneurs. In our case we will look at entrepreneurs that have been in business for more than 42 months and earn a wage from their business. The period of 42 months has been chosen for a reason. Firstly, three and a half years in business is a point in time where most businesses are considered to be in the 'growth phase' or even in the 'established business' phase. This last definition is also used by the GEM database with the variable *estbbuso* denoting all individuals who are owners and manage a firm that is older than 42 months. We interpreted earning a wage as all persons who have received any form of financial compensation from their business. Apart from non-profit organizations, earning money is often the goal of a business (Santarelli & Vivarelli, 2007). This is even more prominent for necessity driven entrepreneurs (Andersson & Wadensjö, 2007). One could argue that even social entrepreneurship should be, to some extend, profit driven if the business wants to grow. Since in the data set there are many variables denoting the receiving of monetary compensation, we group these variables. Some of the variables that are being used are *ompay2, supay2, and suwage* where 'om' is the abbreviation for owner manager, and 'su' the abbreviation for startup. If any of these variables was denoted with '1', we coded this as having received compensation in the dummy variable *wage_ check*. We also created other subsets of entrepreneurs, among those subsets with only managers or manager/owners of nascent entrepreneurs. Using these data-points combined with some characteristics that might influence being a successful entrepreneur such as education level, gender, income among other things we calculate the importance of all these variables.

3.2   The Potentially Successful Entrepreneur

Using the information gathered such as described in the last section we have calculated the chance of becoming a successful entrepreneur. We have done this for all individuals who are not an established entrepreneur. We have also looked at individuals who have never been an entrepreneur, as they could less likely exhibit over- or underconfidence because of their past experiences. We used a logit model and a probit model and got an estimation of the chances of becoming a successful entrepreneur according to some characteristics. We have also controlled for country variables as the space for- and societal view on entrepreneurs differs between countries (Steyaert & Katz, 2004).

With the data set that is available to us, there is not a definitive method of determining the confidence level of an individual. Therefor we have used a method similar to what is discussed by Michailova (2010);

$$biasscore = avg\ \%\ confidence - avg\ \%\ correct$$

Where a positive bias score indicates overconfidence, a negative score represents underconfidence, and a zero bias score indicates an accurately calibrated (neutral) person.

Using the estimated probability on successful entrepreneurship and the question about whether the respondent thinks he or she has the skills required to succeed with their own business we can determine the three possibilities. In our data set, with around three million observations, 2.7 million answers to that question were present, which are almost equally split between 'yes' and 'no'. If the chance of successful entrepreneurship is high compared to the

distribution of other individuals' chances, say 25%, and the person in question thinks he does not have the skills to succeed we will flag this as underconfident. The opposite will be done for overconfident people with a cutoff value of for example 1% (idem as for the 25%). This method can be seen as a novel technique because such a measurement of personal confidence levels has not yet been tried. The calculated probabilities for estimated entrepreneurial success, that is becoming an owner/manager of an established firm and receiving monetary compensation, will be discussed in the results. These chances seem relatively small, however thinking of this as only the probability of becoming a successfully entrepreneur solely based on mostly unchangeable characteristics such as gender, age category, country, fear of failure and education, these chances are relatively high for some people. We used several different models to calculate this probability, such as adding more predictor variables, changing the size of the training and test group, and logit and probit models. For our main model we choose an equal split between training and testing set because the size of our data set is large enough to properly estimate a model, even compared to splits with a larger portion of training set data. The results of these models will be discussed in the results and discussion. Since this is a novel method and thorough psychological research should be done to determine actual over- and underconfidence in the respondents, we have tried several different methods of generating the OC and UC variables. The most reliable method seemed to be dividing the set of calculated probabilities of becoming a successful entrepreneur into quantiles. This is because it gives us a rough estimation about the distribution of the calculated probabilities and lets us set values for 'extreme' probabilities with an equal group of people in it. We tested for different partitions, such as dividing into 10, 20, and even 30 quantiles. For example, in the case of 10 quantiles, the cutoff value for the first and last quantile would be 0.00076 and 0.03505 respectively. Logically, dividing this into more quantiles would result in the first value approaching the minimum value of the probability and the second value approaching the maximum value of the variable denoting the probability of becoming a successful entrepreneur. We then generated the OC to be equal to one if the person was below the cutoff value -meaning a low probability- but nonetheless believing they possess the skills and zero otherwise, and UC to be equal to one if the individual was above the cutoff value -meaning a relatively high probability- but believing they do not have the skills, knowledge, and experience to become a successful entrepreneur and zero otherwise. Different methods for determining these variables will also be discussed in the results and discussion.

3.3 The Effect of Overconfidence and Underconfidence

Using the three groups described earlier we calculated if OC and UC have an effect on the intent to start a business and other dependent variables such as the expected amount of jobs they will offer in the coming five years. To calculate this, we have used a logit and a probit method and checked for the effect of the newly constructed variables while controlling for things such a country effects, and other personal characteristics that were not previously part of the calculation of the probability of success. We have divided the explanatory variables into three sets, a general set, an extended set, and a complete set. We have used different sets of variables because some variables where only present in some years, countries, or other specific partition of the data. We can see that between models 1 and 3, the amount of observations more than halves. We have tried to make a logical distinction between the three groups of variables:

Main set consist of a set of general variables, all of whom can be found in the appendix. Among those are for

example, gender, age category, whether they know any other entrepreneurs, work status, and income status.

Extended set adds to the main set by introducing more variables. This includes, among others, household size, whether they quit or sold a business in the last year, and if they are an angle investor to any other business. Although these variables add information, they significantly reduce the number of observations in the regressions.

Complete set adds to the set above by including personal answers to question about the status entrepreneurs receive in the eyes of the respondent. These variables are likely predictors of entrepreneurial intentions, however they have not been measured in some years, therefor they are excluded from the main model. In other models we also used the best countries for entrepreneurs list we will mention later in the data section.

For all regressions we will use robust standard errors since we do not assume homoskedasticity of errors. This method in STATA is robust to some types of misspecifications if the observations are independent (Huber, 1992), which we can assume since individuals in the data set have been randomly selected and the data set is large.

We also want to examine the effect of OC and UC on the difference between necessity-driven entrepreneurs and opportunity-driven entrepreneurs. As it is likely that necessity driven entrepreneurs are more motivated by financial gains, and less by personal motivations, this could result in different estimations. Opportunity driven entrepreneurs might be more motivated by personal characteristics such and overconfidence and underconfidence among others. To estimate this, we have also used a logit model.

For our last research direction, we looked at the expected number of jobs offered in the entrepreneurial activity, denoted by *teayyj5y_merge*. In view of the fact that the data consist of four categories that can be clearly ordered -more jobs offered is considered to be better- we used an ordered logit model instead of a regular multinomial logit model.

For most research questions we have compared a logit and probit approach. Both models are appropriate for regressions with a binary dependent variable. The main difference being the assumption about the distribution of the error term, logistically or normal distribution respectively. We compare both models with the log-likelihood and Pseudo R-squared. As for the base categories of all independent variables we choose Mexico as the base country since it has a close to average NECI-score (see section 4.1), a stable financial situation and a large number of observations. As for the region, although it is likely to be collinear with the countries, we choose no base category. For age, income, year, and education we choose the lowest value as the base. We would have liked to have used 'no education' as the base, but this was impossible due to a lack of observations. As for work, we selected 'not working' as the base value.

Concluding, our research questions can be summarized by:

What is the effect of overconfidence (OC) on the intention to start a business?

What is the effect of underconfidence (UC) on the intention to start a business?

What is the effect of overconfidence (OC) on opportunity- and necessity-driven entrepreneurship?

What is the effect of underconfidence (UC) on opportunity- and necessity-driven entrepreneurship?

What is the effect of overconfidence (OC) on the expected number of jobs offered in 5 years?

What is the effect of underconfidence (UC) on the expected number of jobs offered in 5 years?

4 Data

We will use the data compiled by the Global Entrepreneurship Monitor (GEM, 2023c). Every year they publish their Adult Population Survey (APS) data that looks at the characteristics, motivations and ambitions of individuals starting businesses, as well as social attitudes towards entrepreneurship (GEM, 2023d). The data contained information on 206 different countries, however the amount of observations in each country was highly different. This survey has answers on questions about for example "Perceived Opportunities Rate", "Perceived Capabilities Rate", and "Fear of Failure Rate". It also consists of information about how the individuals view entrepreneurship as well as how they perceive others will view it. We will control for country level variables such as GDP and average annual income by including the country and region control variables. We also controlled for country specific characteristics such as GDP per capita, import and export amount as a percentage of GDP, foreign direct investment (FDI) inflows as a percentage of GDP, and households' final consumption expenditure as an annual percentage growth. We collected this data from The World Bank (2023a), which had information on all countries in our sample for most of the years. This way we control for factors that might influence entrepreneurial intentions and success, since it is known that several factors including economic activity promote entrepreneurship (Galindo & Méndez, 2014). Other research on the GEM data set concluded that entrepreneurial attitudes stimulate GDP per capita in high-income countries and that the contrary is true in middle- and low-income economies (Doran et al., 2018), but they also state that the mechanisms are not yet clearly understood. For example, Acs et al. (2008) found a clear relationship between the income per capita and the ratio between opportunity and necessity driven entrepreneurship.

4.1 Data Manipulation

The data set consists of the years 2001 through 2019, however the years 2001 and 2002 do not contain our main variable *futsup*, denoting the answer to the question whether the respondent is expecting to start a new business in the next three years. We also re-coded some variables that were changed throughout the years of the survey. For example, in 2019 GEM switched to scale based answering for some of the questions. Instead of the previous "yes" and "no" answers, respondents could now answer with "Strongly disagree", "Somewhat disagree", "Neither agree nor disagree", "Somewhat agree", and "Strongly agree". We recoded the first two to correspond to "no" and the latter two to correspond to "yes". This reduces accuracy but allows us to use the same variables for each year. This was coded in STATA, the code can be found accompanied with this paper. In the methodology, section 3, we go into further detail about some of the variables used for the creation of the subgroup of successful entrepreneurs. Throughout the years there were also some year-specific questions, which we decided to ignore to get a good longitudinal study with as many years as possible. We used the UN harmonized educational attainment scale, which was used in the GEM data from 2005 onward. Age was divided into nine categories, a categorization that was also used in most years by GEM. Some data anomalies were hand selected to be removed, for example, the distribution of household sizes was unrealistically skewed with a great deal of households consisting of more than

30 people.

We also added variables measuring the business climate for new ventures. We used the NECI score (National Entrepreneurship Context Index), a measure of the ease of starting and developing a business constructed by GEM (2023f). Experts evaluate statements about 12 framework conditions related to entrepreneurship, using a nine-point Likert scale. They also provide importance scores for each statement, which are used to calculate individual weighted NECI scores. These scores are averaged across all experts to determine NECI values for each framework condition and rank economies based on their overall NECI value. This score was introduced in 2018, thus we have only constructed these variables for the years 2018 and 2019. For both years we have generated dummies for the best five and best ten countries to start a business in. In the correlation table 4 we can see the correlation with three variables about perception on entrepreneurs, where we see that they are all positively correlated with countries with high NECI scores. This might be due to the influence of entrepreneurial role models (Bosma et al., 2012). A region variable was added to divide countries into 5 distinct regions using the distinction used in one year of the APS survey.

Furthermore, we created dummies for the different subsets of entrepreneurs, which we have discussed in the methodology. We then split the sample using even distributions between people within the subset and outside the subset, year of the survey, gender, and country. Table 1 displays the size of the different subsets we created and the size of the test set we constructed.

Table 1

Descriptive statistics: Subset Information

Subset	Size
1: Owner and/or Manager	555,761
2: Owner and/or Manager established firm	228,008
3: Owner and Manager established firm	227,666
4: Owner and Manager established firm with monetary compensation	34,415
Test set	1,159,605

4.2   Data Overview

In table 2 we can see the main variables that were used for our research. *bstart* is a dummy denoting if the subject is currently starting a business, *suskill* records the answers to the question if the respondent believes he or she has the necessary knowledge, skills, and experience to start a business. This variable is present for both nonentrepreneurs and entrepreneurs. Not surprisingly, we see a far higher percentage of positive values for (nascent) entrepreneurs for this variable. *fearfail* is a dummy variable denoting whether the person in question believes fear of failure would prevent them from starting a business.

Table 2

Descriptive statistics: General variables

Variable	Obs	Mean	Std. dev.	Min	Max
Year Survey	3,049,162	-	-	2001	2019
Gender	3,045,943	.485	.5	0	1
Age	2,980,793	41.9	15	0	104
Prob OM est.*	936,720	.0138	.0204	.0000339	.39
bstart	3,030,186	.113	.317	0	1
futsup	2,860,748	.189	.392	0	1
suskill	2,679,256	.503	.5	0	1
fearfail	2,631,011	.39	.488	0	1

Note. *Prob OM est. denotes the estimated probability of an individual becoming a successful entrepreneur

Table A.6 provides an insight into the differences per age group. Since for almost all individuals gender is defined the sum of both genders equals the total amount of people in each age category, where the other variables are the same as in table 2. *discent* is a variable indicating 1 if the individual has exited or closed down a business in the last 12 months, and *knowent* gives us information about the amount of people that know an entrepreneur. We can conclude that the percentage of people starting a business is highest in the age category 25-34, as well as the absolute highest value of all categories. This is in line with more recent years (GEM, 2023a). We also see that as age trend upwards, the variable *suskill* seems to trend upwards, we see the same in table 3, meaning older individuals rate themselves more apt at starting new ventures. In the literature section we briefly talked about the gender difference, the results of which can be seen in table A.7. Note that the rate of male to female in our database is 49% to 51%, therefor we will roughly interpret these absolute amounts as percentual differences between genders. Notably, we see that women have less intentions to start businesses and subsequently do. They also have less trust in their skills, which could be explained by the difference in confidence, or past experiences with barriers for starting new ventures. This could also be influenced by a more prominent fear to start businesses compared to men.

Table 3

Correlation table: General variables

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. futsup	1								
2. Prob OM est.*	0.1627	1							
3. suskill	0.2567	0.2015	1						
4. OC	-0.0045	-0.0785	0.1131	1					
5. UC	0.0046	0.3338	-0.1126	-0.0127	1				
6. gender	0.0680	0.1722	0.1333	-0.031	0.0336	1			
7. age	-0.2051	0.0527	-0.0537	-0.0159	0.0379	-0.0159	1		
8. bstart	0.3682	0.2204	0.2416	-0.0228	0.015	0.0642	-0.1101	1	
9. fearfail	-0.0824	-0.1414	-0.1475	0.0155	-0.022	-0.0684	-0.0122	-0.0779	1

Note. *Prob OM est. denotes the estimated probability of an individual becoming a successful entrepreneur

Some of the differences above can be somewhat explained by the correlations we see in table 3. Noteworthy values are for the variable *futsup*, where comparatively it is more correlated with other variables, such as a positive correlation with the suspected skill variable. We see a very small negative correlation with the overconfidence variable and a very small positive correlation with the underconfidence variable. As for the gender variable, we see the same pattern we saw in table A.7 where men start more businesses, have the intention to start businesses and suspect they possess the skills to start a business.

Table 4

Correlation table: Entrepreneurship and perception

Variable	1.	2.	3.	4.	5.	6.	7.	8.
1. Country ent	1.0000							
2. knowent	0.0215	1.0000						
3. suskill	-0.0235	0.2373	1.0000					
4. opport	0.0787	0.1949	0.2361	1.0000				
5. equalinc	-0.0219	0.0007	0.0277	0.0618	1.0000			
6. nbgoodc	0.0221	0.0564	0.0950	0.1770	0.1628	1.0000		
7. nbstatus	0.0779	0.0380	0.0614	0.1544	0.1282	0.2492	1.0000	
8. nbmedia	0.1017	0.0619	0.0883	0.1792	0.1197	0.1882	0.2303	1.0000

Table 4 gives us some insights into the perception about entrepreneurs. *Country ent* consist of the list of good countries for entrepreneurship in 2018 and 2019, as discussed earlier in this section. We see that this is positively correlated with the positive perceptions about entrepreneurs, but this value is almost negligible. It is however very likely that if people consider entrepreneurship to be a good career choice, they would have answered that entrepreneurs have a high level of status in their country. The variables *nbgoodc, nbstatus,* and *nbmedia* denote

whether the respondent believes new businesses ('nb') are considered good career choices, receive a high status, and receive a large media attention. *opport* answers the question if the respondent thinks that in the next 6 months there will be good business opportunities. Surprisingly, this does not seem to be correlated with the good-country-for-entrepreneurs variable, meaning that even in countries better equipped to accommodate new ventures, people tend to not see more business opportunities.

4.3   Data Anomalies

We have briefly addressed some data anomalies, which we will also highlight in the discussion, section 6. The General Entrepreneurship Monitor is known for its extensive and trustworthy database and analysis, since they have a rigorous data review process (GEM, 2023b, 2023e). Nonetheless, one of the main inconsistencies in the data is within the multitude of variables denoting whether someone is an entrepreneur, and if so, what kind of business or in what stage of the business life cycle the venture is. Some variables should be transitive or mutually exclusive. For example, if someone is registered as taking part in a new venture with others, the variable denoting if the individual is currently working on a new business should be 1 as well, but that is not always the case. The same holds true for some of the variables indicating the work status of an individual, where for some individuals they seem to have a full-time job, part time at work and unemployed. To accommodate for these inconsistencies, we have run our regressions for everyone who is not currently in the subgroup of owner and/or managers, created by a large set of variables, as well as the condition that none of the variables denoting new start-up efforts are equal to 1. The exact variables used can be found in our STATA code. It should also be noted that the APS is conducted by independent teams that differ per country and that the survey is often conducted during the middle of the calendar year, resulting a very skewed month of survey distribution.

5   Results

To estimate the effects, we have run multiple models, mostly differentiating between dependent variable, list of independent variables and regression model. We have both estimated logit as well as probit models for most research questions. We will compare model performance based on the log likelihood among other statistics.

5.1   The Established Entrepreneur

For the calculation of the probability of becoming a successful entrepreneur we have used both logit as well as probit models. The log likelihoods where very comparable as well as the Pseudo R-squared. Because of the easier interpretation of the logit model, we used this as our main method. These results can be found in table A.9. From these results we see that most of the country variables are significant, as well as gender, work status, and education. What is surprising is that age category does not seem to be significant, as well as one of the income categories when predicting the odds of being a successful entrepreneur. Higher levels of education are significant, however, they all have smaller odds of being in this subset of entrepreneurs. Note that we use the results of the logit model for subset 4 to predict the probabilities for the non-entrepreneurs. Subset 3, consisting of **all** established owner-managers, has

very similar results when regressing. One thing that stands out is that for the entire established OM subset, age categories seem to be more significant. The predicted values for non-entrepreneurs range from close to 0 to 0.39, as can been seen in table 2. We have divided this into 20 quantiles, taking the first and last quantiles as our cutoff values for determining OC and UC. 0.00046 and 0.05181 were these values respectively. After calculating the OC and UC, this left us with 13,096 overconfident individuals, or 0.86 percent, and 10,525 underconfident individuals, or 0.69 percent. This also significantly reduced the correlation between suskill and UC as compared to less quantiles.

5.2 Research Questions

Note that for several models we have removed some of the variables for easier reading, this is denoted under the tables. A complete overview of all models can be found in table 5. In the appendix we have included both the coefficients for the models as well as the log odds ratios for the logit models.

Table 5

Description of all models

Model Information			Variable Selection	
	Model type	**Dependent variable**	**Independent variables**	
Model 1	logit	futsup	*main set*: includes country/region, age, work, education, year	
Model 2	probit	futsup	*main set*	
Model 3	logit	futsup	*extended set*: adds previous entrepreneurial activity and opportunities	
Model 4	probit	futsup	*extended set*	
Model 5	logit	futsup	*largest set & country controls*: adds perception of entrepreneurship, adds country variables such GDP, Import/-Export, FDI	
Model 6	probit	futsup	*largest set & country controls*	
Model 7	logit	futsup	*largest set NECI included*: excludes country, includes country NECI score list	
Model 8	logit	futsup	*largest set NECI included*	
Model 9a	logit	SUBOPP	*largest set & country controls*	
Model 9b	logit	SUBNEC	*largest set & country controls*	
Model 10	ordered logit	teayyj5y	*largest set*: On nascent entrepreneurs	
Model 11a	logit	SUBOPP	*largest set & country controls*, excludes established OM	
Model 11b	logit	SUBNEC	*largest set & country controls*, excludes established OM	

Note. futsup denotes whether respondent thinks he or she will start a business in the next three years
Note. SUBOPP means respondent is a nascent entrepreneur out of opportunity
Note. SUBNEC means respondent is a nascent entrepreneur out of necessity
Note. teayyj5j denotes the expected number of jobs provided 5 years from now

5.2.1 Main Research Question

In table A.1 we can see the results for our main logit models for the effect of overconfidence, as denoted by OC, and underconfidence, as denoted by UC. For a complete view, this table displays all variables that were used, but our main focus are the first four variables in this table. We see that the baseline odds for our models 1, 3, and 5 are 0.10361, 0.09287, and 0.03671 respectively, and that all of these are significant. Note that these are the odds for wanting to start a business in the next few years based on all other variables being set to the baseline values.

That means in our case that all binary variables are equal to 0, the person is Mexican, aged between 0 and 17, et cetera. Using the *lincom* function we can calculate odds ratios for people compared to the reference group or compared to other hypothetical individuals. For example, we looked at a male in the Netherlands, aged between 35 and 44, with the suspected skills, full time worker with an average income, and tertiary education. We calculated the odds ratio for OC and UC, resulting in the values 4.122 (significant at a 1% level) and 3.819 (significant at a 5% level). This means that compared to the baseline, with all the 'lowest' values in each category, this hypothetical person has an odds ratio of 4.122 of the intention to start a business if he is overconfident. If he is neither overconfident nor underconfident, this odds ratio is 3.300, and if he is underconfident the odds ratio is 3.819. It might seem illogical that the odds ratio for being underconfident is higher than being neither overconfident nor underconfident, but this might be because of the nature of the construction of the UC variable. Each individual that is marked as being underconfident, by definition, has a much higher than average chance of becoming a successful entrepreneur, whilst not believing he or she has the skills. We know that *suskill* is positively correlated with both *futsup*, and the calculated probability. However, *UC* has a low correlation with *suskill* and is also negatively correlated with *futsup*. It would therefore be very plausible that individuals with high estimated probability are way more likely to start a business regardless of suspected skill. We will go into further detail on the matter in the discussion. If we look at the correlation between extreme values, those being in the 19th quantile of the probabilities, we see that this is positively correlated with the intention to start a business, although it has a lower correlation than the top half of values.

Table 6

Margins model 1, 3, and 5 at means

	Model 1	Model 3	Model 5
OC	0.01815***	0.02467***	0.02550***
	(0.00313)	(0.00655)	(0.0057)
UC	0.00679*	0.01241**	0.01592**
	(0.00379)	(0.00578)	(0.00641)

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Note. The coefficients are in dy/dx format due to the margins

Table 7

Predictive margins model 5 over suskill, OC, and UC

suskill/OC/UC	Margins Model 5	Margins Model 5 at means
NO/0/0	0.18436***	0.07254***
	(0.00244)	(0.00063)
NO/0/1	0.32866***	0.16009***
	(0.015718)	(0.00629)
YES/0/0	0.83273***	0.23525***
	(0.014796)	(0.00140)
YES/1/0	1.38962***	0.25944***
	(0.198021)	(0.00774)

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

In table 6 we can see the marginal effects for our three main models at the means of all variables. From this table we see that the marginal effect for all three models is positive. For our most extensive model we see that the average marginal effect of overconfidence is 2.55 percentage points and for underconfidence it is 1.59 percentage points, ceteris paribus. Note that for all three models the marginal effect is significant at a 1% significance level for OC,

whereas it is only significant at a 10%, 5%, and 5% significance level for UC. We see similar results if we take the margins at the base level. We also examined the odds of business intentions for every combination of *suskill, OC,* and *UC*, as can be seen in table 7. Note that we only did this for our most extensive model. The odds of having entrepreneurial intentions in the coming 5 years for someone who does not have the suspected skill and is neither overconfident nor underconfident is 0.184. An individual who is underconfident has the odds of 0.329. On the other hand, overconfident individuals have an odds of 1.390. All three of these margins have a significance of 1%. The marginal effect of *futsup* being 1 for overconfident people is 0.557 $(1.390 - 0.833)$ as compared to individuals with the suspected skills but not overconfident. For underconfidence this equates to 0.144 as compared to individuals without the suspected skills but not underconfident. Note that we only look at the first column, since this gives us an insight into the increases as a percentage of the baseline values.

From the regression tables we can see some other notable odds ratios. As predicted, men and young people are more prone to predicting future ventures. Not working seems to have the highest odds of wanting to start a new venture, giving extra substance to the necessity driven entrepreneur theory. Income seems to be of less importance with an odds ratio near 1. Higher educational levels cause slightly higher odds of wanting to start a business, but not all categories are significant. Lastly, we see that positive perceptions on entrepreneurs cause higher odds in entrepreneurial intentions. Looking at the odds ratios displayed in table A.2, we see that both the variable for the top 5 countries as well as the variable for the top 10 countries are significant at a 1% significance and are smaller than 1. This means that the odds of wanting to start a business in one of these countries seems to be smaller than in the baseline country. A country being in the top of the NECI ranking would likely mean that this country has a stable economy, high knowledge base, and good logistics resulting in a preference for more conventional and secure occupations.

5.2.2 Opportunity- and Necessity-Driven Entrepreneurship

The difference of over- and underconfidence on necessity and opportunity driven entrepreneurship can be found in table A.3. We see that both the OC and UC odds ratios are not significant, so we can conclude that they have no significant coefficients on the type of entrepreneur. As suspected, we see very contrasting effects for both entrepreneurs. As for the opportunity driven entrepreneurs, the left column (model 9a), we see that higher levels of education have higher odds of being this type of entrepreneur. The opposite can be seen in the right column (model 9b) where lower levels of education have relatively higher odds of being a necessity driven entrepreneur (when significant). It is likely that this is due to the correlation between educational level, income, and the financial drivers behind entrepreneurship. We see a similar pattern for the difference in income between the two models. *opport* is significant in both models, and as expected, has a high odds for the opportunity driven entrepreneur and a low odds for necessity driven entrepreneurs. Lastly, we looked at the effect of the status that the respondent attributes to this career choice. The odds in model 9a are significant and slightly higher than 1, from which we can conclude that status is one of the drivers. In model 9b we see a significant but slightly lower than 1 odds, meaning that this is not a driving factor.

5.2.3 Expected Number of Jobs Offered

For our last research question, we looked at the expected jobs offered in the next 5 years from the point of the survey. The results of the ordered logit model's odds ratios can be found in table A.4. In our dataset, in some years and in some countries, this question was also asked to nonentrepreneurs. This is illogical, since it would be abnormal to ask nonentrepreneurs how many jobs they think they will offer in the coming five years. Because of this reason we have looked only at nascent entrepreneurs, found in model 10.

The variables OC and UC are not significant, therefor we cannot say much about the effect they have on our model. The rest of the results gives us some insights into possible drivers for higher expected jobs offered. We see that being afraid of failure reduced expected jobs per category by 0.846. Other notable observations include that higher income has significantly larger odds of offering more jobs, an increase of 1.471 for the upper 33%. This can be explained by the fact that if a person earns more from the business, he or she is more likely to hire new people. For each level of education increase we see an increase in the odds of employing more people. The same holds true for most variables related to (previous) investments in other firms and perceptions on entrepreneurship. Notably, although not significantly, on the naked eye we see a slight trend upwards over the years. This might be explained by the effect of the economic crisis during the scope of these surveys.

6 Discussion

In this thesis we introduced a novel method of estimating overconfidence and underconfidence in individuals based on the Adult Population Survey data constructed by GEM. Our methods are based on the theory of comparing perceived beliefs in one's abilities as compared to a realistic estimated probability. In no way do we claim that this is a definitive diagnosis of both OC and UC, as that would require specific personal examination. However, it was our aim to test this novel method on such a large database as this could give insights into personal drivers of entrepreneurship. Our selection of 'successful entrepreneurs' is subjective since there is no definite list of requirements. However, we feel confident we used a relevant definition, that being more than 42 months in business and receiving monetary compensation. We should note that for the last requirement we are bound by the information in our data set. This is rather limited in a sense that there is a multitude of definitions when it comes to financial compensation. On top of that, no information is present about the height of the compensation, or detailed information on the type of compensation - this could be loyalties, shares or company benefits. The results of this regression as found in table A.9, show that most variables are significant. We also tested robustness by adding more variables, but this did not improve the model. Additionally, we prefer to only use variables that are not subjective in the prediction. For example, using the perception on entrepreneurship as a predictor of being a successful entrepreneur would induce bias as it is likely correlated with business owners or people with entrepreneurial intentions. We would have liked to add more of these variables to our model, but we were constrained by the data set and sample size in most years. We would have liked to include the study subject of the individual, some more intelligence metrics, information on their upbringing, personal motivators for future entrepreneurship, among others. In the first column of this table, we see the regression on the subset containing **all** owners and managers of established firms. This model has better predictive ability, with a higher log likelihood and higher pseudo R-squared, in future research

we would like to look further into this. Nonetheless, we specifically decided to keep our original definition of an established entrepreneur since we believe that merely being in business for 42 months without receiving pay would not be considered 'successful'. Using subset 3 we have run the regression for model 5, the results can be found in table A.10, but we found no significant effect for both OC and UC.

For the construction of the OC and UC variables we looked at the literature and determined to use a division into 20 quantiles (Michailova, 2010; Pulford, 1996). We also looked at dividing into 10 and 30 or above quantiles, however this gave unrealistic odds. For instance, dividing into 30 quantiles would leave us with 8,387 (0.55 %) OC people, and 6,407 (0.42%) UC people. This would also be an area of interest to look further into. The choice for 20 quantiles over 30 is safe in the sense that it could be that we could incorrectly categorize a person into one of the three 'confidence categories', but this would likely only result in a biased estimation toward a lessened effect of overconfidence on *futsup*. However, introducing a stricter measure for underconfidence could have resulted in an odds ratio of less than 1.

We preferred using logit over probit because of the very similar estimation performances and the easier interpretation of logit, but we have provided some of the results for both models. For our dataset we can assume that the observations are independent of each other, and possible duplicates were removed. Our main model estimated positive (marginal) odds for underconfidence. We have added the variables *suskill* and *Estimated probability* because we want to estimate the effect of overconfidence and underconfidence alone without omitted variable bias in the estimation. We know that this raises the risk of confounding variable bias, therefor we have also run the model without both variable, the results can be seen in table A.10. The odds ratios shown in this table thus also incorporate the entire effect of suskill and estimated probability of entrepreneurial success, and the combination of the two. We are not very worried about the risk of endogeneity between the variables because of the low correlation between the four variables, the fact that all variables in the model were significant (even with interaction effects), and that the predictive capability reduced when removing these variables. Nonetheless, we found that after removing these variables, the odds for UC reduced to below 1, meaning that the odds for underconfident individuals was smaller when wanting to start a business.

We can only speculate about the original odds ratio of UC being larger than 1, but one of the reasons might be because of the construction of the UC variable. By definition, individuals categorized as being underconfident have a high estimated probability of becoming an entrepreneur but believe they do not possess the skills. As discussed in previous sections, these variables are (highly) correlated with *futsup* and other variables which could cause bias. On top of that, we have used general variables to calculate the estimated probability of becoming an entrepreneur that could have an effect. For example, age is negatively correlated with wanting to start a business in the near future, but we also use this for estimating the probability of being a successful entrepreneur. Thus, it might be the case that people who are more prone to being an entrepreneur are, regardless of their suspected skills, more likely to start a business. We believe that also this problem could be resolved by adding more variables to the estimation and by controlling for more accurate estimation about the chance of becoming an entrepreneur.

Model 10 provides us with realistic results for nascent entrepreneurs. A possible explanation for the positive odds ratio for UC could be similar to the previous explanation. Also, it is very likely that the characteristics that

are present in successful entrepreneurs are also more prominent in nascent entrepreneurs, thus making them more eligible to be in the 'underconfident' category. We did control for this variable, and we see that this is slightly larger than 1, but not significant, giving substance to this theory.

7   Conclusion

We have looked at the effect overconfidence and underconfidence has on the intention to start a business, whether an individual is an opportunity- or necessity-driven entrepreneur, and the expected number of jobs provided in the next five years. We introduced a method for determining OC and UC by comparing respondents' perception of their ability to start a business to an estimated probability of them becoming a successful entrepreneur. We defined this as an entrepreneur who has been in business for 42 months or more and who has received pay for their efforts. We used logit as well as probit models for our analysis. Both models had very similar estimation results, therefor we choose logit because of the ease of interpretation. We concluded that overconfidence has positive odds on wanting to start a business in the next three years. Similar conclusions were drawn when we looked at the margins compared to the baseline category and to the means of all variables. We also looked at the effect of the OC variable in combination with the variable *suskill*. This strengthened our results since it showed that for people who are considered overconfident the odds of wanting to start a new venture were larger than for people not considered to be overconfident.

Equivalently we looked at the effect of underconfidence on *futsup*. We also saw a positive and significant effect on the intention to start a new venture, although smaller than for OC. Examining the interaction between UC and suskill, we concluded that underconfident people had higher odds of wanting to start a business. This result was also significant, but lower than for the OC variable. Surprisingly, when removing country variables and country specific control variables and adding a dummy variable denoting the top 5 and 10 countries for entrepreneurship, we found that underconfidence was not significant anymore and overconfidence had a similar magnitude but was less significant.

Secondly, we found no significant effects for both overconfidence as well as underconfidence when predicting whether an entrepreneur is opportunity or necessity driven. We modeled this for a data partition containing all business owners and managers and a set only containing all nascent owner/managers. For both models we found similar results. Our results did provide us with a good insight into drivers of both types of entrepreneurs. Men having higher odds of being opportunity type entrepreneurs, where the opposite can be said about necessity type entrepreneurs. We also found that higher income has higher odds for opportunity driven entrepreneurs, whereas lower income has higher odds for necessity driven entrepreneurs. A similar trend was found for educational attainment. Lastly, we used an ordered logit model to regress the coefficients OC and UC on the expected number of jobs offered in the next five years. This variable was divided into four categories, each category corresponding to more expected jobs offered. Since this type of variable has a clear natural ordering, we preferred this model. For our main model (model 10) we only found a slightly higher odds for underconfident people when expected higher levels of jobs provided. It should be noted that the nature of the generation of this variable could lead to bias in this result, since we used information on established entrepreneurs to predict effects on nascent entrepreneurs. It is likely that

there are some confounding variables or high correlation between these group. For this research question, we solely studied nascent entrepreneurs, meaning that they have been in business for less than 42 months, but this does not mean they are significantly 'different' people than established business owners. However, this model gave us some other interesting insights. Higher educational levels, as well as higher income, increase the odds of expecting more offered jobs. Intuitive inhibiting factors such as fear of failure, or a small network, and more negative views on entrepreneurship all have lower odds for the dependent variable.

7.1   Recommendations and Implications

We would like to expand our analysis to incorporate more individual-specific information, as discussed in section 6. Validating this type of method could be possible with qualitative analysis of part of the individuals in the dataset. Another approach would be to add specific questions which would enable more precise characterization of the individuals. For example, simple questions allowing us to assess whether person is prone to 'better-than-average' overconfidence.

With the introduction of a novel method of determining overconfidence and underconfidence from a large and general dataset we hope to have introduced a new perspective on approximating the effect it has on entrepreneurship. We have not aimed to replace psychological evaluations and qualitative research methods in this topic. The magnitude of the available data from GEM enabled us to approximate the possible effects these individual characteristics could have. We believe to have added to existing literature because there have not been many quantitative studies in this specific area of research.

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Appendix

Table A.1

Regression results model 1, 3 and 5 (logit), odds ratios

Dependent variable: futsup	Model 1 OR	Model 3 OR	Model 5 OR
suskill	2.75339***	2.33881***	2.29533***
	(0.02430)	(0.02766)	(0.02666)
Estimated probability Suc. Ent.	1.95441	4.16391**	3.12332**
	(0.80165)	(2.33628)	(1.70565)
OC	1.22009***	1.26265***	1.23792***
	(0.03881)	(0.07183)	(0.05483)
UC	1.08109*	1.13025**	1.14674***
	(0.04555)	(0.06148)	(0.06027)
UNITED STATES	0.84407***	0.46565***	7.74207***
	(0.03785)	(0.06662)	(0.93844)
RUSSIA	0.25774***	0.34521***	0.42786***
	(0.02100)	(0.03634)	(0.04712)
EGYPT	6.83904***	8.57003***	9.06987***
	(1.01353)	(1.42450)	(1.60371)
SOUTH AFRICA	0.74847**	0.58544***	0.91841
	(0.10995)	(0.09313)	(0.15782)
GREECE	0.87805**	0.60329***	2.05417***
	(0.04490)	(0.04556)	(0.13004)
NETHERLANDS	0.64825***	0.35441***	1.32818*
	(0.03247)	(0.05658)	(0.19871)
BELGIUM	0.82188***	0.42975***	2.05351***
	(0.04608)	(0.07063)	(0.30838)
FRANCE	1.03428	0.86986	3.38180***
	(0.05066)	(0.09213)	(0.30952)
SPAIN	0.45012***	0.51293***	0.85961**
	(0.01554)	(0.03493)	(0.05630)
HUNGARY	1.27292***	1.36333**	0.98223
	(0.06181)	(0.16837)	(0.10269)
ITALY	0.83977***	0.69489***	2.75900***
	(0.04796)	(0.06654)	(0.23473)
ROMANIA	1.73908***	3.01432***	3.00970***
	(0.09732)	(0.20683)	(0.21307)

SWITZERLAND	0.59917***	0.14827***	2.15054***
	(0.03286)	(0.03390)	(0.40491)
AUSTRIA	0.60917***	0.31715***	5.00138***
	(0.04212)	(0.04540)	(1.68048)
UNITED KINGDOM	0.57094***	0.35861***	3.17039***
	(0.02180)	(0.03813)	(0.31666)
DENMARK	0.53413***	0.23860***	0.71118**
	(0.03109)	(0.04321)	(0.10802)
SWEDEN	0.82072***	0.38235***	1.83368***
	(0.03995)	(0.05442)	(0.23485)
NORWAY	0.57973***	0.12384***	6.27928***
	(0.03647)	(0.03075)	(1.35261)
POLAND	0.94294	0.98445	1.35779***
	(0.04513)	(0.06385)	(0.09471)
GERMANY	0.56756***	0.33348***	1.99218***
	(0.02473)	(0.03822)	(0.20501)
PERU	3.84742***	4.14914***	5.75215***
	(0.17980)	(0.28636)	(0.37782)
MEXICO	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
ARGENTINA	1.99570***	2.79999***	5.16964***
	(0.09704)	(0.22219)	(0.37230)
BRAZIL	2.65268***	3.13988***	6.61307***
	(0.10062)	(0.22035)	(0.42116)
CHILE	5.63234***	6.04698***	9.19841***
	(0.19724)	(0.28988)	(0.44564)
COLOMBIA	8.05428***	8.85161***	12.86041***
	(0.29430)	(0.54640)	(0.72114)
MALAYSIA	0.70240***	0.78214**	0.48836***
	(0.03965)	(0.07922)	(0.04493)
AUSTRALIA INDONESIA	0.97329	0.46893***	6.38401***
	(0.05700)	(0.07243)	(0.80023)
INDONESIA	1.98651***	2.89806***	3.00621***
	(0.08901)	(0.18914)	(0.19220)
PHILIPPINES	5.23514***	5.45716***	6.57040***
	(0.31734)	(0.42711)	(0.47594)
NEW ZEALAND	1.10510		11.58097***
	(0.25841)		(7.44402)

SINGAPORE	1.34983***	0.35289***	0.32722***
	(0.07950)	(0.12895)	(0.10896)
THAILAND	2.18405***	2.02002***	1.06687
	(0.10205)	(0.17606)	(0.08087)
JAPAN	0.35052***	0.25775***	2.62553***
	(0.03028)	(0.03971)	(0.31829)
SOUTH KOREA	2.00673***	1.63280***	3.73512***
	(0.09739)	(0.13275)	(0.28722)
VIETNAM	1.52644***	1.90036***	1.00242
	(0.10931)	(0.19716)	(0.09726)
CHINA	2.44359***	2.78085***	3.62525***
	(0.09759)	(0.18736)	(0.21888)
TURKEY	2.50766***	2.64754***	5.46094***
	(0.10101)	(0.15470)	(0.29622)
INDIA	0.78931***	1.03777	1.21056***
	(0.04030)	(0.07589)	(0.08830)
PAKISTAN	2.11587***	2.45370***	3.92500***
	(0.13947)	(0.24334)	(0.35833)
IRAN	2.28869***	2.85380***	3.80340***
	(0.09598)	(0.17423)	(0.22572)
CANADA	0.86984***	0.50857***	4.02644***
	(0.04671)	(0.06170)	(0.44495)
MOROCCO	2.97353***	3.10999***	3.24239***
	(0.39879)	(0.45194)	(0.51900)
ALGERIA	2.92726***	2.92640***	2.59467***
	(0.44664)	(0.48515)	(0.46909)
TUNISIA	2.30951***	2.24372***	2.45065***
	(0.38336)	(0.41520)	(0.48594)
LIBYA	9.44090***		
	(1.69226)		
SENEGAL	12.33114***	9.88023***	
	(2.72252)	(2.34680)	
BURKINA FASO	3.28988***	3.79103***	3.89657***
	(0.53482)	(0.68222)	(0.84702)
GHANA	7.58221***	4.71534***	6.95645***
	(1.27561)	(0.89811)	(1.38440)
NIGERIA	6.16623***	6.40616***	5.50071***
	(1.01415)	(1.15525)	(1.06737)

CAMEROON	3.42913***	3.12917***	3.22188***
	(0.55589)	(0.55383)	(0.63720)
ANGOLA	10.71238***	8.29795***	5.87795***
	(1.82887)	(1.64146)	(1.22099)
BARBADOS	1.08998		
	(0.08921)		
SUDAN	10.43610***	8.51802***	11.76063***
	(1.97326)	(1.78881)	(2.61769)
ETHIOPIA	1.84041***	1.68873***	2.39619***
	(0.31062)	(0.31689)	(0.47385)
UGANDA	11.62436***	6.93900***	12.19869***
	(1.79192)	(1.22973)	(2.34306)
ZAMBIA	4.97563***		
	(0.88503)		
MADAGASCAR	3.56634***	3.98526***	2.71818***
	(0.58181)	(0.69971)	(0.53259)
ANGUILLA	1.88933***		
	(0.26203)		
MALAWI	9.00068***		
	(1.45575)		
BOTSWANA	8.46498***	6.48857***	5.49934***
	(1.33039)	(1.12986)	(1.03756)
NAMIBIA	3.10323***	2.36403***	3.53818***
	(0.62287)	(0.51708)	(0.81721)
PORTUGAL	1.21374***	1.19625**	2.85322***
	(0.07289)	(0.09291)	(0.24948)
LUXEMBOURG	0.98313	0.11679***	1.25263
	(0.07191)	(0.05128)	(0.52019)
IRELAND	0.71515***	0.25737***	0.84398
	(0.04001)	(0.05933)	(0.15948)
ICELAND	1.70800***		10.22014***
	(0.10772)		(1.47334)
CYPRUS	1.26248***	0.75846**	1.25012*
	(0.09734)	(0.10294)	(0.16546)
FINLAND	0.68013***	0.42044***	2.79612***
	(0.03903)	(0.05539)	(0.32055)
BULGARIA	0.40494***	0.54049***	0.39887***
	(0.05043)	(0.07780)	(0.06080)

LITHUANIA	2.46204***	1.82523***	1.85144***
	(0.38373)	(0.34126)	(0.37727)
LATVIA	1.51447***	1.87816***	1.79340***
	(0.07784)	(0.16358)	(0.15274)
ESTONIA	1.55910***	1.32446**	1.47055***
	(0.10602)	(0.16535)	(0.18066)
ARMENIA	2.38236***	3.35632***	3.35485***
	(0.38203)	(0.56941)	(0.62578)
BELARUS	0.45561***	0.65543*	0.49344*
	(0.10521)	(0.16287)	(0.18030)
SERBIA	3.24138***		18.10454***
	(0.24612)		(3.74749)
MONTENEGRO	2.89615***		4.76117***
	(0.31525)		(0.74216)
KOSOVO	0.28913***	0.27082***	0.57944*
	(0.08186)	(0.08916)	(0.18959)
CROATIA	1.08883*	1.33260***	2.12433***
	(0.05277)	(0.08785)	(0.13778)
SLOVENIA	0.86424***	0.64678***	1.17389
	(0.04283)	(0.07585)	(0.12208)
BOSNIA AND HERZEGOVINA	1.48967***	1.52744***	2.63273***
	(0.08450)	(0.13973)	(0.22319)
MACEDONIA	2.28880***		
	(0.12845)		
CZECH REPUBLIC	0.95934	0.86227	0.29063***
	(0.07079)	(0.10532)	(0.05726)
SLOVAKIA	0.77312***		
	(0.04736)		
BELIZE	0.92727	1.03656	0.83622
	(0.08849)	(0.11242)	(0.09262)
GUATEMALA	3.34067***	5.32849***	5.85056***
	(0.14396)	(0.35404)	(0.35208)
EL SALVADOR	3.11197***	3.35325***	4.67303***
	(0.24401)	(0.32468)	(0.45162)
COSTA RICA	2.42513***	3.24873***	5.26537***
	(0.17345)	(0.28082)	(0.43575)
PANAMA	1.12070**		
	(0.05419)		

VENEZUELA	1.77758***		
	(0.16701)		
BOLIVIA	6.07306***	6.33393***	6.37242***
	(0.43026)	(0.76832)	(0.56021)
ECUADOR	4.16265***	4.41184***	6.23479***
	(0.20274)	(0.29034)	(0.38850)
SURINAME	0.50544***		
	(0.05583)		
URUGUAY	2.30408***		
	(0.10606)		
AZORES	0.99229		
	(0.24339)		
TONGA	0.13878***		
	(0.05039)		
VANUATU	1.41333		1.72749
	(0.65171)		(0.83012)
KAZAKHSTAN	1.62951***	1.90207***	2.47082***
	(0.12012)	(0.19124)	(0.23789)
SHENZHEN	1.58867***		
	(0.21365)		
PUERTO RICO	1.34172***		
	(0.07213)		
DOMINICAN REPUBLIC	2.61482***		7.02140***
	(0.19391)		(0.99473)
HONG KONG	1.43372***	0.42734**	0.48887**
	(0.11299)	(0.15813)	(0.15987)
TRINIDAD AND TOBAGO	2.42801***		
	(0.14853)		
JAMAICA	2.69156***	3.24413***	4.43819***
	(0.13454)	(0.28695)	(0.36699)
BANGLADESH	1.42503**	1.79546***	2.03229***
	(0.19713)	(0.26096)	(0.29082)
TAIWAN	3.61663***		
	(0.16212)		
LEBANON	2.98490***	3.05833***	30.01803***
	(0.17980)	(0.30831)	(13.86154)
JORDAN	1.59931***		
	(0.12557)		

SYRIA	12.53559***		41.63524***
	(1.58792)		(14.09413)
SAUDI ARABIA	1.68145***	1.43828***	2.40777***
	(0.07597)	(0.09637)	(0.14929)
YEMEN	0.07199***		
	(0.03263)		
OMAN	14.97011***	11.51968***	14.26049***
	(2.80995)	(2.47859)	(3.25179)
GAZA STRIP & WEST BANK	2.26682***	2.23029***	5.79672***
	(0.14461)	(0.30863)	(0.64640)
UNITED ARAB EMIRATES	2.63807***	2.01926***	3.23575***
	(0.12178)	(0.32661)	(0.46189)
ISRAEL	1.84495***	1.26676**	5.99243***
	(0.09040)	(0.13075)	(0.51809)
QATAR	3.49157***		
	(0.17748)		
GEORGIA	0.92764	1.04509	1.24841
	(0.10375)	(0.13735)	(0.17709)
AFRICA	0.82197	1.02328	1.05239
	(0.11452)	(0.14928)	(0.17041)
ASIA & OCEANIA	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
LATIN AMERICA & CARIBBEAN	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)
EUROPE	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)
NORTH AMERICA	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)
gender	1.21999***	1.16987***	1.18651***
	(0.01061)	(0.01367)	(0.01362)
0-17	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
18-24	0.78048***	0.84963	0.66236***
	(0.06563)	(0.32320)	(0.09002)
25-34	0.67533***	0.73770	0.58263***
	(0.05701)	(0.28076)	(0.07940)
35-44	0.51791***	0.56672	0.45091***
	(0.04378)	(0.21574)	(0.06151)

45-54	0.40844***	0.46036**	0.36387***
	(0.03458)	(0.17530)	(0.04971)
55-64	0.27164***	0.31777***	0.24341***
	(0.02316)	(0.12109)	(0.03342)
65-120	0.12353***	0.15622***	0.10847***
	(0.01133)	(0.05994)	(0.01583)
knowent	1.75850***	1.38981***	1.49883***
	(0.01621)	(0.01796)	(0.01849)
fearfail	0.82133***	0.85728***	0.84238***
	(0.00702)	(0.00977)	(0.00943)
FULL OR PART TIME	0.63678***	0.61202***	0.64375***
	(0.00947)	(0.01227)	(0.01268)
PART TIME WORK ONLY	0.75728***	0.73630***	0.79018***
	(0.01334)	(0.01699)	(0.01842)
RETIRED/DISABLED	0.37699***	0.34783***	0.37466***
	(0.00916)	(0.01158)	(0.01213)
HOMEMAKER	0.59992***	0.56371***	0.59955***
	(0.01066)	(0.01357)	(0.01391)
STUDENT	0.67426***	0.61735***	0.68783***
	(0.01329)	(0.01647)	(0.01741)
NOT WORKING	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
OTHER	0.33662***	0.46464**	0.49637*
	(0.11403)	(0.16350)	(0.18074)
LOWEST 33% TILE	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
MIDDLE 33% TILE	0.95431***	0.95291***	0.93974***
	(0.00969)	(0.01311)	(0.01255)
UPPER 33% TILE	0.96026***	0.88691***	0.91706***
	(0.01043)	(0.01325)	(0.01319)
PRE-PRIMARY EDUCATION	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
PRIMARY EDUCATION	0.92248***	0.90563***	0.94960
	(0.02666)	(0.03193)	(0.03447)
LOWER SECONDARY	0.99148	1.01255	1.03546
	(0.02645)	(0.03369)	(0.03478)
(UPPER) SECONDARY EDUCATION	1.00509	1.02302	1.01861
	(0.02621)	(0.03297)	(0.03321)

POST-SECONDARY	1.04898*	1.06377*	1.08250**
	(0.02905)	(0.03713)	(0.03790)
TERTIARY EDUCATION	1.05847**	1.09045**	1.08055**
	(0.02928)	(0.03728)	(0.03754)
BACHELOR OR EQUIVALENT	1.03139	1.03150	1.04082
	(0.03522)	(0.04252)	(0.04543)
MASTER OR EQUIVALENT	1.03464	0.96907	0.99686
	(0.03484)	(0.06008)	(0.04347)
DOCTOR OR EQUIVALENT	1.03336	1.09512	0.86421
	(0.18194)	(0.22801)	(0.21994)
busang		1.88419***	1.36812***
		(0.04372)	(0.03287)
discent		2.20926***	1.39824***
		(0.05695)	(0.03692)
opport		1.57644***	1.56786***
		(0.01823)	(0.01767)
hhsize_log		1.14655***	
		(0.01377)	
IP in last 3 years		1.51848***	
		(0.03465)	
GDP per capita		1.00002***	0.99997***
		(0.00000)	(0.00000)
Household consumption		0.98187***	0.98662***
		(0.00264)	(0.00208)
Imports		1.00906***	0.99138***
		(0.00293)	(0.00254)
Exports		0.99507*	1.02573***
		(0.00297)	(0.00205)
FDI inflows		1.00294***	1.00211**
		(0.00073)	(0.00090)
equalinc			0.99444
			(0.01134)
nbgoodc			1.20712***
			(0.01496)
nbstatus			1.07045***
			(0.01333)
nbmedia			1.11676***
			(0.01293)

2002	(Base.)		
	(.)		
2003	1.04757		(Base.)
	(0.18256)		(.)
2004	1.39892**		1.82500**
	(0.23075)		(0.49586)
2005	2.06557***		15.71588***
	(0.07511)		(3.52506)
2006	1.77061***		5.95992***
	(0.05809)		(1.32207)
2007	1.80116***		6.41043***
	(0.06056)		(1.42696)
2008	1.97176***		8.69967***
	(0.06930)		(1.95594)
2009	1.82607***		9.10522***
	(0.06021)		(2.03182)
2010	1.21946***		1.49705*
	(0.03952)		(0.33343)
2011	1.79113***	(Base.)	2.34678***
	(0.05697)	(.)	(0.52460)
2012	1.92685***	1.06633***	2.43713***
	(0.06024)	(0.02540)	(0.54381)
2013	1.84384***	1.02066	2.30100***
	(0.05693)	(0.02388)	(0.51382)
2014	1.71532***	0.85504***	2.04923***
	(0.05397)	(0.02117)	(0.45803)
2015	1.58631***	0.83947***	1.95962***
	(0.05060)	(0.02164)	(0.43661)
2016	1.70514***	0.90574***	2.16255***
	(0.05369)	(0.02304)	(0.48118)
2017	1.72879***	0.93006***	2.38618***
	(0.05529)	(0.02357)	(0.53218)
2018	1.83260***	0.95746	2.56373***
	(0.05961)	(0.02628)	(0.57386)
2019	1.55991***	0.74410***	1.91215***
	(0.05284)	(0.02159)	(0.42885)

constant	0.10361***	0.09287***	0.03671***
	(0.00998)	(0.03655)	(0.00979)
Observations	625127	318287	311174
Pseudo R-squared	0.212	0.214	0.241
Log lik.	-209014.12357	-113507.28827	-116618.19334

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Note. Some years are missing in model 3 because the variable *IP active* is not present in these years

Table A.2

Regression results model 7 and 8 (logit), odds ratios

Dependent variable: futsup	Model 7 top 5 NECI	Model 8 top 10 NECI
suskill	2.06490***	2.05989***
	(0.06431)	(0.06414)
Estimated probability Suc. Ent.	7.03969*	8.59327*
	(8.13548)	(9.94492)
OC	1.33778*	1.32076*
	(0.22344)	(0.22176)
UC	1.00016	0.99076
	(0.12890)	(0.12788)
AFRICA	4.50076***	3.97163***
	(0.41840)	(0.40290)
ASIA & OCEANIA	2.13855***	1.95918***
	(0.16851)	(0.16118)
LATIN AMERICA & CARIBBEAN	3.70612***	3.27427***
	(0.30479)	(0.29975)
EUROPE	0.76209***	0.68470***
	(0.06235)	(0.06115)
NORTH AMERICA	(Base.)	(Base.)
	(.)	(.)
gender	1.15182***	1.15345***
	(0.03470)	(0.03475)
18-24	(Base.)	(Base.)
	(.)	(.)
25-34	0.93705	0.93398
	(0.04258)	(0.04245)
35-44	0.75103***	0.74668***
	(0.03671)	(0.03651)
45-54	0.60398***	0.60053***
	(0.03178)	(0.03161)
55-64	0.46021***	0.45703***
	(0.02817)	(0.02798)
65-120	0.21086***	0.21029***
	(0.02691)	(0.02686)
knowent	1.47600***	1.46752***

	(0.04666)	(0.04650)
fearfail	0.80932***	0.80851***
	(0.02386)	(0.02385)
FULL OR PART TIME	0.69034***	0.68870***
	(0.03512)	(0.03501)
PART TIME WORK ONLY	0.81191***	0.81153***
	(0.04842)	(0.04838)
RETIRED/DISABLED	0.32256***	0.32363***
	(0.02909)	(0.02916)
HOMEMAKER	0.51165***	0.51603***
	(0.03455)	(0.03485)
STUDENT	0.70107***	0.70090***
	(0.05268)	(0.05261)
NOT WORKING	(Base.)	(Base.)
	(.)	(.)
LOWEST 33% TILE	(Base.)	(Base.)
	(.)	(.)
MIDDLE 33% TILE	0.89174***	0.89343***
	(0.03146)	(0.03155)
UPPER 33% TILE	0.89241***	0.89199***
	(0.03315)	(0.03312)
PRE-PRIMARY EDUCATION	(Base.)	(Base.)
	(.)	(.)
PRIMARY EDUCATION	0.77755**	0.76872***
	(0.07716)	(0.07632)
LOWER SECONDARY	0.83672*	0.83207**
	(0.07694)	(0.07652)
(UPPER) SECONDARY EDUCATION	0.89249	0.89037
	(0.07981)	(0.07958)
POST-SECONDARY	0.97046	0.96646
	(0.09156)	(0.09113)
TERTIARY EDUCATION	1.16554	1.15393
	(0.12660)	(0.12550)
BACHELOR OR EQUIVALENT	1.05100	1.04869
	(0.09697)	(0.09674)
MASTER OR EQUIVALENT	0.93204	0.93424
	(0.09946)	(0.09978)
DOCTOR OR EQUIVALENT	1.03868	1.03231

	(0.26391)	(0.26391)
busang	2.28991***	2.28233***
	(0.12535)	(0.12500)
discent	2.08442***	2.08148***
	(0.14357)	(0.14346)
opport	1.47801***	1.48056***
	(0.04484)	(0.04493)
equalinc	0.95624	0.95392
	(0.02873)	(0.02866)
nbgoodc	1.31998***	1.31992***
	(0.04297)	(0.04298)
nbstatus	1.17173***	1.17312***
	(0.03911)	(0.03916)
nbmedia	1.11578***	1.11711***
	(0.03442)	(0.03444)
top 5 countries NECI	0.88346***	
	(0.04135)	
top 10 countries NECI		0.83207***
		(0.03865)
2018	(Base.)	(Base.)
	(.)	(.)
2019	0.70680***	0.70358***
	(0.02189)	(0.02179)
constant	0.10608***	0.12126***
	(0.01415)	(0.01698)
Observations	40658	40658
Pseudo R-squared	0.180	0.180
Log lik.	-16223.14265	-16218.31675

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Table A.3

Regression results model 9a, 9b, 11a, and 11b (logit), odds ratios

	All Owner/Managers		No est. Owner/Managers	
	Model 9a	Model 9b	Model 11a	Model 11b
	OPP	NEC	OPP	NEC
suskill	1.24561***	1.11719**	1.26229***	1.12572***
	(0.03523)	(0.04820)	(0.03602)	(0.04869)
Estimated probability Suc. Ent.	11.88316***	7.96936*	30.87974***	17.98271***
	(8.81011)	(8.81679)	(23.22067)	(19.87742)
OC	1.36559	0.93095	1.39382	0.93902
	(0.29199)	(0.25988)	(0.30271)	(0.26330)
UC	0.91514	1.20936	0.92669	1.21538
	(0.07888)	(0.15024)	(0.08143)	(0.15245)
UNITED STATES	0.50870**	0.81129	0.41382***	0.68201
	(0.17140)	(0.53901)	(0.14152)	(0.45562)
RUSSIA	0.34897***	1.55959*	0.31928***	1.53777*
	(0.06103)	(0.39760)	(0.05632)	(0.38941)
EGYPT	0.29899***	1.36015	0.28864***	1.37651
	(0.04762)	(0.32638)	(0.04664)	(0.33113)
SOUTH AFRICA	0.53106***	1.06340	0.51117***	1.05873
	(0.05422)	(0.16737)	(0.05307)	(0.16710)
GREECE	0.23089***	0.63727*	0.20357***	0.59218**
	(0.03180)	(0.14853)	(0.02830)	(0.13833)
NETHERLANDS	0.42852**	0.15250**	0.35123***	0.13361***
	(0.16145)	(0.11269)	(0.13430)	(0.09910)
BELGIUM	0.28888***	1.00817	0.22961***	0.86754
	(0.11329)	(0.70544)	(0.09125)	(0.60976)
FRANCE	0.64814*	0.60394	0.54524**	0.53279
	(0.16119)	(0.31042)	(0.13748)	(0.27475)
SPAIN	0.25961***	0.62938*	0.22745***	0.58463**
	(0.03670)	(0.16996)	(0.03267)	(0.15864)
HUNGARY	0.53941**	1.02719	0.54226**	1.07266
	(0.13113)	(0.40026)	(0.13490)	(0.42276)
ITALY	0.43303***	0.42756**	0.38851***	0.38918**
	(0.09292)	(0.18200)	(0.08431)	(0.16634)
ROMANIA	0.49431***	1.25488	0.47448***	1.25242
	(0.05936)	(0.23415)	(0.05812)	(0.23535)

SWITZERLAND	0.31414**	0.71280	0.22843**	0.55413
	(0.18327)	(0.81727)	(0.13507)	(0.63811)
SWEDEN	0.45341**	0.29669*	0.35321***	0.25148*
	(0.16123)	(0.21769)	(0.12734)	(0.18510)
NORWAY	0.22477**	0.30695	0.15708***	0.22900
	(0.14907)	(0.41698)	(0.10561)	(0.31251)
POLAND	0.33327***	1.27620	0.30105***	1.22398
	(0.04183)	(0.24596)	(0.03836)	(0.23762)
GERMANY	0.36730***	0.55676	0.30422***	0.48552
	(0.10003)	(0.29583)	(0.08404)	(0.25922)
PERU	0.86303	1.02259	0.82144*	0.99652
	(0.09077)	(0.17309)	(0.08787)	(0.16882)
MEXICO	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
ARGENTINA	0.48898***	1.51899**	0.45349***	1.45366*
	(0.06420)	(0.29522)	(0.06029)	(0.28279)
BRAZIL	0.21762***	0.46281***	0.19770***	0.43740***
	(0.02790)	(0.09302)	(0.02567)	(0.08805)
CHILE	0.69096***	1.92048***	0.65845***	1.88768***
	(0.05788)	(0.25947)	(0.05685)	(0.25716)
COLOMBIA	0.85652	1.36563*	0.83180*	1.34923*
	(0.09094)	(0.23110)	(0.08976)	(0.22835)
MALAYSIA	0.48696***	0.30248***	0.48245***	0.30950***
	(0.09027)	(0.10452)	(0.09135)	(0.10768)
AUSTRALIA INDONESIA	0.39217***	0.92005	0.31716***	0.77435
	(0.13177)	(0.61309)	(0.10802)	(0.51852)
INDONESIA	0.15065***	0.33204***	0.14304***	0.32148***
	(0.01820)	(0.06792)	(0.01750)	(0.06591)
PHILIPPINES	0.37852***	1.34507	0.36521***	1.34392
	(0.04864)	(0.25575)	(0.04761)	(0.25613)
SINGAPORE	1.08346	0.44653	0.91605	0.39797
	(0.87909)	(0.61990)	(0.75432)	(0.55479)
THAILAND	0.29483***	0.16332***	0.26559***	0.16231***
	(0.04450)	(0.04318)	(0.04104)	(0.04330)
JAPAN	0.37686***	0.79990	0.32351***	0.71348
	(0.10114)	(0.40500)	(0.08805)	(0.36307)
SOUTH KOREA	0.34050***	0.80247	0.29471***	0.72887
	(0.06377)	(0.27471)	(0.05597)	(0.25091)

VIETNAM	0.15428***	0.08335***	0.14157***	0.08001***
	(0.03073)	(0.03812)	(0.02865)	(0.03675)
CHINA	0.24069***	1.32062	0.23849***	1.33574*
	(0.02796)	(0.22827)	(0.02816)	(0.23174)
TURKEY	0.31466***	1.01068	0.28701***	0.95220
	(0.02880)	(0.14351)	(0.02679)	(0.13614)
INDIA	0.23858***	1.00799	0.22596***	0.99838
	(0.03263)	(0.21794)	(0.03130)	(0.21579)
PAKISTAN	0.41280***	2.26535***	0.39554***	2.25006***
	(0.08363)	(0.64694)	(0.08070)	(0.64250)
IRAN	0.20952***	0.77554	0.19946***	0.77664
	(0.02335)	(0.13617)	(0.02254)	(0.13652)
CANADA	0.45604***	0.67853	0.38649***	0.57847
	(0.13042)	(0.38763)	(0.11236)	(0.33228)
MOROCCO	0.12595***	0.28358***	0.11811***	0.27918***
	(0.02201)	(0.08669)	(0.02084)	(0.08542)
ALGERIA	0.14685***	0.47899**	0.16222***	0.57219*
	(0.02968)	(0.14639)	(0.03385)	(0.17725)
TUNISIA	0.34222***	0.74881	0.32500***	0.73063
	(0.07397)	(0.26282)	(0.07162)	(0.25795)
BURKINA FASO	0.41470***	0.38657***	0.45316***	0.41279***
	(0.05923)	(0.09052)	(0.06594)	(0.09707)
GHANA	0.33056***	0.61105**	0.30118***	0.57327**
	(0.04368)	(0.13281)	(0.04042)	(0.12522)
NIGERIA	0.34383***	1.54273*	0.34264***	1.60925*
	(0.05480)	(0.39068)	(0.05571)	(0.40878)
CAMEROON	0.54291***	1.26615	0.50670***	1.20213
	(0.07577)	(0.28740)	(0.07196)	(0.27429)
ANGOLA	0.18471***	0.54113*	0.20126***	0.61947
	(0.03753)	(0.17074)	(0.04193)	(0.19719)
ETHIOPIA	0.32378***	0.92517	0.30194***	0.89510
	(0.06311)	(0.29287)	(0.05950)	(0.28421)
UGANDA	0.10212***	0.25443***	0.09549***	0.24902***
	(0.02077)	(0.08657)	(0.01957)	(0.08485)
MADAGASCAR	0.43591***	0.21129***	0.42775***	0.21214***
	(0.08071)	(0.08309)	(0.08053)	(0.08360)
BOTSWANA	0.86563	0.95194	0.81189	0.89904
	(0.11501)	(0.20354)	(0.11044)	(0.19404)

NAMIBIA	0.65056**	1.12938	0.59425***	1.05826
	(0.11419)	(0.31932)	(0.10677)	(0.30173)
PORTUGAL	0.44313***	0.80060	0.39275***	0.75372
	(0.07948)	(0.24096)	(0.07139)	(0.22774)
LUXEMBOURG	0.68826	0.47295	0.47509	0.34788
	(0.74018)	(0.92537)	(0.51774)	(0.68250)
IRELAND	0.38727*	0.60438	0.31194**	0.52647
	(0.18801)	(0.52397)	(0.15379)	(0.46003)
CYPRUS	0.26419***	0.91587	0.23061***	0.83712
	(0.07774)	(0.44988)	(0.06855)	(0.41110)
FINLAND	0.31742***	0.57479	0.25775***	0.49461
	(0.09430)	(0.33699)	(0.07755)	(0.29112)
BULGARIA	0.17827***	1.09047	0.17039***	1.08978
	(0.05609)	(0.40625)	(0.05387)	(0.40863)
LITHUANIA	0.41101***	0.59978	0.37982***	0.58365
	(0.10208)	(0.25387)	(0.09595)	(0.24858)
LATVIA	0.54209***	0.77372	0.48409***	0.72432
	(0.09487)	(0.23467)	(0.08617)	(0.22103)
ESTONIA	0.81463	0.91191	0.70991	0.84072
	(0.19561)	(0.37915)	(0.17360)	(0.35206)
KOSOVO	0.44965	0.82234	0.45515	0.80462
	(0.24150)	(0.64010)	(0.25370)	(0.63092)
CROATIA	0.32079***	1.23808	0.30897***	1.22361
	(0.03951)	(0.21984)	(0.03872)	(0.21924)
SLOVENIA	0.38536***	0.48282*	0.33827***	0.44809*
	(0.09516)	(0.21097)	(0.08479)	(0.19674)
BOSNIA AND HERZEGOVINA	0.23412***	1.55589*	0.22056***	1.53154*
	(0.04156)	(0.36880)	(0.03975)	(0.36628)
BELIZE	0.54084***	0.25636***	0.54788***	0.27254***
	(0.07718)	(0.07707)	(0.07996)	(0.08243)
GUATEMALA	0.51029***	1.72528***	0.46404***	1.67393***
	(0.05691)	(0.30129)	(0.05264)	(0.29322)
EL SALVADOR	0.55530***	0.76502	0.49963***	0.71999
	(0.08501)	(0.19562)	(0.07741)	(0.18464)
COSTA RICA	1.08552	1.31774	1.00640	1.26743
	(0.17036)	(0.30729)	(0.16016)	(0.29632)
BOLIVIA	0.88646	1.06029	0.85756	1.05016
	(0.13173)	(0.25858)	(0.12933)	(0.25696)

ECUADOR	0.73324***	1.62232***	0.67805***	1.56990***
	(0.06843)	(0.23755)	(0.06428)	(0.23009)
KAZAKHSTAN	0.64449***	1.30544	0.63579***	1.34385
	(0.09708)	(0.32410)	(0.09806)	(0.33474)
HONG KONG	0.53874	0.28726	0.46021	0.25215
	(0.42906)	(0.39865)	(0.37219)	(0.35155)
JAMAICA	0.35938***	0.69108*	0.35070***	0.68771*
	(0.04825)	(0.15189)	(0.04888)	(0.15427)
BANGLADESH	0.35779***	0.68193	0.33364***	0.65460
	(0.07988)	(0.23642)	(0.07480)	(0.22684)
SAUDI ARABIA	0.37752***	0.87887	0.34025***	0.82911
	(0.05565)	(0.22395)	(0.05081)	(0.21215)
GAZA STRIP & WEST BANK	0.50334***	1.42048	0.44480***	1.29328
	(0.13119)	(0.53883)	(0.11768)	(0.49405)
UNITED ARAB EMIRATES	0.25721***	1.26343	0.25944***	1.24725
	(0.10119)	(0.86436)	(0.10305)	(0.85325)
ISRAEL	0.34005***	0.98097	0.29832***	0.91255
	(0.07684)	(0.41157)	(0.06880)	(0.38739)
GEORGIA	0.39988***	1.03772	0.37224***	1.10260
	(0.09299)	(0.37377)	(0.08913)	(0.39672)
gender	1.22225***	0.87489***	1.23005***	0.87604***
	(0.02500)	(0.02773)	(0.02553)	(0.02793)
0-17	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
18-24	4.63135***	1.88663***	4.60509***	1.82405***
	(0.45976)	(0.29045)	(0.46255)	(0.28184)
25-34	3.95389***	2.14829***	3.95626***	2.09246***
	(0.38065)	(0.32120)	(0.38533)	(0.31407)
35-44	2.98634***	1.94574***	3.02228***	1.91333***
	(0.28311)	(0.28797)	(0.28986)	(0.28429)
45-54	2.29453***	1.83971***	2.32091***	1.81752***
	(0.21726)	(0.27213)	(0.22231)	(0.26989)
55-64	1.72097***	1.73757***	1.72359***	1.70243***
	(0.16533)	(0.25964)	(0.16741)	(0.25541)
65-120	(Omitted.)	(Omitted.)	(Omited.)	(Omited.)
	(.)	(.)	(.)	(.)
knowent	1.14244***	1.03011	1.13412***	1.02449
	(0.02732)	(0.03801)	(0.02743)	(0.03788)

fearfail	0.94831**	1.22777***	0.95225**	1.23567***
	(0.02143)	(0.04197)	(0.02181)	(0.04244)
FULL OR PART TIME	0.42775***	0.18971***	0.43742***	0.19231***
	(0.02197)	(0.01138)	(0.02276)	(0.01157)
PART TIME WORK ONLY	0.95533	0.31785***	0.97528	0.31900***
	(0.05794)	(0.02501)	(0.06005)	(0.02520)
RETIRED/DISABLED	1.18351*	0.38601***	1.26176**	0.40078***
	(0.12093)	(0.05414)	(0.13026)	(0.05642)
HOMEMAKER	1.38588***	0.68070***	1.41589***	0.68242***
	(0.10791)	(0.05842)	(0.11189)	(0.05884)
STUDENT	1.29035***	0.45823***	1.31784***	0.45901***
	(0.11562)	(0.05379)	(0.11954)	(0.05393)
NOT WORKING	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
OTHER	0.23748*	0.23046	0.22655**	0.22200
	(0.17790)	(0.24443)	(0.16998)	(0.23497)
LOWEST 33% TILE	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
MIDDLE 33% TILE	1.12075***	0.77819***	1.13066***	0.78291***
	(0.02978)	(0.02926)	(0.03042)	(0.02956)
UPPER 33% TILE	1.11925***	0.52048***	1.13210***	0.52195***
	(0.03017)	(0.02160)	(0.03089)	(0.02176)
PRE-PRIMARY EDUCATION	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
PRIMARY EDUCATION	1.14538**	1.06238	1.14563**	1.06458
	(0.07333)	(0.08718)	(0.07439)	(0.08785)
LOWER SECONDARY	1.27208***	1.02262	1.28225***	1.02581
	(0.07876)	(0.08373)	(0.08072)	(0.08455)
(UPPER) SECONDARY EDUCATION	1.49357***	0.98499	1.51185***	0.98453
	(0.08933)	(0.07724)	(0.09189)	(0.07776)
POST-SECONDARY	1.83502***	0.89744	1.86095***	0.89519
	(0.11710)	(0.07853)	(0.12074)	(0.07889)
TERTIARY EDUCATION	2.09094***	0.78168***	2.11835***	0.77522***
	(0.12938)	(0.06684)	(0.13328)	(0.06680)
BACHELOR OR EQUIVALENT	2.18806***	0.56666***	2.21632***	0.56204***
	(0.19503)	(0.09227)	(0.20099)	(0.09173)
busang	1.07603**	0.81779***	1.11899***	0.84022***
	(0.03291)	(0.04462)	(0.03495)	(0.04614)

discent	1.03205	1.33776***	1.04511	1.34597***
	(0.03638)	(0.06693)	(0.03748)	(0.06787)
opport	1.47556***	0.93662**	1.50228***	0.94191*
	(0.03156)	(0.03111)	(0.03247)	(0.03143)
equalinc	0.94082***	1.07653**	0.94836**	1.08522**
	(0.01915)	(0.03496)	(0.01959)	(0.03544)
nbgoodc	1.02634	1.06001	1.02693	1.06072
	(0.02277)	(0.03810)	(0.02314)	(0.03833)
nbstatus	1.04794**	0.91855**	1.04287*	0.91706**
	(0.02342)	(0.03215)	(0.02363)	(0.03224)
nbmedia	1.01102	0.97751	1.00771	0.97622
	(0.02179)	(0.03323)	(0.02202)	(0.03335)
GDP per capita	1.00000	1.00000	1.00001	1.00000
	(0.00001)	(0.00001)	(0.00001)	(0.00001)
Household consumption	0.98532***	0.97685***	0.98700***	0.97996***
	(0.00394)	(0.00561)	(0.00402)	(0.00570)
Imports	1.00455	1.00989	1.00626	1.01139
	(0.00519)	(0.00871)	(0.00531)	(0.00879)
Exports	0.99336	0.99539	0.99227	0.99419
	(0.00488)	(0.00787)	(0.00500)	(0.00795)
FDI inflows	1.00310	1.00021	1.00292	1.00023
	(0.00222)	(0.00402)	(0.00222)	(0.00394)
2011	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
2012	0.96894	0.86651**	0.98569	0.87682**
	(0.03976)	(0.05439)	(0.04108)	(0.05528)
2013	0.92164**	0.78886***	0.92871*	0.79233***
	(0.03782)	(0.05055)	(0.03861)	(0.05093)
2014	0.91277**	0.86329**	0.91323**	0.86197**
	(0.03893)	(0.05709)	(0.03952)	(0.05726)
2015	1.01462	0.86448**	1.04232	0.87643*
	(0.04614)	(0.06127)	(0.04798)	(0.06217)
2016	0.89696**	0.69947***	0.93419	0.72118***
	(0.04363)	(0.05464)	(0.04615)	(0.05656)
2017	0.99001	0.79216***	1.02031	0.80037***
	(0.04477)	(0.05501)	(0.04686)	(0.05603)
constant	0.15046***	0.28068***	0.14573***	0.27991***

	(0.03668)	(0.10885)	(0.03590)	(0.10855)
Observations	72920	72920	68487	68487
Pseudo R-squared	0.103	0.099	0.106	0.099
Log lik.	-34571.34438	-16719.99050	-33341.30255	-16380.75974

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Note. Dependent variable model 9a and 11a is SUBOPP, the opportunity driven entrepreneur, and the dependent variable model 9b and 11b is SUBNEC, the necessity driven entrepreneur.

Table A.4

Regression results model 10 (ordered logit), odds ratios

Dependent variable: teayyj5y	Model 10
suskill	1.48619***
	(0.03187)
Estimated probability Suc. Ent.	1.08061
	(0.56676)
OC	0.93963
	(0.09414)
UC	1.12291*
	(0.06648)
gender	1.43206***
	(0.02140)
0-17	(Base.)
	(.)
18-24	1.24889
	(0.33530)
25-34	1.18156
	(0.31711)
35-44	1.15069
	(0.30884)
45-54	1.10558
	(0.29695)
55-64	0.91085
	(0.24524)
65-120	0.74454
	(0.20719)

knowent	1.22922***
	(0.02159)
fearfail	0.84588***
	(0.01400)
FULL OR PART TIME	1.18372***
	(0.03954)
PART TIME WORK ONLY	1.12683***
	(0.04465)
RETIRED/DISABLED	0.93404
	(0.06486)
HOMEMAKER	0.90474**
	(0.04174)
STUDENT	0.97557
	(0.05694)
NOT WORKING	(Base.)
	(.)
LOWEST 33% TILE	(Base.)
	(.)
MIDDLE 33% TILE	1.16021***
	(0.02164)
UPPER 33% TILE	1.47103***
	(0.02877)
PRE-PRIMARY EDUCATION	(Base.)
	(.)
PRIMARY EDUCATION	1.13505***
	(0.05207)
LOWER SECONDARY	1.21779***
	(0.05204)
(UPPER) SECONDARY EDUCATION	1.40489***
	(0.05875)
POST-SECONDARY	1.56409***
	(0.07092)
TERTIARY EDUCATION	1.75801***
	(0.07920)
BACHELOR OR EQUIVALENT	1.84942***
	(0.11712)
MASTER OR EQUIVALENT	1.83207***
	(0.10755)

OTHER	3.71518
	(3.09034)
DOCTOR OR EQUIVALENT	4.72300***
	(2.11978)
busang	1.52294***
	(0.03587)
discent	1.16908***
	(0.02915)
opport	1.28359***
	(0.02026)
equalinc	0.97247*
	(0.01502)
nbgoodc	1.00442
	(0.01712)
nbstatus	1.03048*
	(0.01746)
nbmedia	1.01492
	(0.01653)
2003	(Base.)
	(.)
2004	1.57714
	(0.95058)
2005	2.21284
	(1.21153)
2006	2.26652
	(1.24002)
2007	1.97227
	(1.07897)
2008	1.96529
	(1.07650)
2009	2.16548
	(1.18547)
2010	1.59876
	(0.87475)
2011	8.74736***
	(4.78703)
2012	6.80765***
	(3.72392)

2013	7.32711***
	(4.00782)
2014	6.65540***
	(3.64094)
2015	7.26638***
	(3.97569)
2016	6.82605***
	(3.73481)
2017	7.30459***
	(3.99680)
2019	8.80170***
	(4.81907)
country variable	yes
cut1	10.21931***
	(6.24985)
cut2	92.82813***
	(56.78384)
cut3	360.73916***
	(220.69199)
Observations	71278
Pseudo R-squared	0.105
Log lik.	-79203.43998

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Note. teayyj5y denotes the expected number of jobs provided in the next five years divided into four categories

Table A.5

Margins Model 5 over gender, OC, and UC

gender/OC/UC	Margin	Std. Error
FEMALE/0/0	0.17588***	(0.00083)
FEMALE/0/1	0.20543***	(0.00670)
FEMALE/1/0	0.30085***	(0.00629)
MALE/0/0	0.21288***	(0.00091)
MALE/0/1	0.19486***	(0.00632)
MALE/1/0	0.32185***	(0.00651)

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Table A.6

Descriptive statistics: Age categories

Age Categories	Male	Female	bstart	futsup	suskil	fearfail	discent	knowent
0-17	6,884	5,903	549	1,176	2,138	2,816	129	3,265
18-24	220,186	210,244	56,244	114,650	171,471	141,434	14,925	164,611
25-34	318,992	324,514	100,442	160,325	319,008	228,336	29,573	273,343
35-44	322,527	347,699	86,532	127,851	328,444	240,755	27,809	254,364
45-54	289,210	313,229	61,221	87,986	276,631	212,384	21,667	193,351
55-64	232,998	255,997	31,858	43,183	191,965	156,986	15,909	126,205
65-120	82,244	101,613	5,632	5,712	53,180	41,308	4,172	29,379
Total	1,473,041	1,559,199	342,478	540,883	1,342,837	1,024,019	114,184	1,044,518

Note. About 0.1% of *gender* observations is missing, meaning that the amount of observations in each age category is roughly equal to the columns 'Male' and 'Female' added.

Table A.7

Descriptive statistics: Gender differences

Gender	bstart	futsup	suskill	fearfail	discent	knowent
Female	144,610	236,615	590,350	560,745	50,679	470,685
Male	198,695	305,043	757,258	466,449	63,768	577,252
Total	343,305	541,658	1,347,608	1,027,194	114,447	1,047,937

Table A.8

Descriptive statistics: Work Status and Educational Attainment

	Observations	Percentage
Work Status		
Full or part time (includes self-employment)	1,662,045	56.42
Part time work only	234,664	7.97
Retired/Disabled	314,532	10.68
Homemaker	256,286	8.7
Student	180,540	6.13
Not Working	297,358	10.09
Other	380	0.01
Educational Attainment		
Pre-primary education	76,721	2.58
Primary education or first stage of basic education	177,363	5.97
Lower secondary or second stage of basic education	647,051	21.79
(Upper) secondary education	948,814	31.96
Post-secondary non-tertiary education	465,274	15.67
Short-cycle tertiary education	378,193	12.74
Bachelor or equivalent	97,137	3.27
Master or equivalent	174,033	5.86
Doctor or equivalent	1,650	0.06
None	2,627	0.09

Table A.9

Regression results models successful entrepreneurs, logit and probit

	logit	logit	logit	probit
	Subset 3		Subset 4	
Dependent Variable: Subset 4	Odds ratios		Coefficients	
UNITED STATES	2.43230***	0.84690*	-0.16618*	-0.05604
	(0.12848)	(0.08186)	(0.09666)	(0.03925)
RUSSIA	0.79676***	0.36757***	-1.00084***	-0.37438***
	(0.06604)	(0.06465)	(0.17588)	(0.06538)
EGYPT	1.70014***	0.62770***	-0.46570***	-0.17704***
	(0.12489)	(0.09019)	(0.14368)	(0.05728)
SOUTH AFRICA	1.29023***	0.65563***	-0.42216***	-0.15736***
	(0.08362)	(0.08020)	(0.12233)	(0.04774)
GREECE	5.83777***	0.40022***	-0.91575***	-0.33834***
	(0.32514)	(0.06248)	(0.15611)	(0.05903)
NETHERLANDS	2.55419***	0.55769***	-0.58395***	-0.22071***
	(0.13870)	(0.06378)	(0.11436)	(0.04502)
BELGIUM	1.17376**	0.39673***	-0.92449***	-0.34325***
	(0.08383)	(0.07061)	(0.17797)	(0.06596)
FRANCE	0.63418***	0.18479***	-1.68856***	-0.61667***
	(0.05058)	(0.04073)	(0.22039)	(0.07652)
SPAIN	1.98857***	0.83724**	-0.17764**	-0.07644**
	(0.09459)	(0.06243)	(0.07457)	(0.03053)
HUNGARY	1.50454***	1.13556	0.12713	0.05802
	(0.09756)	(0.12638)	(0.11129)	(0.04551)
ITALY	1.56077***	0.59299***	-0.52258***	-0.18913***
	(0.10767)	(0.08717)	(0.14700)	(0.05746)
ROMANIA	1.37445***	0.66779***	-0.40379***	-0.13861**
	(0.10845)	(0.10406)	(0.15583)	(0.06158)
SWITZERLAND	2.87255***	0.46032***	-0.77583***	-0.29490***
	(0.16016)	(0.06228)	(0.13530)	(0.05192)
AUSTRIA	2.14106***	0.41808***	-0.87208***	-0.33440***
	(0.13914)	(0.07012)	(0.16772)	(0.06349)
UNITED KINGDOM	1.90765***	0.38618***	-0.95145***	-0.35833***
	(0.09445)	(0.03803)	(0.09848)	(0.03803)
DENMARK	0.97391	0.25927***	-1.34990***	-0.49560***
	(0.06579)	(0.05030)	(0.19401)	(0.06965)

SWEDEN	1.42310***	0.36964***	-0.99523***	-0.37929***
	(0.08118)	(0.04707)	(0.12735)	(0.04865)
NORWAY	1.64497***	1.63603***	0.49227***	0.20781***
	(0.10237)	(0.15984)	(0.09770)	(0.04134)
POLAND	2.83947***	0.27858***	-1.27806***	-0.47268***
	(0.15691)	(0.04208)	(0.15105)	(0.05579)
GERMANY	1.89937***	0.33826***	-1.08395***	-0.39394***
	(0.09871)	(0.03910)	(0.11559)	(0.04392)
PERU	2.78328***	1.24165**	0.21644**	0.11041**
	(0.16824)	(0.12994)	(0.10465)	(0.04397)
MEXICO	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
ARGENTINA	3.27127***	0.62267***	-0.47375***	-0.17297***
	(0.19402)	(0.08774)	(0.14091)	(0.05538)
BRAZIL	5.36664***	0.49249***	-0.70828***	-0.26760***
	(0.26920)	(0.05211)	(0.10580)	(0.04153)
CHILE	2.14628***	1.53005***	0.42530***	0.18575***
	(0.10729)	(0.11842)	(0.07739)	(0.03225)
COLOMBIA	2.39936***	0.86361	-0.14664	-0.04837
	(0.12536)	(0.07842)	(0.09080)	(0.03706)
MALAYSIA	1.90056***	0.98988	-0.01017	0.00702
	(0.11976)	(0.11077)	(0.11190)	(0.04636)
AUSTRALIA INDONESIA	3.00025***	0.60939***	-0.49530***	-0.17682***
	(0.18141)	(0.08859)	(0.14537)	(0.05724)
INDONESIA	4.80848***	2.10885***	0.74614***	0.34385***
	(0.25996)	(0.18408)	(0.08729)	(0.03709)
PHILIPPINES	3.62000***	2.01411***	0.70018***	0.31826***
	(0.27059)	(0.27624)	(0.13715)	(0.05857)
NEW ZEALAND	1.67939***	0.86876	-0.14069	-0.09187
	(0.22584)	(0.35988)	(0.41425)	(0.15423)
SINGAPORE	1.02488	1.25767	0.22926	0.09606*
	(0.08371)	(0.18180)	(0.14455)	(0.05767)
THAILAND	9.02217***	3.17318***	1.15473***	0.49998***
	(0.46609)	(0.26705)	(0.08416)	(0.03585)
JAPAN	2.72768***	1.37001***	0.31482***	0.11032**
	(0.16486)	(0.15403)	(0.11243)	(0.04626)
SOUTH KOREA	4.21933***	0.53286***	-0.62950***	-0.24109***
	(0.24069)	(0.07262)	(0.13629)	(0.05348)

VIETNAM	7.03627***	0.72662*	-0.31936*	-0.11445
	(0.47938)	(0.13633)	(0.18763)	(0.07449)
CHINA	2.52719***	1.73120***	0.54881***	0.23931***
	(0.13139)	(0.14038)	(0.08109)	(0.03404)
TURKEY	3.30319***	1.31638***	0.27488***	0.12370***
	(0.18017)	(0.12744)	(0.09681)	(0.03998)
INDIA	2.60749***	1.28607**	0.25159**	0.10480**
	(0.15242)	(0.12705)	(0.09879)	(0.04106)
PAKISTAN	2.13742***	1.04051	0.03971	0.02459
	(0.21300)	(0.18821)	(0.18088)	(0.07462)
IRAN	5.87377***	1.88231***	0.63250***	0.26743***
	(0.31653)	(0.16901)	(0.08979)	(0.03779)
CANADA	2.27944***	1.18541*	0.17009*	0.08480**
	(0.13168)	(0.12210)	(0.10300)	(0.04234)
MOROCCO	3.59906***	2.05715***	0.72132***	0.31051***
	(0.25581)	(0.23660)	(0.11501)	(0.04924)
ALGERIA	2.03442***	2.67750***	0.98488***	0.42297***
	(0.19278)	(0.34932)	(0.13047)	(0.05756)
TUNISIA	1.74653***	1.03064	0.03018	0.01338
	(0.22793)	(0.23032)	(0.22347)	(0.09308)
LIBYA	1.24379	3.26283***	1.18259***	0.51311***
	(0.24664)	(0.73319)	(0.22471)	(0.09839)
SENEGAL	4.62036***	2.27692***	0.82282***	0.38213***
	(0.46899)	(0.36993)	(0.16247)	(0.07648)
BURKINA FASO	7.56806***	4.45928***	1.49499***	0.70728***
	(0.50906)	(0.44867)	(0.10061)	(0.04546)
GHANA	11.12989***	1.68765***	0.52334***	0.23945***
	(0.73137)	(0.21244)	(0.12588)	(0.05573)
NIGERIA	3.53209***	4.61659***	1.52966***	0.70011***
	(0.26313)	(0.48178)	(0.10436)	(0.04729)
CAMEROON	3.69502***	2.08748***	0.73596***	0.34226***
	(0.28535)	(0.25409)	(0.12172)	(0.05439)
ANGOLA	3.50847***	4.42004***	1.48615***	0.68393***
	(0.28559)	(0.47085)	(0.10653)	(0.04889)
BARBADOS	2.79665***	3.94153***	1.37157***	0.60643***
	(0.21525)	(0.42296)	(0.10731)	(0.04854)
SUDAN	4.27170***	4.11411***	1.41442***	0.64209***
	(0.55533)	(0.72233)	(0.17557)	(0.08244)

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ETHIOPIA	2.19770***	0.39125***	-0.93841***	-0.38301***
	(0.24065)	(0.12804)	(0.32726)	(0.12151)
UGANDA	11.96377***	0.70477**	-0.34989**	-0.14286**
	(0.69484)	(0.09889)	(0.14032)	(0.05685)
ZAMBIA	2.96333***	2.15261***	0.76668***	0.34992***
	(0.26647)	(0.28403)	(0.13195)	(0.05922)
MADAGASCAR	8.67820***	4.29427***	1.45728***	0.67396***
	(0.58287)	(0.43688)	(0.10173)	(0.04657)
ANGUILLA	0.93147	1.28421	0.25015	0.11322
	(0.23246)	(0.40494)	(0.31532)	(0.13458)
MALAWI	2.48097***	0.49680***	-0.69956***	-0.28674***
	(0.22646)	(0.12092)	(0.24340)	(0.09478)
BOTSWANA	1.73402***	1.42510**	0.35424**	0.15660**
	(0.17356)	(0.22948)	(0.16103)	(0.06696)
NAMIBIA	1.90921***	1.75233**	0.56095**	0.24239**
	(0.31103)	(0.46833)	(0.26726)	(0.11327)
PORTUGAL	1.80351***	0.57494***	-0.55350***	-0.21739***
	(0.12789)	(0.09197)	(0.15996)	(0.06204)
LUXEMBOURG	1.07492	0.66000***	-0.41552***	-0.16354***
	(0.09314)	(0.10556)	(0.15994)	(0.06269)
IRELAND	2.37692***	0.69572***	-0.36281***	-0.14018***
	(0.14217)	(0.08664)	(0.12453)	(0.04962)
ICELAND	1.89803***	0.30554***	-1.18567***	-0.45606***
	(0.12991)	(0.06651)	(0.21769)	(0.08176)
CYPRUS	2.48736***	0.68469*	-0.37879*	-0.14739*
	(0.21279)	(0.13531)	(0.19762)	(0.07758)
FINLAND	2.16310***	0.33742***	-1.08641***	-0.40333***
	(0.12631)	(0.05199)	(0.15408)	(0.05860)
BULGARIA	1.58309***	0.54793***	-0.60161***	-0.23823***
	(0.15076)	(0.11511)	(0.21009)	(0.08232)
LITHUANIA	1.95191***	0.89940	-0.10603	-0.02563
	(0.17588)	(0.17358)	(0.19300)	(0.07594)
LATVIA	1.78066***	0.43076***	-0.84219***	-0.31401***
	(0.11526)	(0.06675)	(0.15496)	(0.05921)
ESTONIA	1.62767***	0.45039***	-0.79765***	-0.30503***
	(0.12426)	(0.08301)	(0.18430)	(0.07018)
ARMENIA	1.70554***	1.42867	0.35674	0.16319
	(0.30705)	(0.40788)	(0.28550)	(0.12344)

BELARUS	0.49906**	0.60005	-0.51074	-0.20861
	(0.16139)	(0.27372)	(0.45616)	(0.17594)
SERBIA	3.17520***	2.43604***	0.89037***	0.42613***
	(0.32519)	(0.40320)	(0.16551)	(0.07328)
MONTENEGRO	2.05367***	0.75351	-0.28301	-0.12435
	(0.29042)	(0.20540)	(0.27259)	(0.11398)
KOSOVO	0.50502*	0.91462	-0.08924	-0.03486
	(0.19674)	(0.46392)	(0.50723)	(0.20696)
CROATIA	1.17816**	0.79914*	-0.22421*	-0.08231*
	(0.07944)	(0.09609)	(0.12024)	(0.04812)
SLOVENIA	1.52336***	0.43215***	-0.83899***	-0.32908***
	(0.09292)	(0.05973)	(0.13821)	(0.05321)
BOSNIA AND HERZEGOVINA	1.92386***	0.90324	-0.10176	-0.04181
	(0.15043)	(0.13678)	(0.15144)	(0.06131)
MACEDONIA	2.35723***	1.00108	0.00108	0.01786
	(0.17873)	(0.13993)	(0.13978)	(0.05835)
CZECH REPUBLIC	1.20864**	0.57236**	-0.55800**	-0.19818**
	(0.10770)	(0.12753)	(0.22282)	(0.08273)
SLOVAKIA	1.77576***	0.86061	-0.15011	-0.05360
	(0.11956)	(0.10815)	(0.12567)	(0.05093)
BELIZE	1.36431**	1.38247*	0.32387*	0.17607**
	(0.18068)	(0.25779)	(0.18647)	(0.07942)
GUATEMALA	3.12891***	0.67710***	-0.38993***	-0.13795***
	(0.18807)	(0.08555)	(0.12634)	(0.05058)
EL SALVADOR	4.53393***	0.36264***	-1.01435***	-0.39450***
	(0.41589)	(0.12434)	(0.34289)	(0.12673)
COSTA RICA	1.30390**	0.67436*	-0.39400*	-0.14824*
	(0.15409)	(0.15095)	(0.22384)	(0.08987)
PANAMA	1.07739	0.68783***	-0.37421***	-0.14443***
	(0.07502)	(0.08388)	(0.12195)	(0.04904)
VENEZUELA	1.04012	0.58008	-0.54459	-0.21589
	(0.15509)	(0.21100)	(0.36374)	(0.13675)
BOLIVIA	8.96575***	1.50633***	0.40968***	0.21871***
	(0.70894)	(0.21560)	(0.14313)	(0.06173)
ECUADOR	6.24127***	0.74787**	-0.29053**	-0.11213**
	(0.34551)	(0.08939)	(0.11952)	(0.04846)
SURINAME	0.78363	1.17408	0.16049	0.04861
	(0.12632)	(0.27801)	(0.23679)	(0.09602)

URUGUAY	1.69213***	0.68153***	-0.38341***	-0.13764***
	(0.10981)	(0.08647)	(0.12688)	(0.05103)
AZORES	0.92831	0.35033	-1.04889	-0.36175
	(0.31275)	(0.25291)	(0.72193)	(0.27977)
TONGA	0.76073	0.69872	-0.35851	-0.13988
	(0.17999)	(0.32258)	(0.46167)	(0.18160)
VANUATU	4.73957***	2.51771***	0.92335***	0.45405***
	(0.58676)	(0.43775)	(0.17387)	(0.08556)
KAZAKHSTAN	1.19872*	0.78715	-0.23933	-0.06460
	(0.12790)	(0.14668)	(0.18634)	(0.07558)
SHENZHEN	0.79899	1.02420	0.02392	0.01169
	(0.21626)	(0.43087)	(0.42068)	(0.16739)
PUERTO RICO	0.59925***	0.43932***	-0.82254***	-0.30332***
	(0.06685)	(0.08910)	(0.20281)	(0.07536)
DOMINICAN REPUBLIC	3.10328***	2.37773***	0.86615***	0.37887***
	(0.27644)	(0.33466)	(0.14075)	(0.06294)
HONG KONG	1.53056***	1.07523	0.07254	0.02770
	(0.15176)	(0.21038)	(0.19566)	(0.07982)
TRINIDAD AND TOBAGO	2.41594***	0.92765	-0.07510	-0.02557
	(0.18985)	(0.15247)	(0.16437)	(0.06663)
JAMAICA	3.48967***	2.49303***	0.91350***	0.40580***
	(0.20608)	(0.23546)	(0.09445)	(0.04083)
BANGLADESH	10.81133***	0.17073*	-1.76768*	-0.61836*
	(1.33162)	(0.17184)	(1.00652)	(0.33217)
TAIWAN	2.99693***	0.83893	-0.17563	-0.06699
	(0.17765)	(0.10060)	(0.11992)	(0.04832)
LEBANON	8.76675***	2.23835***	0.80574***	0.35450***
	(0.52688)	(0.23050)	(0.10298)	(0.04509)
JORDAN	2.14092***	1.02833	0.02794	0.03068
	(0.23803)	(0.21951)	(0.21346)	(0.08740)
SYRIA	1.61751***	0.24460**	-1.40812**	-0.51925**
	(0.27881)	(0.17496)	(0.71527)	(0.25036)
SAUDI ARABIA	0.86594*	0.30895***	-1.17458***	-0.45549***
	(0.06478)	(0.04711)	(0.15248)	(0.05763)
YEMEN	1.85733***	4.44737***	1.49231***	0.65663***
	(0.38586)	(1.06660)	(0.23983)	(0.10860)
OMAN	0.86217	0.91168	-0.09247	-0.05823
	(0.20944)	(0.31314)	(0.34348)	(0.14280)

GAZA STRIP & WEST BANK	1.75639***	0.39070***	-0.93981***	-0.37892***
	(0.18181)	(0.11217)	(0.28710)	(0.10546)
UNITED ARAB EMIRATES	1.16366**	1.30225**	0.26410**	0.09814**
	(0.08779)	(0.14509)	(0.11142)	(0.04628)
ISRAEL	1.41659***	0.80935*	-0.21153*	-0.06242
	(0.09692)	(0.09933)	(0.12272)	(0.04948)
QATAR	0.96486	0.91845	-0.08507	-0.02459
	(0.08238)	(0.12070)	(0.13142)	(0.05349)
GEORGIA	3.75626***	1.50405*	0.40816*	0.16846*
	(0.43605)	(0.35361)	(0.23511)	(0.09612)
gender	1.20988***	1.15755***	0.14631***	0.06403***
	(0.01011)	(0.02225)	(0.01922)	(0.00797)
0-17	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
18-24	0.80584	0.73028	-0.31433	-0.22039
	(0.22027)	(0.43650)	(0.59772)	(0.22568)
25-34	1.48758	0.92415	-0.07888	-0.12554
	(0.40618)	(0.55201)	(0.59732)	(0.22558)
35-44	2.74463***	1.25789	0.22943	0.00452
	(0.74925)	(0.75129)	(0.59727)	(0.22557)
45-54	3.71289***	1.49284	0.40068	0.07602
	(1.01354)	(0.89168)	(0.59730)	(0.22559)
55-64	4.88284***	1.71450	0.53912	0.13264
	(1.33313)	(1.02431)	(0.59744)	(0.22566)
65-120	8.79221***	2.70879*	0.99650*	0.32815
	(2.40727)	(1.62330)	(0.59927)	(0.22651)
knowent	1.60343***	2.06595***	0.72559***	0.30389***
	(0.01320)	(0.04014)	(0.01943)	(0.00788)
fearfail	0.62999***	0.70242***	-0.35323***	-0.14866***
	(0.00543)	(0.01405)	(0.02000)	(0.00818)
FULL OR PART TIME	9.94341***	6.82767***	1.92098***	0.72504***
	(0.30138)	(0.46706)	(0.06841)	(0.02377)
PART TIME WORK ONLY	2.54895***	2.43560***	0.89019***	0.32315***
	(0.09180)	(0.19733)	(0.08102)	(0.02879)
RETIRED/DISABLED	0.34939***	0.52769***	-0.63925***	-0.24090***
	(0.01651)	(0.05664)	(0.10734)	(0.03686)
HOMEMAKER	0.55333***	0.65422***	-0.42431***	-0.14509***
	(0.02583)	(0.06859)	(0.10484)	(0.03563)

STUDENT	0.73603***	0.58557***	-0.53516***	-0.15527***
	(0.05501)	(0.08809)	(0.15043)	(0.04991)
NOT WORKING	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
OTHER	1.92001	2.04910	0.71740	0.27458
	(1.00766)	(2.08989)	(1.01990)	(0.38315)
LOWEST 33% TILE	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
MIDDLE 33% TILE	1.10599***	1.01651	0.01638	0.00497
	(0.01209)	(0.02577)	(0.02535)	(0.01039)
UPPER 33% TILE	1.44698***	1.29469***	0.25827***	0.10671***
	(0.01593)	(0.03227)	(0.02492)	(0.01030)
PRE-PRIMARY EDUCATION	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
PRIMARY EDUCATION	0.96764	1.09490	0.09066	0.03621
	(0.02449)	(0.06253)	(0.05711)	(0.02485)
LOWER SECONDARY	0.82730***	1.03948	0.03872	0.01062
	(0.01982)	(0.05672)	(0.05457)	(0.02350)
(UPPER) SECONDARY EDUCATION	0.72132***	0.86822***	-0.14131***	-0.06198***
	(0.01702)	(0.04669)	(0.05377)	(0.02317)
POST-SECONDARY	0.66137***	0.82155***	-0.19657***	-0.08555***
	(0.01676)	(0.04722)	(0.05748)	(0.02464)
TERTIARY EDUCATION	0.55711***	0.78465***	-0.24252***	-0.10456***
	(0.01408)	(0.04474)	(0.05702)	(0.02448)
BACHELOR OR EQUIVALENT	0.60452***	0.82690***	-0.19007***	-0.08587***
	(0.01910)	(0.05721)	(0.06919)	(0.02944)
MASTER OR EQUIVALENT	0.61668***	0.73648***	-0.30588***	-0.13034***
	(0.01876)	(0.05478)	(0.07438)	(0.03116)
DOCTOR OR EQUIVALENT	0.82312	1.29012	0.25474	0.09568
	(0.10644)	(0.37563)	(0.29116)	(0.12525)
NONE	0.82097	(Base.)	(Base.)	(Base.)
	(0.22179)	(.)	(.)	(.)
2001	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
2002	1.11064**	0.95066	-0.05060	-0.01512
	(0.05657)	(0.19153)	(0.20147)	(0.07068)
2003	0.89706	2.37512	0.86505	0.39945
	(0.32727)	(2.47000)	(1.03995)	(0.34317)

2004	0.64444	5.71335***	1.74281***	0.64137***
	(0.25168)	(3.66034)	(0.64067)	(0.22703)
2005	1.90733***	1.86238***	0.62186***	0.22117***
	(0.09527)	(0.34783)	(0.18676)	(0.06645)
2006	1.73380***	1.27670	0.24428	0.07670
	(0.08458)	(0.23785)	(0.18630)	(0.06584)
2007	1.66832***	1.44663**	0.36924**	0.13008*
	(0.08286)	(0.27220)	(0.18816)	(0.06667)
2008	1.98153***	6.22119***	1.82796***	0.70470***
	(0.09808)	(1.10775)	(0.17806)	(0.06316)
2009	2.06153***	3.07307***	1.12268***	0.41634***
	(0.10053)	(0.55321)	(0.18002)	(0.06387)
2010	1.69980***	5.21907***	1.65232***	0.63246***
	(0.08152)	(0.92106)	(0.17648)	(0.06232)
2011	1.44469***	3.04471***	1.11341***	0.41167***
	(0.06989)	(0.54175)	(0.17793)	(0.06295)
2012	1.52178***	3.27517***	1.18637***	0.43968***
	(0.07246)	(0.57999)	(0.17709)	(0.06253)
2013	1.68309***	2.86187***	1.05147***	0.37206***
	(0.07953)	(0.50532)	(0.17657)	(0.06235)
2014	1.54583***	2.90960***	1.06801***	0.38611***
	(0.07354)	(0.51439)	(0.17679)	(0.06250)
2015	1.50785***	4.01621***	1.39034***	0.50743***
	(0.07184)	(0.70690)	(0.17601)	(0.06219)
2016	1.48185***	4.32646***	1.46475***	0.54419***
	(0.07059)	(0.76115)	(0.17593)	(0.06212)
2017	1.48197***	3.78215***	1.33029***	0.49046***
	(0.07103)	(0.66816)	(0.17666)	(0.06244)
2018	1.41828***	3.40912***	1.22646***	0.45006***
	(0.06842)	(0.60442)	(0.17729)	(0.06278)
2019	1.55931***	3.48778***	1.24926***	0.45900***
	(0.07612)	(0.62099)	(0.17805)	(0.06310)
constant	0.00147***	0.00056***	-7.49218***	-3.32331***
	(0.00042)	0.00035	(0.62950)	(0.23693)
Observations	936913	936590	936590	936590
Pseudo R-squared	0.188	0.138	0.138	0.138
Log lik.	-223888.48627	-58825.57471	-58825.57471	-58834.56055

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Table A.10

Regression results model 5 (logit), odds ratios, Subset 3 used as predictive set and suskill/ OM est. prob excluded

Dependent variable: futsup	Model 5	Model 5	Model 5
	Subset 3 as predictor	suskill (and OM est prob.) excluded	
suskill	2.31250***		
	(0.02701)		
Estimated probability Suc. Ent.	1.17268	8.98826***	
	(0.15290)	(4.89025)	
OC	0.97558	2.07104***	2.13646***
	(0.03756)	(0.09167)	(0.09335)
UC	1.09867*	0.62180***	0.66659***
	(0.06218)	(0.03299)	(0.03317)
AFRICA	1.05020	1.34073*	1.33878*
	(0.17029)	(0.21385)	(0.21395)
ASIA & OCEANIA	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
LATIN AMERICA & CARIBBEAN	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)
EUROPE	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)
NORTH AMERICA	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)
gender	1.18583***	1.23718***	1.24134***
	(0.01372)	(0.01389)	(0.01389)
0-17	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
18-24	0.65235***	0.67519***	0.66748***
	(0.08811)	(0.08765)	(0.08665)
25-34	0.57235***	0.62615***	0.62154***
	(0.07751)	(0.08150)	(0.08092)
35-44	0.44166***	0.49761***	0.49840***
	(0.05992)	(0.06484)	(0.06496)
45-54	0.35556***	0.40396***	0.40681***
	(0.04836)	(0.05272)	(0.05310)
55-64	0.23734***	0.27036***	0.27342***
	(0.03248)	(0.03547)	(0.03587)
65-120	0.10554***	0.12159***	0.12426***

	(0.01538)	(0.01704)	(0.01740)
knowent	1.50194***	1.67049***	1.70190***
	(0.01797)	(0.01998)	(0.01877)
fearfail	0.84432***	0.77704***	0.77029***
	(0.00978)	(0.00847)	(0.00824)
FULL OR PART TIME	0.64295***	0.65298***	0.67733***
	(0.01404)	(0.01265)	(0.01168)
PART TIME WORK ONLY	0.78784***	0.78542***	0.79292***
	(0.01839)	(0.01793)	(0.01803)
RETIRED/DISABLED	0.37871***	0.35700***	0.35183***
	(0.01253)	(0.01141)	(0.01121)
HOMEMAKER	0.60377***	0.57091***	0.56698***
	(0.01417)	(0.01296)	(0.01285)
STUDENT	0.69596***	0.63894***	0.63772***
	(0.01762)	(0.01572)	(0.01572)
NOT WORKING	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
OTHER	0.48976*	0.48946**	0.48843**
	(0.17847)	(0.17370)	(0.17342)
LOWEST 33% TILE	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
MIDDLE 33% TILE	0.93761***	0.94237***	0.94191***
	(0.01253)	(0.01231)	(0.01231)
UPPER 33% TILE	0.91490***	0.93067***	0.93632***
	(0.01333)	(0.01311)	(0.01312)
PRE-PRIMARY EDUCATION	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
PRIMARY EDUCATION	0.95105	0.98060	0.98349
	(0.03450)	(0.03460)	(0.03468)
LOWER SECONDARY	1.03843	1.09866***	1.10070***
	(0.03487)	(0.03584)	(0.03588)
(UPPER) SECONDARY EDUCATION	1.02155	1.09143***	1.08845***
	(0.03334)	(0.03456)	(0.03444)
POST-SECONDARY	1.08678**	1.17917***	1.17465***
	(0.03812)	(0.04016)	(0.03997)
TERTIARY EDUCATION	1.08623**	1.19633***	1.19036***
	(0.03795)	(0.04040)	(0.04015)
BACHELOR OR EQUIVALENT	1.04743	1.15068***	1.14705***

	(0.04584)	(0.04910)	(0.04890)
MASTER OR EQUIVALENT	0.99836	1.10657**	1.09819**
	(0.04361)	(0.04709)	(0.04667)
DOCTOR OR EQUIVALENT	0.86608	0.97867	0.99096
	(0.22039)	(0.24311)	(0.24586)
NONE	(Base.)		(Base.)
	(.)		(.)
busang	1.36968***	1.44336***	1.44609***
	(0.03289)	(0.03433)	(0.03437)
discent	1.39926***	1.57789***	1.57760***
	(0.03694)	(0.04136)	(0.04134)
opport	1.56813***	1.68971***	1.69010***
	(0.01767)	(0.01854)	(0.01855)
equalinc	0.99425	0.99780	0.99796
	(0.01134)	(0.01117)	(0.01117)
nbgoodc	1.20743***	1.22642***	1.22684***
	(0.01496)	(0.01493)	(0.01493)
nbstatus	1.07068***	1.08626***	1.08661***
	(0.01334)	(0.01330)	(0.01330)
nbmedia	1.11636***	1.14313***	1.14311***
	(0.01292)	(0.01296)	(0.01296)
GDP per capita	0.99997***	0.99997***	0.99997***
	(0.00000)	(0.00000)	(0.00000)
Household consumption	0.98674***	0.98547***	0.98546***
	(0.00208)	(0.00203)	(0.00203)
Imports	0.99133***	0.98935***	0.98931***
	(0.00254)	(0.00248)	(0.00247)
Exports	1.02568***	1.02736***	1.02737***
	(0.00205)	(0.00200)	(0.00200)
FDI inflows	1.00212**	1.00206**	1.00205**
	(0.00090)	(0.00088)	(0.00088)
2003	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)
2004	1.79722**	1.94456**	1.94515**
	(0.48757)	(0.52475)	(0.52476)
2005	15.58722***	16.72213***	16.53348***
	(3.48517)	(3.71692)	(3.67194)
2006	5.92266***	6.26287***	6.17114***

	(1.30952)	(1.37666)	(1.35522)
2007	6.35540***	6.72155***	6.62624***
	(1.41014)	(1.48265)	(1.46028)
2008	8.71693***	9.47324***	9.69341***
	(1.95341)	(2.10961)	(2.15676)
2009	9.00405***	10.10002***	10.09726***
	(2.00316)	(2.23337)	(2.23113)
2010	1.49418*	1.63608**	1.65955**
	(0.33172)	(0.36108)	(0.36596)
2011	2.33058***	2.44465***	2.44684***
	(0.51938)	(0.54147)	(0.54156)
2012	2.42136***	2.52060***	2.52888***
	(0.53862)	(0.55735)	(0.55877)
2013	2.27953***	2.37757***	2.37558***
	(0.50746)	(0.52612)	(0.52529)
2014	2.03356***	2.11805***	2.11633***
	(0.45313)	(0.46914)	(0.46841)
2015	1.95290***	2.03084***	2.04616***
	(0.43376)	(0.44836)	(0.45142)
2016	2.15933***	2.24554***	2.26636***
	(0.47895)	(0.49512)	(0.49933)
2017	2.37635***	2.48432***	2.49848***
	(0.52834)	(0.54906)	(0.55179)
2018	2.54966***	2.62971***	2.63561***
	(0.56897)	(0.58330)	(0.58418)
2019	1.89761***	2.18248***	2.18929***
	(0.42428)	(0.48498)	(0.48614)
country variable	yes	yes	yes
constant	0.03796***	0.04462***	0.04475***
	(0.01009)	(0.01163)	(0.01166)
Observations	311174	315796	315796
Pseudo R-squared	0.241	0.224	0.224
Log lik.	-116638.05727	-120910.86926	-120919.26448

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Table A.11

Regression result models 1 (logit), 2 (probit), 3 (logit) and 4 (probit)

Dependent variable: futsup	Model 1 logit	Model 2 probit	Model 3 logit	Model 4 probit
suskill	1.01283***	0.56264***	0.84964***	0.47732***
	(0.00882)	(0.00478)	(0.01183)	(0.00649)
Estimated probability Suc. Ent.	0.67009	0.62516***	1.42646**	1.06981***
	(0.41017)	(0.23537)	(0.56108)	(0.32556)
OC	0.19892***	0.09244***	0.23322***	0.11526***
	(0.03181)	(0.01741)	(0.05689)	(0.03157)
UC	0.07797*	0.01322	0.12244**	0.04620
	(0.04214)	(0.02376)	(0.05440)	(0.03078)
AFRICA	-0.19605	-0.11042	0.02301	0.00729
	(0.13933)	(0.07968)	(0.14589)	(0.08403)
ASIA & OCEANIA	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
LATIN AMERICA & CARIBBEAN	(Omitted.)	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)	(.)
EUROPE	(Omitted.)	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)	(.)
NORTH AMERICA	(Omitted.)	(Omitted.)	(Omitted.)	(Omitted.)
	(.)	(.)	(.)	(.)
gender	0.19884***	0.10885***	0.15689***	0.08599***
	(0.00869)	(0.00475)	(0.01168)	(0.00645)
0-17	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
18-24	-0.24785***	-0.11846***	-0.16295	-0.06060
	(0.08409)	(0.04493)	(0.38040)	(0.19416)
25-34	-0.39255***	-0.20597***	-0.30422	-0.14829
	(0.08442)	(0.04510)	(0.38059)	(0.19428)
35-44	-0.65796***	-0.35658***	-0.56790	-0.29640
	(0.08452)	(0.04515)	(0.38068)	(0.19433)
45-54	-0.89541***	-0.48733***	-0.77575**	-0.41375**
	(0.08467)	(0.04522)	(0.38078)	(0.19438)
55-64	-1.30327***	-0.70195***	-1.14642***	-0.61178***
	(0.08526)	(0.04548)	(0.38105)	(0.19451)
65-120	-2.09129***	-1.08599***	-1.85649***	-0.98473***

	(0.09169)	(0.04823)	(0.38370)	(0.19583)
knowent	0.56446***	0.31734***	0.32917***	0.18647***
	(0.00922)	(0.00506)	(0.01292)	(0.00717)
fearfail	-0.19682***	-0.10640***	-0.15399***	-0.08505***
	(0.00854)	(0.00465)	(0.01139)	(0.00628)
FULL OR PART TIME	-0.45132***	-0.26102***	-0.49099***	-0.28505***
	(0.01487)	(0.00821)	(0.02005)	(0.01121)
PART TIME WORK ONLY	-0.27802***	-0.15796***	-0.30612***	-0.17373***
	(0.01762)	(0.00971)	(0.02307)	(0.01282)
RETIRED/DISABLED	-0.97553***	-0.51640***	-1.05604***	-0.55969***
	(0.02430)	(0.01243)	(0.03328)	(0.01719)
HOMEMAKER	-0.51096***	-0.29361***	-0.57322***	-0.32814***
	(0.01776)	(0.00981)	(0.02406)	(0.01340)
STUDENT	-0.39414***	-0.21701***	-0.48233***	-0.27006***
	(0.01971)	(0.01099)	(0.02668)	(0.01497)
NOT WORKING	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
OTHER	-1.08881***	-0.60391***	-0.76649**	-0.44180**
	(0.33874)	(0.17178)	(0.35188)	(0.18293)
LOWEST 33% TILE	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
MIDDLE 33% TILE	-0.04677***	-0.02851***	-0.04824***	-0.03097***
	(0.01015)	(0.00553)	(0.01376)	(0.00759)
UPPER 33% TILE	-0.04056***	-0.02668***	-0.12001***	-0.07170***
	(0.01086)	(0.00593)	(0.01494)	(0.00824)
PRE-PRIMARY EDUCATION	(Base.)	(Base.)	(Base.)	(Base.)
	(.)	(.)	(.)	(.)
PRIMARY EDUCATION	-0.08069***	-0.03944**	-0.09912***	-0.05414***
	(0.02890)	(0.01607)	(0.03526)	(0.01979)
LOWER SECONDARY	-0.00855	0.00730	0.01248	0.01518
	(0.02668)	(0.01483)	(0.03327)	(0.01871)
(UPPER) SECONDARY EDUCATION	0.00507	0.01607	0.02276	0.02204
	(0.02607)	(0.01452)	(0.03223)	(0.01815)
POST-SECONDARY	0.04782*	0.04195***	0.06182*	0.04602**
	(0.02770)	(0.01538)	(0.03490)	(0.01957)
TERTIARY EDUCATION	0.05682**	0.04970***	0.08659**	0.06011***
	(0.02766)	(0.01538)	(0.03418)	(0.01921)
BACHELOR OR EQUIVALENT	0.03091	0.03686*	0.03101	0.02948

	(0.03415)	(0.01891)	(0.04122)	(0.02302)
MASTER OR EQUIVALENT	0.03406	0.03791**	-0.03141	-0.00741
	(0.03367)	(0.01846)	(0.06200)	(0.03415)
DOCTOR OR EQUIVALENT	0.03281	0.03038	0.09087	0.05069
	(0.17607)	(0.09488)	(0.20820)	(0.11091)
busang			0.63350***	0.36804***
			(0.02320)	(0.01316)
discent			0.79266***	0.45806***
			(0.02578)	(0.01478)
opport			0.45517***	0.25479***
			(0.01156)	(0.00642)
hhsize_log			0.13676***	0.07525***
			(0.01201)	(0.00661)
IP in last 3 years			0.41771***	0.22916***
			(0.02282)	(0.01268)
GDP per capita			0.00002***	0.00001***
			(0.00000)	(0.00000)
Household consumption			-0.01829***	-0.00945***
			(0.00269)	(0.00151)
Imports			0.00902***	0.00489***
			(0.00290)	(0.00163)
Exports			-0.00495*	-0.00312*
			(0.00299)	(0.00167)
FDI inflows			0.00293***	0.00146***
			(0.00072)	(0.00040)
2002	(Base.)	(Base.)		
	(.)	(.)		
2003	0.04647	-0.00704		
	(0.17427)	(0.08670)		
2004	0.33570**	0.16894**		
	(0.16495)	(0.08465)		
2005	0.72541***	0.37829***		
	(0.03636)	(0.01881)		
2006	0.57132***	0.29222***		
	(0.03281)	(0.01690)		
2007	0.58843***	0.29927***		
	(0.03362)	(0.01741)		
2008	0.67892***	0.34603***		

	(0.03515)	(0.01837)		
2009	0.60217***	0.30913***		
	(0.03297)	(0.01714)		
2010	0.19841***	0.09539***		
	(0.03241)	(0.01682)		
2011	0.58284***	0.31089***	(Base.)	(Base.)
	(0.03181)	(0.01647)	(.)	(.)
2012	0.65588***	0.34881***	0.06422***	0.03829***
	(0.03126)	(0.01617)	(0.02382)	(0.01314)
2013	0.61185***	0.32673***	0.02045	0.01560
	(0.03087)	(0.01593)	(0.02339)	(0.01289)
2014	0.53960***	0.28256***	-0.15661***	-0.08363***
	(0.03146)	(0.01626)	(0.02476)	(0.01355)
2015	0.46141***	0.24185***	-0.17498***	-0.09272***
	(0.03190)	(0.01650)	(0.02578)	(0.01415)
2016	0.53365***	0.27863***	-0.09900***	-0.05427***
	(0.03149)	(0.01629)	(0.02544)	(0.01397)
2017	0.54742***	0.28725***	-0.07251***	-0.03936***
	(0.03198)	(0.01658)	(0.02535)	(0.01397)
2018	0.60574***	0.32046***	-0.04347	-0.01918
	(0.03253)	(0.01690)	(0.02745)	(0.01510)
2019	0.44463***	0.23172***	-0.29557***	-0.16165***
	(0.03388)	(0.01768)	(0.02902)	(0.01595)
country variable	yes	yes	yes	yes
constant	-2.26708***	-1.30840***	-2.37651***	-1.36963***
	(0.09630)	(0.05144)	(0.39354)	(0.20190)
Observations	625127	625127	318287	318287
Pseudo R-squared	0.212	0.214	0.214	0.216
Log lik.	-209014.12357	-208451.88586	-113507.28827	-113273.40027

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Note. The country variable has been removed from this table for easier readability, a full list of variables can be found in table A.1.

Table A.12

Regression results model 5 (logit) and 6 (probit)

Dependent variable: futsup	Model 5 logit	Model 6 probit
suskill	0.83088***	0.47415***
	(0.01162)	(0.00647)
Estimated probability Suc. Ent.	1.13890**	0.70593**
	(0.54610)	(0.31541)
OC	0.21343***	0.12115***
	(0.04429)	(0.02529)
UC	0.13692***	0.06463**
	(0.05256)	(0.02976)
AFRICA	0.05106	0.02647
	(0.16193)	(0.09356)
ASIA & OCEANIA	(Base.)	(Base.)
	(.)	(.)
LATIN AMERICA & CARIBBEAN	(Omitted.)	(Omitted.)
	(.)	(.)
EUROPE	(Omitted.)	(Omitted.)
	(.)	(.)
NORTH AMERICA	(Omitted.)	(Omitted.)
	(.)	(.)
gender	0.17101***	0.09394***
	(0.01148)	(0.00642)
0-17	(Base.)	(Base.)
	(.)	(.)
18-24	-0.41195***	-0.23349***
	(0.13591)	(0.07827)
25-34	-0.54020***	-0.31267***
	(0.13628)	(0.07847)
35-44	-0.79649***	-0.45701***
	(0.13641)	(0.07854)
45-54	-1.01095***	-0.57890***
	(0.13660)	(0.07863)
55-64	-1.41302***	-0.79768***
	(0.13729)	(0.07895)
65-120	-2.22125***	-1.21326***

	(0.14592)	(0.08271)
knowent	0.40468***	0.23289***
	(0.01233)	(0.00692)
fearfail	-0.17152***	-0.09615***
	(0.01119)	(0.00625)
FULL OR PART TIME	-0.44045***	-0.25683***
	(0.01970)	(0.01109)
PART TIME WORK ONLY	-0.23549***	-0.13406***
	(0.02331)	(0.01307)
RETIRED/DISABLED	-0.98174***	-0.53696***
	(0.03237)	(0.01714)
HOMEMAKER	-0.51158***	-0.30069***
	(0.02319)	(0.01306)
STUDENT	-0.37421***	-0.21249***
	(0.02531)	(0.01436)
NOT WORKING	(Base.)	(Base.)
	(.)	(.)
OTHER	-0.70044*	-0.40380**
	(0.36413)	(0.19311)
LOWEST 33% TILE	(Base.)	(Base.)
	(.)	(.)
MIDDLE 33% TILE	-0.06216***	-0.03811***
	(0.01336)	(0.00746)
UPPER 33% TILE	-0.08658***	-0.05237***
	(0.01438)	(0.00803)
PRE-PRIMARY EDUCATION	(Base.)	(Base.)
	(.)	(.)
PRIMARY EDUCATION	-0.05172	-0.02875
	(0.03630)	(0.02055)
LOWER SECONDARY	0.03485	0.02486
	(0.03359)	(0.01905)
(UPPER) SECONDARY EDUCATION	0.01844	0.01558
	(0.03260)	(0.01854)
POST-SECONDARY	0.07927**	0.05490***
	(0.03501)	(0.01985)
TERTIARY EDUCATION	0.07747**	0.05328***
	(0.03474)	(0.01971)
BACHELOR OR EQUIVALENT	0.04001	0.02837

	(0.04364)	(0.02460)
MASTER OR EQUIVALENT	-0.00314	-0.00039
	(0.04361)	(0.02474)
DOCTOR OR EQUIVALENT	-0.14594	-0.07254
	(0.25450)	(0.14212)
busang	0.31344***	0.18716***
	(0.02402)	(0.01342)
discent	0.33522***	0.20220***
	(0.02640)	(0.01479)
opport	0.44971***	0.25423***
	(0.01127)	(0.00634)
equalinc	-0.00557	-0.00340
	(0.01140)	(0.00638)
nbgoodc	0.18824***	0.10256***
	(0.01239)	(0.00683)
nbstatus	0.06808***	0.03847***
	(0.01246)	(0.00691)
nbmedia	0.11043***	0.06058***
	(0.01157)	(0.00644)
GDP per capita	-0.00003***	-0.00002***
	(0.00000)	(0.00000)
Household consumption	-0.01347***	-0.00821***
	(0.00210)	(0.00120)
Imports	-0.00866***	-0.00673***
	(0.00256)	(0.00145)
Exports	0.02540***	0.01554***
	(0.00200)	(0.00113)
FDI inflows	0.00211**	0.00121**
	(0.00089)	(0.00049)
2003	(Base.)	(Base.)
	(.)	(.)
2004	0.60158**	0.35143***
	(0.27170)	(0.13485)
2005	2.75467***	1.58647***
	(0.22430)	(0.11063)
2006	1.78506***	1.00624***
	(0.22183)	(0.10891)
2007	1.85793***	1.05384***

	(0.22260)	(0.10937)
2008	2.16328***	1.22296***
	(0.22483)	(0.11078)
2009	2.20885***	1.24357***
	(0.22315)	(0.10965)
2010	0.40350*	0.27880**
	(0.22272)	(0.10918)
2011	0.85304***	0.53403***
	(0.22354)	(0.10972)
2012	0.89082***	0.54974***
	(0.22314)	(0.10944)
2013	0.83335***	0.51812***
	(0.22330)	(0.10956)
2014	0.71746***	0.45339***
	(0.22351)	(0.10966)
2015	0.67275***	0.41749***
	(0.22280)	(0.10925)
2016	0.77129***	0.46633***
	(0.22250)	(0.10907)
2017	0.86970***	0.52390***
	(0.22303)	(0.10940)
2018	0.94146***	0.57278***
	(0.22384)	(0.10992)
2019	0.64823***	0.40293***
	(0.22428)	(0.11021)
countries	yes	yes
constant	-3.30484***	-1.85384***
	(0.26670)	(0.13816)
Observations	311174	311174
Pseudo R-squared	0.241	0.241
Log lik.	-116618.19334	-116626.86142

Note. Standard errors in parentheses

Note. * p<0.10, ** p<0.05, *** p<0.01

Note. The country variable has been removed from this table for easier readability, a full list of variables can be found in table A.1.