Entrepreneurship, gender gap and developing economies: The case of post-apartheid South Africa.

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Abstract

This empirical study examines the extent to which risk aversion and entrepreneurial ability influence an individual's decision to enter into entrepreneurship. Precisely, it delineates the gender gap in self-employment, nascent and high growth entrepreneurship. In doing so, it utilises the Global Entrepreneurship Monitor South Africa databases containing 19,469 usable cases sampled between 2009 and 2014. The study adopts a quantitative approach and it applies an estimator in the form of a probit model and a non-linear decomposition technique to test established hypotheses. The results indicate that lower levels of knowledge and skills among women explain a substantial part of the gender gap. Thus, the gender gap in nascent and high growth entrepreneurship would be reduced if women had similar characteristics as men. Also, their entry rates into self-employment would be high and there would be no gender difference. This shifts the emphasis from the significance of risk aversion for local entrepreneurship to accentuate the importance of entrepreneurial-specific skills required to successfully engage in entrepreneurship.

Keywords: entrepreneurship, gender gap, risk aversion, human capital, entrepreneurial ability, decomposition analysis

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Introduction

African countries are increasingly recognising entrepreneurship as a vehicle their citizen can use to create jobs, foster economic development and growth while reducing poverty (Amin, 2010; Brixiová et al., 2015). But, the disproportionate engagement in entrepreneurship activities between men and women in both developing and developed economies require investigating (Kelley et al., 2016). Existing evidence indicate that in 2015, Africa had 22.7 percent of men and 17.0 percent of women actively engaged in early stage entrepreneurial activity and was ranked as one of the highest rate in the world (Herrington et al., 2016). Notwithstanding the fact that Africa ranks amongst one of the regions with a highest rate of entrepreneurial activity, there are variations in start-up rates between countries. For instance, in developing economies, the numbers of women engaged in entrepreneurial activity vary from 4.5 percent in Morocco, 5.9 percent in South Africa (SA) to 30.2 percent in Burkina Faso (Herrington et al., 2017). Regardless of these emerging trends, reasons for a persistent gender gap in entrepreneurship are still not fully understood.

There has been interest towards understanding factors that influence individual transitions into entrepreneurship as an alternative to paid employment offered by the labour market (Stevenson et al., 1990). This has been clearly demonstrated by a gradual rise of studies that have sought to investigate gender disparities in entrepreneurship (e.g. Bönte et al., 2013; Caliendo et al., 2015; Verheul et al., 2012). In these studies, rewards are identified as important determinants of entrepreneurship. Although rewards are assumed to be crucial for entrepreneurship, there has been little discussion about their consistency in explaining women entrepreneurial activity. Parallel to this, opportunity costs have been acknowledged in entrepreneurial decisions (Amit et al., 1995; Cassar, 2006), but there has been limited attempt to incorporate them into the mainstream literature on entrepreneurship. Although a range of traditional economic factors have already been identified (see for example: Hsieh et al., 2017; Parker, 2009; Simões et al., 2016), this study advances the notion that utility is more complex and one needs to include opportunity costs when assessing

career choices. It extends this literature by introducing high growth entrepreneurs in the analysis and asking whether utility maximisation theory holds true for women.

Previous attempts to understand the nature of entrepreneurship indicate that individuals seek to maximise their lifetime income in their current employment or career choices (Douglas et al., 2000; Lazear, 2005). Lazear (2005) argued that individuals with a balanced set of skills can maximise their income by becoming entrepreneurs. Yet specialist may maximise their earnings by self-selecting into employment. While income maximisation might be a crucial driver for career choices, there are other factors that may influence an individual's career choice (Brush, 1992; Carter et al., 2003; Parker, 2009). For women, maximisation of lifetime income is not their main start-up motivation. As such, their businesses do not focus on making higher profits (Georgellis et al., 2005) or growth oriented (Morris et al., 2006; Terjesen et al., 2016).

At this stage, it seems as though the utility maximisation theory is not applicable to women entrepreneurship. Therefore, this paper builds on the occupational choice theory complemented by opportunity cost perspectives to develop arguments for the hypotheses based on women's specific motivations. The arguments relate to desire women have for fulfilling their family responsibilities, making social impact and self-fulfilment (Eckel et al., 2002; Kepler et al., 2007). Considering this debate, it is to be expected that the utility maximisation theory holds for women though with modified assumptions.

Following the utility maximisation theory, this study examines the extent to which risk aversion and entrepreneurial ability influence an individual's decision to engage in entrepreneurial activity and explain the gender gap in self-employment, nascent and high growth entrepreneurship. Previous economic theories of entrepreneurship have shown how the heterogeneous distribution of individual characteristics motivate or demotivate individuals to become entrepreneurs (Douglas, et al., 2000; Lazear, 2005). Douglas and Shepherd (2002) suggested that the expected financial rewards, degree

of risk aversion and independence explain individuals probability of becoming entrepreneurs. Amit et al. (1995) and Cassar (2006) analysed the decision making of potential entrepreneurs by incorporating risk aversion and work effort as moderating factors in the utility maximisation model. This study merges these views and it develops an occupational choice model where decision to become self-employed, nascent and high growth entrepreneurs is influenced by expected benefits, willingness to take risk and entrepreneurial ability.

In the empirical section, this study utilises individual level data drawn from the SA GEM, covering six years, 2009 to 2014. To test the hypotheses, the research applies an estimator in the form of a probit model and a non-linear decomposition technique. The dependent variables it utilises include: engagement in self-employment, nascent and high growth entrepreneurship. In analysing the variable previously defined, the study commences by examining how gender differences in risk aversion and entrepreneurial ability influence men and women to become entrepreneurs. Based on the pooled model, a non-linear decomposition analysis to examine the extent to which gender gap in entry into entrepreneurial activity can be attributed to risk aversion, entrepreneurial ability and demographic characteristics.

The study contributes to the existing literature on entrepreneurship in two ways. Firstly, it explores the origins of the utility maximisation theory and challenges its assumptions on motivations for occupational choices. In doing so, the study extends the utility maximisation theory by including motivations beyond the traditional economic factors. Crucially, it demonstrates that the risk aversion and balanced skills theories can be extended to incorporate relevant aspects that have not been previously considered. This potentially addresses some of the concerns raised in Ahl (2006) which suggested that existing theories are male oriented and are not readily applicable to women without extending them.

Secondly, disaggregating entrepreneurial activity into three occupational categories to make a distinction between self-employed (solo entrepreneurs), nascent and high growth entrepreneurs

helped to resolve some of the ambiguities found in the literature. The results indicate that higher levels of fear of failure, lower levels of education and opportunity recognition skills among women explain a significant share of the gender gap. However, lower levels of perceived knowledge and skills explain a substantial part of the gender gap. Thus, the gender gap in nascent and high growth entrepreneurship will be smaller if women had similar characteristic as men. However, the gender gap in self-employment would disappear and entry rates for women and men will be similar.

The rest of the paper is structured as follows. The next section discusses the theoretical framework and how this may help in explaining gender differences in risk aversion and entrepreneurial ability may contribute to the gender gap in entrepreneurial activity and derive our hypotheses. Following that, the context of the research is provided together with the methodological approach adopted as well as information about the source of the data used in the study. After that a summary of the results generated using probit regressions and the non- linear Blinder-Oaxaca decomposition as formal tests of the hypotheses is presented. This culminates with a discussion on the managerial and policy implications of the results generated in the study.

Conceptual framework and hypotheses

As previously explained the study adopts utility maximisation as the conceptual framework which represents the preferences of women and men over three dimensions: risk-aversion, expected benefits and entrepreneurial ability. This theoretical framework enabled the research to go beyond the simple financial utility maximisation conceptualisation as it captured alternative motivations that often generate satisfaction or dissatisfaction and might explain women and men career choices. This approach provides a tractable framework to empirically test factors that might facilitate or hinder an individual from engaging in entrepreneurship and therefore, explain the gender gap in self-employment, nascent and high growth entrepreneurship**.**

2.1 Fear of failure and entrepreneurship

Extant literature recognises that attitudes towards entrepreneurship are shaped by the expected risks and rewards of engaging in entrepreneurial activity (Douglas, et al., 2000). If one of the key components of entrepreneurship is bearing risk, heterogeneity in risk aversion might have a significant role in explaining an individual's transition into entrepreneurial activity (Kihlstrom et al., 1979; Knight, 1921). Kihlstrom et al. (1979) suggested that risk-averse individuals may choose to become employees and risk tolerant individuals may become entrepreneurs. However, some scholars argue that the relationship between risk aversion and entrepreneurship is ambiguous (Blanchflower et al., 1998; Cramer et al., 2002; Parker, 2009).

The literature provides several arguments on how risk aversion limits participation in entrepreneurial activity. It acknowledges that men are risk tolerant and women exhibit higher levels of risk avoidance across a wide range of settings (e.g. Croson et al., 2009; Dawson et al., 2015; Kepler, et al., 2007). Evidently, a negative association between risk aversion and entrepreneurship has been reported (see for example: Bönte, et al., 2013; Caliendo et al., 2014; Verheul, et al., 2012). This also holds for both women and men (Brush, 2006).

Individuals seek to maximise their lifetime income in career choices receive compensation for their investment in entrepreneurial activity such as time, human capital and money spent on developing a business (Cassar, 2006; Douglas, et al., 2002). Therefore, women and men with high quality resource endowments may not choose to become entrepreneurs if entrepreneurship leads to reduced income compared to income from their current occupation (Douglas, et al., 2002; Knight, 1921). This relates to an individual's level of fear of losing a constant flow of income from current employment and the possibility of no return on investments. Yet, once women and men with high quality resources endowments engage in entrepreneurial activity, they are more likely to succeed (Cassar, 2006).

Therefore, it is expected that men and women with high quality resource endowments may become high growth entrepreneurs and are more likely to succeed. However, they are also more likely to be

attracted to the labour market as potential high-wage employees, and higher opportunity costs affect their likelihood of becoming self-employment, nascent and high growth entrepreneurship negatively. Thus, the following hypothesis is offered:

Hypothesis 1: *Men and women with a high level of fear of failure are less likely to engage in occupations such as self-employment, nascent and high growth entrepreneurship.*

2.2 Income and entrepreneurship

Economic theory advances the idea that people are financial utility maximisers (Douglas, et al., 2000). On that basis, its logical to assume that they select occupations that offer highest perceived utility based on their assessment of expected risks and income against the present income and possibility for increase in income from present occupation (Douglas, et al., 2002). Previous studies have shown that gender is an important moderator of risk attitude and that women are more risk averse than men (Coleman et al., 2012; Eckel, et al., 2002; Fossen, 2012). However, in terms of financial matters, women are generally considered to be risk averse across a wide range of areas such as business funding, money management and investment (Graham et al., 2002; Kepler, et al., 2007; Klyver et al., 2013).

Therefore, women and men with lower levels of income may find the opportunity cost for engaging in entrepreneurship to be very low (Amit, et al., 1995)**.** Even when their businesses fail, they may find alternative employment which may restore the initial level of income (Cassar, 2006)**.** However, when the short-term projected income from the venture is similar to their current income flows, they may become entrepreneurs if there is a potential to generate higher long-term income (Devine, 1994a, 1994b; Fairlie, 2004). In contrast, women and men with higher levels of income benefit from rents generated from their current employment (Sørensen, 2000). Therefore, it is expected that individuals with higher income levels may find the loss of income from their present occupation

outweighing the perceived benefits from a new venture. Accordingly, the following hypothesis is offered:

Hypothesis 2: *Men and women with higher levels of income are less likely to engage in occupations such as self-employment, nascent and high growth entrepreneurship.*

2.3 Entrepreneurial ability and entrepreneurship

In this section, risk aversion and entrepreneurial ability (Lazear, 2005) are treated as key determinants of an individual's occupation choice. Entrepreneurial ability is broadly defined as knowledge and skills that increase their effectiveness to perform different tasks involved in setting up a new firm. The latter require an individual to assemble new resources and combine them with resources he/she already possess. An early version of the occupational choice model proposed by Lucas (1978) assumed that when choosing occupations, individuals are uncertain about their entrepreneurial talent, however, they choose an occupation that offers the highest expected utility. This model relates to an individual occupational choice under risk between two categories of occupations: employees who receive a risk-free wage from the labour market and an entrepreneur who produces output in accordance with a production function which in turn depends on entrepreneurial ability. Hence, entrepreneurship is a risky activity because entrepreneurs do not know their ability until their output is revealed.

Previous occupational choice models suggest that entrepreneurship may derive from human capital accumulated through education or experience (Lazear, 2005; Van Praag et al., 2001). Lazear (2005) explained how a range of skills, rather than depth of the knowledge is associated with an individual's propensity to engage in entrepreneurial activities. He explained that individuals with a balanced set of knowledge and skills can maximise their lifetime income by becoming entrepreneurs and specialists may maximise their lifetime income by working as paid employees.

Nonetheless, this perspective does not consider other motivations that may affect an individual's career choice.

While risk aversion and balanced skills theories remain popular and influential theories, others have attempted to understand occupational choices using pecuniary and non-pecuniary benefits and demographic characteristics as well as personality traits (Amit, et al., 1995; Parker, 2009; Van Praag, et al., 2001). Empirical eveidence suggest that an entrepreneurial career is associated with the highest expected rewards that depend on an individual's perceived ability and risk attitude (Åstebro et al., 2011; Hsieh, et al., 2017; Tegtmeier et al., 2016).

However, there are differences between women and men on how they view their businesses, families, and the socio-economic environment. In general, women's motives for engaging in entrepreneurship are often driven by the desire to fulfil family responsibilities (Morris, et al., 2006), social impact and self-fulfilment (Brush, 1992). These gender differences lead to alternative motivations for maximising lifetime income among women entrepreneurs, hence most of their businesses are in low profit industries (Wilson et al., 2010), often less focused on profit (Georgellis, et al., 2005) and lower growth oriented (Jayawarna et al., 2013).

Arguably, the balanced skills theory seems not to be applicable to women entrepreneurship because these diverse factors are not considered in its underlying assumption. In contrast, the balanced skills theory seem to hold for women entrepreneurship since they might bring in even broader sets of abilities to the balanced skills proposed by Lazear (2005). Accordingly, their balanced set of skills might have a positive impact on entrepreneurial activity although women might have diverse motives in becoming entrepreneurs. This study explores these motives in detail in the following paragraphs.

Women often indicate fulfilment of family responsibilities as one of their strongest motive for their career choices (Marlow et al., 2013; Morris, et al., 2006). Even when their occupational choices are necessity driven, this study highlights the fact that their balanced skills may still lead to a higher

probability of becoming an entrepreneur. Those who are specialists may easily find good, secure part-time jobs that involve engaging in a narrowly defined area compared with entrepreneurial work (Lazear, 2005). However, individuals with balanced skills often do not fit into such specialised areas. Instead they maximise their fulfilment of family responsibilities through flexibility learned when accumulating a wide range of skills. Thus, entrepreneurs have greater freedom to choose, as a result, women may have greater control over the time they work. However, they still need to possess a wide range of skills to successfully manage their business activities alongside their family duties.

An important motivation for women's career choice is the maximisation of their social impact (Brush, 1992). For example, if the main motive for women is to help others in the community, then those women that have balanced set of skills may maximise their social impact through socially oriented businesses, while specialists can maximise their social impact by being employed.

Women report self-fulfilment as their main motivation for their career choice (Brush, 1992; Jayawarna, et al., 2013). In the light of this, it is possible that individuals with balanced skills maximize their self-fulfilment better as entrepreneurs than employees. Their balanced skills might have been the result of dissatisfaction with their previous occupations and desire for greater variety in their work. This leads to more self-fulfilment in entrepreneurial career, at it involves engagement in various tasks. Following this school of thought, women with a wide range of skills tend to be more satisfied as entrepreneurs and specialists may find greater self-fulfilment by pursuing their specific skills.

We posit however that by examining three categories of entrepreneurial activity enables us to distinguish between the influence of education, knowledge and skills and opportunity recognition on the propensity of women and men to become self-employed, nascent and high growth entrepreneurs. In particular, we argue that focusing on women as a homogeneous group instead of considering them as opposite of men broadens Lazear's (2005) view and may enable us to resolve

some of the ambiguities found in the literature, which we highlighted above. In our case, this is of particular relevance since 13.8 million people were unemployed in 2014 and 60 percent of South Africans earned below US $450.00 per annum (see Bruwer et al., 2016; SAICA, 2015; Schmidt et al., 2016). Yet we know that women play an important role in entrepreneurship in both developing and developed economies (Acs et al., 2011; Terjesen et al., 2015), but their rate of entrepreneurial activity are persistently lower than that of men (Herrington, et al., 2017; Kelley et al., 2017). Hence, we are interested in understanding the factors which affect their occupational choices. Thus, we posit the following hypothesis:

Hypothesis 3: Men and women with a balanced set (education, knowledge and skills and opportunity recognition) are more likely to engage in occupations such as self-employment, nascent and high growth entrepreneurship

2.4 Gender gap in entrepreneurship

While we adopt the risk aversion and balanced skills conceptualisation of entrepreneurship, we argue that in understanding individuals' entry decisions, one need to consider trade-offs between other factors that might have an effect over and above the standard economic factors. Therefore, our argument in this paper is to stress that utility is more complex and we should include the role that opportunity costs play when analysing the entrepreneurial decisions

Moreover, it has been recognised that individuals participating in entrepreneurial activity encounter different working conditions in terms of patterns and routines, may work harder and even longer than those in wage employment (Amit, et al., 1995; Jayawarna, et al., 2013). In this case, the opportunity cost of putting more effort and time into entrepreneurial activity may diminish an individual's chance to create other utilities by pursuing non-work-related tasks. For example, during his/her spare time, an individual may want to spend time with family or might have additional

earnings from other jobs. Not having the time to pursue these activities result in a disutility and leads to higher opportunity cost for the potential entrepreneur that diminishes the utility derived from new firm's potential profit. Therefore, it would be expected that the perception of more work and time to reduce an individual's propensity to engage entrepreneurial activities.

In addition, the SA economy is in the early stages of market transition in which entrepreneurship is still constrained by underdeveloped markets and institutional infrastructure (SAICA, 2015; Schmidt, et al., 2016). Institutional factors that may affect women entrepreneurship more than men in SA include both formal institutions (e.g. legal, gender equality, taxation, childcare facilities) and informal institutions (e.g. family values, religion, and traditional roles). In particular, female entrepreneurship may be inhibited in most areas where normative support for their entrepreneurship lacks because of the emphasised traditional roles woman play such a being household caretakers (Baughn et al., 2006; Jayawarna, et al., 2013). Moreover, support systems for balancing work and family responsibilities are underdeveloped or non-existent in some areas, making it more difficult for women to engage in entrepreneurial activities (Schmidt, et al., 2016). Given the constraints imposed by the formal and informal institutions, we expect these to increases the opportunity costs which in turn discourage women from choosing entrepreneurial careers. Therefore, women are more likely to be relatively less represented in all the categories of the entrepreneurial activities. Accordingly, the following hypothesis is offered:

Hypothesis 4: *Due to higher opportunity costs, there will be a gender gap in entrepreneurial activity such that the negative effect of gender on the likelihood of engaging in self-employment, nascent and high growth entrepreneurship, will be stronger for women than men.*

Since social structures vary across countries, the degree to which risk aversion affects potential entrepreneurs will depend greatly on the country context (Jacobs, 1961). Despite a general poor

socio-economic environment in SA and other developing countries, their rate of women entrepreneurial activities are higher than that of many developed countries (Herrington, et al., 2017; Kelley, et al., 2017).

Literature suggests that people's attitudes towards entrepreneurship are determined by the expected risks and rewards of engaging in entrepreneurial activity (see Devine, 1994b; Douglas, et al., 2002; Klyver, et al., 2013). In these studies, it has been shown an individual's decision to participate in entrepreneurial activity is taken after weighing the possibility for generating additional income from a new business against the present income and against the possibility for increase in future income from present employment.

Parallel to this, other scholars (e.g. Graham, et al., 2002; Robichaud et al., 2003) recognise that the notion of risk is associated with emotions of stress and anxiety, and intolerance to uncertainty significantly contribute variably to the generation of excessive worries. In particular, exposure to risk generates different levels of cognitive discordance among women and men and both have preferences for avoiding engagement with activities that they perceive as uncertain. This perhaps suggests that when presented with similar events, individuals will construct different perceptions of the risks involved by drawing upon their cognition in order to make sense of situations (Brown et al., 2008). Individual level factors that influence the cognitive process which make sense of risk, such as gender, will shape attitudes towards entrepreneurial decisions upon issues such as business funding (Graham, et al., 2002). In particular, women's family roles, socialization and greater vulnerability to violence reduces their risk-taking behaviour and contribute significantly in generating greater sensitivity to loss and in turn increase their opportunity cost (Eckel, et al., 2002; Graham, et al., 2002; Kepler, et al., 2007). Due to such differences, it is expected that women would be relatively less represented in all the categories of the entrepreneurial activities. Therefore, we posit that the gender differences in fear of failure will contribute to the gender gap in self-

employment, nascent and high growth entrepreneurship. Drawing from the above discussion, the following hypothesis is proposed:

Hypothesis 5: Due to higher opportunity costs, there will be a gender gap in entrepreneurial activity such that the negative effect of fear of failure on the likelihood of engaging in self-employment, nascent and high growth entrepreneurship, will be much stronger for women than men.

In terms of financial matters in general, the literature acknowledged that women are less confident in their ability to make the right financial decisions across a range of activities such as business funding, general money management and in investment (Graham, et al., 2002; Harris et al., 2006; Ivanova et al., 2011). To this effect, Graham, et al. (2002) explained that socialisation play an important role in influencing women's confidence in financial management. This may be associated with the acknowledgement that women and men base decisions upon cues from their local environment, observed behaviours and prior experience which increases or reduces their uncertainty (Chung et al., 2001; Marlow et al., 2014; O'Donnell et al., 2001).

It is within the use of the cues associated with sense making that gender differences exist where women take a more comprehensive approach than men when processing information in similar task contexts. Evidence suggest that women draw a wide range of cues from their local environment when processing financial information and men often do not process all the available information but are more selective in their processing (Graham, et al., 2002; Marlow, et al., 2014). Accordingly, men are more likely to make a decision more quickly and take risks while women take a more considered approach when making investment decisions.

The differences in financial decisions debated above are often influenced by information drawn from their previous employment, institutions and socialisation that disadvantage women by embedding fear and reducing their confidence. Even when women and men have the same levels of income, higher levels of fear of failure may lead to the higher opportunity cost of entrepreneurship for women. Therefore, it is expected that higher opportunity cost will contribute to the gender gap in entrepreneurial activity. Thus, women with higher income will be less likely to become entrepreneurs than men. Accordingly, the following hypothesis is proposed:

Hypothesis 6: *Due to higher opportunity costs, there will be a gender gap in entrepreneurial activity such that the negative effect of income on the likelihood of engaging in self-employment, nascent and high growth entrepreneurship will be stronger for women than men.*

There is an ongoing discussion in the entrepreneurship domain about whether entrepreneurs need a balanced set of knowledge and skills (Lazear, 2005) or expert knowledge. Proponents of the former emphasise that balanced set of knowledge and skills creates a combination of rare, valuable and inimitable competences and capabilities that enable entrepreneurs to perform all the tasks undertaken in creating a new firm (Åstebro, et al., 2011; Hartog et al., 2010; Lazear, 2005; Stuetzer et al., 2013). Contrary, those in favour of the latter focus more on the depth of knowledge. They argue that specialist knowledge enables individuals to acquire unique sets of skills that enable them to create best solutions to problems by connecting different pieces of knowledge to generate new ideas (Baron, 2006; Baron et al., 2010; Krueger, 2007).

Evidence suggests that there is a strong relationship between balanced skills mix and entrepreneurship (e.g. Backes-Gellner et al., 2013; Lechmann et al., 2014; Oberschachtsiek, 2012). These studies identify balanced skills as having an important influence not only of increasing an individual's likelihood of starting a new business but of creating jobs for others and this holds true

for both men and women (Brush et al., 2006). Thus, a balanced set of knowledge and skills facilitates individuals to become self-employed, nascent and high employment growth aspiration entrepreneurs.

In contrast, an employee would gain more by being a specialist in a specific area desired by the labour market. However, individuals attempt to receive compensation for their investment in knowledge and skills such as time and money spent on education (Lazear, 2005). The opportunity cost of utilising own knowledge and skills may prevent individuals from becoming entrepreneurs. Thus, individuals who are specialist may not choose to become entrepreneurs if entrepreneurship leads to reduced income compared to the income from employment (Lazear, 2005).

Furthermore, Davidsson and Honig (2003) found that the relationship between knowledge and skills and entrepreneurship can be confounded by several factors. These factors include the country's level of economic development that might impose a significant effect on the relation between knowledge and skills and entrepreneurship. However, the majority of research within the entrepreneurship domain regarding developing economies has focused on Central and Eastern European economies. Therefore, little is known about the entrepreneurial environment in SA since it has been less frequently studied.

In the context of Africa, educational attainment, perceived knowledge and skills and opportunity recognition skills are more likely to facilitate entry into entrepreneurial activity (Brixiová, et al., 2015; Cetindamar et al., 2012). SA serves as unique exemplar with resources that are not possessed by many countries. In many developed economies however, access to higher education is readily available to everyone but in many developing countries access to higher education is for the privileged members of the society. However, a higher proportion of women is graduating from university in SA (STATS, 2017). Although the distribution of education by gender has tremendously changed over the last decades, on average, the working age men are highly educated than women (Dustmann, 2005). Moreover, in developing countries such as SA, education is seen as

a way of social advancement (Aycan, 2004; Küskü et al., 2007) and upward social mobility is one of the consequences entrepreneurial success (Blanden et al., 2005; Frankish et al., 2014). Therefore, the gender gap in self-employment, nascent and high growth entrepreneurship might be partly explained by the gender difference in educational levels, knowledge and skills and ability to recognise opportunities that still exists. Accordingly, the following hypothesis is proposed:

Hypothesis 7: Due to lower opportunity costs, women and men with a balanced set of skills (education and knowledge and skills and ability to recognise opportunities) are more likely to engage in self-employment, nascent and high growth entrepreneurship; but the positive effect will be much stronger for men than women.

Context

Before outlining the methodology adopted, it was deemed necessary that the research context is provided to enlighten the reader. The data used in this study was drawn from SA, a country which has a unique position in the history of the African continent due to its past political (apartheid) and cultural events that have resulted in a deep socio-economic divide and a turbulent economy. Although the history of SA dates back thousands of years, it was formally named the Union of South Africa (consisting of four British colonies: Natal, Cape Colony, Orange Free State and Transvaal) in 1910. The Sub-Saharan African (SSA) country officially became a republic in 1961. The first democratic elections in 1994 marked the end of apartheid rule. SA has nine provinces (Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, North West and Western Cape), and a population of approximately 54 million people living in an area measuring 1,219,090 square kilometres. With Bloemfontein, Cape Town and Pretoria as three major cities and each has a branch of the government. After 22 years of majority rule, SA seems to have struggled to address the imbalances of the apartheid era especially in the labour market, education and infrastructure development (Banerjee et al., 2008; Deborah et al., 2015; Klasen et al., 1999).

Although the transition from apartheid to democracy in SA brought political freedom to the majority of the formerly disadvantaged people, inequality in terms of gender, class and race and widespread socio-economic and political are a common feature (Petzer et al., 2013; UNDP, 2014). Thus, unemployment, diminishing employment opportunities and poverty remain a reality for many people in post-apartheid SA. With an estimated unemployment rate of 25.2% during 2014 which is 231.58% higher than the average rate for SSA region (ILO, 2014), it is evident that SA has the highest rate of unemployment in the region as illustrated in Table 1 below. Notably, the unemployment rate among women is 28.7% and has been consistently higher than the rate for men in the last few decades. When it comes to youth unemployment among women, which stands at 58.3%, is significantly high than men. Consequently, there has been a marked rise in civil unrest as the country's economy appears to be struggling to absorb all the economic inactive individuals in the labour market.

[Table 1]

Consistent with ILO data illustrated above, GEM data shows that SA's TEA rate has increased marginally over the past decade but in 2013/2014 the rate dropped from 10.6% to 7% which is approximately 34% lower. Furthermore, the entrepreneurial activity rate recorded for 2015 (9.2 shown in Table 2) is 13.21% below the 2013 rate (Herrington, et al., 2016; Kelley, et al., 2017). The GEM data also demonstrates that men's TEA rate is almost 40% higher than that of women and all the TEA rates are below 50% of the average TEA rate for Africa.

[Table 2]

The recession in 2008 coupled with the recent slowdown of the Chinese economy alongside widespread global structural reforms have conspired to negatively affect SA's economy. Given the deep socio-economic divide and high levels of unemployment, the government of SA has realised that in order to address these imbalances, it would have to put in place mechanisms and champion policy initiatives that promote entrepreneurship at the grass root level (DTI, 2015; Meyer et al., 2015). The recent national drive to promote gender equality has led to the establishment of a number of initiatives with the sole purpose of reducing gender inequalities. The support initiatives include; Small Enterprise Development Agency; South African Micro Apex Fund; Youth Development Agency and National Empowerment Fund (Botha et al., 2013; DTI, 2015; Phillips et al., 2014). Further support to potential entrepreneurs is also made available through private organisations such as SA Breweries and Anglo American. However, these initiatives tend to be very limited and their effectiveness has been questioned (Herrington et al., 2015).

Methodology

To test the hypotheses, we utilise the individual level data drawn from the 2009 to 2014 pooled Global Entrepreneurship Monitor (GEM) SA databases based on annual adult population surveys. The database consists of random samples, stratified by region, of the working age (18 to 64 years) population. It was compiled through a CATI telephone survey using a random dialling technique of fixed and mobile numbers by a professional marketing company (see Bosma et al., 2012). After accounting for incompleteness of data in the variables, our effective sample size is 19,469 usable cases. We used this data to generate indicators of the entrepreneurial activity among surveyed individuals.

4.1. Dependent variables

Since our hypotheses concern nascent entrepreneurs, self-employed and high growth entrepreneurs, we apply three separate models with dependent variables coded as dummies. Consistent with a standardised criteria specified by GEM (Bosma, et al., 2012), we define the occupational categories as follows: Nascent include individuals who have been actively involved in creating a new firm in the past year; owner managers of a firm that paid wages for not more than 42 months and their businesses employs between one or more people. Self-employed are individuals who have been running a business for a period not exceeding to 42 months but do not employ others. Whereas, a high growth entrepreneur is an indicator for individuals who at the time entry, each aspire to create ten or more jobs over a period of five years.

However, the issue we encountered with the high growth entrepreneurship is related to the fact that it merges two heterogeneous groups, that is, low growth entrepreneurs and non-entrepreneurs. Therefore, the key question arising from the approach we took was concerned with what one would consider to be an appropriate cut-off point for defining high growth entrepreneurship. Arguably, defining entrepreneurs at the time of entry as individuals who aspire to create ten or more jobs over a period of five years can be justified on the basis that it is consistent with the distinction between micro and small business (Stokes et al., 2002). Given the nested nature of our dependent variable, we make estimations using three separate probit models enabling us to estimate the determinants of each occupational category separately to avoid issues of cross equation correlation (Wooldridge, 2002).

4.2. Independent variables

Regarding the explanatory variables used in the analysis, the literature suggests that a number of factors have a significant influence on an individual's entrepreneurial decision. The variables related to our hypotheses concerning risk aversion include: fear of failure (H1, H5), income (H2,

H6); and those that concern entrepreneurial ability include: highest educational attainment, knowledge and skills and opportunity recognition skills (H3, H7) and gender (H4). These factors have been identified in previous studies (Douglas, et al., 2002; Hsieh, et al., 2017; Lazear, 2005; Tegtmeier, et al., 2016) as having a significant influence on an individual's entry into entrepreneurship. Table 3 below provides a comprehensive description of all the variables we used in this study.

[Table 3]

Recent evidence suggests that risk aversion does not differ between men and women but loss aversion does (Caliendo, et al., 2015; Hsieh, et al., 2017; Tegtmeier, et al., 2016). Therefore, we included two dummy variables, *Fear of failure* and *Income,* as proxies of risk aversion. *Fear of failure* takes a unit value if the respondent agrees with the statement that fear of failure prevents him/her from the starting a business. *Income* takes a unit value if the respondent is in the upper third of household income group of respondents in SA.

A number of studies have demonstrated that entrepreneurial ability is a key determinant of an individual's occupation choice (Åstebro, et al., 2011; Hsieh, et al., 2017; Lazear, 2005). Within these studies it is acknowledged that having a balanced set of skills increase the effectiveness to perform different tasks involved in setting up a new firm. Therefore, we include three dummy variables, *Education, Knowledge & skills* and *Opportunity recognition* as measures of entrepreneurial ability. We define *Education* by employing a dummy variable for which the value of one refers to individuals with a minimum of post-matric qualification. Parallel to this, *Knowledge & skills* relate to individuals who believe they have all the relevant skills required to start a business. In turn, *Opportunity recognition* is a proxy for individuals who have confidence that there

will be able to spot good opportunities for starting a business in their local area in the following six months.

Previous studies (Coleman, et al., 2012; Eckel, et al., 2002; Fossen, 2012) acknowledge that gender is an important moderator of risk attitude and shape an individual's attitude towards entrepreneurial decisions upon a wide range of issues. Therefore, we employ a *Gender* dummy variable which takes the value of one if the respondent is female.

Finally, in the entrepreneurship literature, age, knowing other entrepreneurs, race and business angles have all been are recognised as having an effect on an individual's propensity to engage in entrepreneurial activity (Brush, et al., 2006; Mickiewicz et al., 2017; Reynolds, 2011). Hence, we use them as control variables in order to isolate the independent effect of risk aversion and entrepreneurial ability on the probability to engage in self-employment nascent and high growth entrepreneurship.

4.3. Mean gender differences

In Table 4 below, we show the mean characteristics of women and men in our full estimation sample of individuals who are engaged in entrepreneurial activity. In addition, we illustrate the sub-categories of individuals who are nascent entrepreneurs, self-employed and high growth entrepreneurs. The results indicate significant gender differences on entry into three occupational choices. The results indicate that on average, fewer women are engaged in nascent entrepreneurship, self-employment and high growth entrepreneurship than men.

[Table 4]

On average, women score significantly higher than men on *fear of failure*. This indicates that more women have higher levels of risk aversion than men. The average score for women with higher *income* is lower than that of men suggesting that in SA, women have lower levels of income and implies that they have lower levels of risk aversion than men.

There are some significant mean differences by gender on entrepreneurial ability. The results show that on average, women have lower levels of *education, knowledge and skills and the opportunity recognition skills* than men. Similarly, the control variables outlined in Table 4 also demonstrate that on average there are more women over 34 years old than men but there are no significant gender differences between men and women less than 35 years old. Furthermore, fewer women know other successful entrepreneurs and business angels than men. Race is the only control variable that does not differ by gender.

4.4. Estimation strategy

Based on our theoretical predictions in Section 2, an individual may choose to become entrepreneur if the expected utility from entrepreneurship exceeds the utility gained from the current occupation. However, entrepreneurial activity may be related to unobserved utilities. As such, we apply an additive random utility model since the utilities of alternatives 0 and 1 have deterministic and random components of utility. Furthermore, we utilised three separate binary probit models to estimate the effect of risk aversion and entrepreneurial ability on the likelihood of an individual becoming an entrepreneur. We argue that the difference between the deterministic components of utilities depends on risk taking and entrepreneurial ability and these factors may facilitate or hinder entry into entrepreneurial activity.

In the final stage of our analysis, we employ the non-linear Blinder-Oaxaca decomposition technique proposed by Blinder (1973) and Oaxaca (1973) to test Hypotheses H4 H5, H6 and H7. This enabled us to further decompose the gender gap in the mean entry probability into

characteristics and coefficients effect. The characteristic effect represents the differences in the predicted probabilities due to gender differences in endowments, in this case, *fear of failure, income, education, knowledge and skills* and *opportunity recognition skills*. The coefficient effect captures part of the gender gap in entrepreneurial activity which is not explained by the characteristics effect. In other words, it represents the residual part of the group differences. Furthermore, detailed decomposition enabled us to quantify separately the contribution of each variable or group of variables of interest. Since we have binary outcome variables and estimate probit models, we employed the weighting method for non-linear models which then enabled a detailed decomposition based on single variables and coefficients (Yun, 2004). This approach often leads to the issue of indexing. Therefore, to deal with this emergent issue, we used coefficients from an estimation of the probit model of entry into nascent entrepreneurship, self-employment and high growth entrepreneurship on the pooled sample of women and men (see, Neumark, 1988; Oaxaca et al., 1994). In addition, we also normalised categorical variables, that is, the dummy variables representing age and race.

In this study, we report standard errors that are robust to heteroskedasticity obtained by clustering standard errors on region. This deals with issues related to the possibility that individuals residing in the same region are more likely to have similar characteristics that differentiate them from those residing in other regions. If such correlations are left unattended, may result in the violation of one of the classical assumptions of the regression models.

Before we present the results, measures for the explanatory power and diagnostics of the models are presented in Tables 7 and 9 below and are discussed in the subsequent sections. Correlation coefficients for the variables used in the regressions are presented in Table 5 below. The coefficients reported in Table 5 are not excessively high; therefore, multicollinearity problems and further investigations are not anticipated. We also investigated the strength of the relationship among the explanatory variables using the *collin* command in the Stata package to check for

multicollinearity which may cause inflated standard errors and sensitivity of coefficients due to small changes in the set of explanatory variables. The results demonstrated that there is no variable with a tolerance less than conventional 0.1 or a VIF of 10 or greater. Therefore, we can conclude that there is no cause for concern and any potential impact of multicollinearity on the stability of coefficients is counterbalanced by the large sample size.

[Table 5]

Empirical Results and hypotheses testing

The first step of our analysis was the estimation of marginal effects after probit estimations to predict the effect of risk aversion, and entrepreneurial ability on entry into entrepreneurial activity for the pooled sample and separately for women and men. The second stage involved conducting a decomposition analysis to assess the extent to which risk aversion, and entrepreneurial ability influence start-up decisions and can explain the gender gap in self-employment, nascent and high growth entrepreneurship. In summarising the results, we concentrated on the variables related to our hypotheses. The variables represent income, fear of failure, education, knowledge and skills, opportunity recognition skills and gender. The probit coefficients of all the explanatory variables are presented in Table 9. In contrast to previous work that used mixed samples, we split our sample into two categories: women and men to avoid gender bias and use women and men non-entrepreneurs as control groups.

[Table 6]

In Table 6, our results indicate that higher levels of fear of failure significantly decreases the probability of both men and women to become self-employed, nascent and high growth entrepreneurs while holding all other variables constant. Thus, we found strong support for

Hypothesis 1. This finding is consistent with the results obtained earlier by Bönte and Piegeler (2013), Caliendo, Fossen and Kritikos (2014) and Verheul, et al (2012).

In Hypothesis 2, we assumed that individuals with higher levels of income may not choose to be self-employed, nascent and high growth entrepreneurs because entrepreneurship may lead to reduced income compared to current level of income. The results are not consistent with Hypothesis 2. The effect of higher income turned out to be insignificant on all the occupational categories. This indicates that expected rewards of each occupational choice or the potential for higher long-term income inflows neither discourages or encourages women and men to take greater financial risks. Therefore, we cannot formally confirm Hypothesis 2. As such, these results are consistent with the findings that Koellinger, Minniti and Schade (2013) obtained for the their 'upper 33 percent income' variable, an analogy of what we use here, which came as insignificant (also see Davidsson, et al., 2003; Kim et al., 2006; Klyver, et al., 2013).

Regarding entrepreneurial ability, education, knowledge and skills and opportunity recognition have a positive and significant effect on the propensity of women and men to become nascent entrepreneurs, self-employed and high growth entrepreneurs. This supports Hypothesis 3 and is also consistent with balanced skills theory as well as prior empirical findings from Lazear (2005), Åstebro and Thompson (2011), and Tegtmeier, Kurczewska and Halberstadt (2016).

5.1. Decomposing the gender gap in entrepreneurial activity

How much do the control variables, risk-aversion and entrepreneurial ability explain the gender gap in self-employment, nascent and high growth entrepreneurship? Our approach is to estimate discrete effects after a probit model based on pooled sample with a female variable as the only explanatory variable. This is followed by a stepwise inclusion of controls, risk aversion and entrepreneurial ability variables. Table 7 reports the estimation results for four different econometric specifications.

[Table 7]

The results indicate that without any controls, being a female reduces the likelihood of becoming a nascent entrepreneur by 2.87 percentage points and is statistically significant at 0.1% level. When we successively added controls, risk-aversion and entrepreneurial ability variables the partial effect of the female dummy decreased in absolute terms to -1.12 percentage points and significant at 1% level. This indicates that among these groups of variables, the gender differences in risk aversion, entrepreneurial ability and socio-demographic characteristics contribute towards partially explaining the gender gap in nascent entrepreneurship.

In turn, the results concerning self-employment turned out to be sensitive to which categories of explanatory variables we rely upon. The result indicates that, without any controls being a female decrease the probability of entry by 1.44 percentage points and is significant at 0.1% level. When we included control and risk-aversion variables the discrete effect of being a female reduced and remained statistically significant at 1% level. Only when entrepreneurial ability variables are included, the partial effect of the female dummy decreased in absolute terms to -0.30 percentage points and becomes statistically insignificant. This indicates that if women where similar to men in risk aversion, entrepreneurial ability and socio-demographic characteristics, their entry rates into self-employment would be higher and there would be no gender differences.

Regarding high growth entrepreneurship, the results indicate that the effect of being a female decreases the probability of entry by 1.11 percentage points. After a stepwise inclusion of controls, risk aversion and entrepreneurial ability variables, the partial effect of the female dummy decreased to -0.67 percentage points but remained significant at 0.1% level. This suggests that the gender differences in these characteristics contribute in partially explaining the gender gap in high growth

entrepreneurship. In other words, after controlling for these factors, women's probability of being a high growth entrepreneur will be 0.67 percentage points lower than men.

Our study demonstrates that opportunity cost exists in individuals' occupational choices. On the one hand, lower opportunity cost motivates women to become self-employed. Hence, after controlling for the gender differences in risk aversion and entrepreneurial ability and demographic characteristics, we find that self-employment entry rates for women and men will be similar. On the other hand, after controlling for the gender differences in characteristics, higher opportunity costs discouraged women from becoming nascent and high growth entrepreneurs. Overall, we conclude that Hypothesis 4 is confirmed.

5.2. Non-linear decomposition of the gender gap in entrepreneurial activity

In order to examine the gender gap in entry into self-employment, nascent and high growth entrepreneurship, we conducted a non-linear Oaxaca-Blinder decomposition based the estimates of three pooled probit models. The results of the three specifications are presented in Table 8.

[Table 8]

The first three rows of Table 8 present the entry rates for women and men and the raw differentials. The raw differential is the difference on entry rates between women and men which is -2.87 percentage points for nascent entrepreneur, -1.44 percentage points for self-employed and -1.11 percentage points for high growth aspiration entrepreneurs. All the raw differentials are significantly different from zero at the 0.1% level. This raw differential is then decomposed into a part explained by gender differences in risk-aversion and entrepreneurial ability and control variables, and the unexplained part.

The results presented in Table 8, *Model 1,* show that the explained gap is -1.88 percentage points, that is 65.51% of the raw gap and the unexplained gap is -0.99 percentage points, that is 34,56% of the raw gap for nascent entrepreneurs. Both parts are significant. We also observe similar patterns on entry into high growth entrepreneurship (see *Model 3*). Since the unexplained gap is positive, we can interpret that as follows: if women were more similar to men in their characteristics (all explanatory variables), their entry rate into nascent and high growth entrepreneurship would be high and the gender gap would be smaller. This indicates that an individual's propensity to engage in entrepreneurial activity is influenced by unobserved factors. These unobserved factors influence individual's entrepreneurial entry propensity negatively. Therefore, even when women had similar characteristics to men, their entry rates would increase but will remain lower than those of men.

However, in *Model 2,* the results indicate that the explained gap is -1.24 percentage points, that is 86% of the raw gap and the unexplained gap is -0.20 percentage points, which is 14% of the raw gap for self-employment. While the explained gap is positive and statistically significant at 0.1% level, the unexplained gap is statistically insignificant. This indicates that if women were more similar to men in all the explanatory variables considered in this study, their entry rate into self-employment would be high and the gender gap would disappear. Thus, women and men entry rates into self-employment would be similar. Overall, we conclude that our findings provide additional support for Hypothesis 4.

We further decomposed the explained and the unexplained gaps to assess the contribution of risk-aversion, entrepreneurial ability and control variables. In terms of risk aversion, the results indicate that gender differences in fear of failure explain 4.84% of the gender gap in nascent entrepreneurship, 5.95% of self-employment and 4.56% of high growth entrepreneurship. The positive contribution can be explained by the fact that higher levels of fear of failure among women decreases (*higher opportunity costs consideration*) the probability of entry into entrepreneurial activity. On average women score higher in this trait (see Table 4). Thus, if women were more

similar to men, they would be less risk-averse and have a higher probability of entry leading to a reduction in the unexplained gender gap. This finding is consistent with the results obtained earlier by Koellinger, Minniti and Schade (2013) who showed that fear of failure plays an important role in explaining the gender gap in entrepreneurship. Therefore, Hypothesis 5 is confirmed.

In contrast, the results also show that higher income is statistically insignificant indicating that it contributes marginally towards explaining gender gap in self-employment, nascent and high growth entrepreneurship. Therefore, we cannot confirm Hypothesis 6.

The results also show that entrepreneurial ability (*education, knowledge and skills* and *opportunity recognition*) contributes significantly to the explained gap in entrepreneurial activities. In particular, knowledge and skills explain a substantial part of the gender gap that is 41.81% for nascent, 60.49% for self-employment and 22.70% for high growth entrepreneurship. Even the gender differences in education and opportunity recognition explain a significant part of the explained gender gap in self-employment, nascent and high growth entrepreneurship. The finding that the explained gap is positive can be interpreted as follows: if women were more similar to men in their level of education, knowledge and skills and opportunity recognition sills, their entry rates would be high and the gender gap in entrepreneurial activities would be reduced. This is consistent with the balanced skills theory (Lazear, 2005) and results obtained by Tegtmeier (2016) and Hsieh, et al. (2017) who showed that balanced set of skills increases the probability of becoming an entrepreneur. Therefore, Hypothesis 7 is confirmed.

[Table 9]

5.3. Limitations

As much as our methodology was deemed robust and rigorous we are aware of the limitations of our study that may have influenced our results. Due to the nature of the dataset, we have addressed the probability of engaging in entrepreneurial activity purely from a static point of view. Therefore,

endogeneity problems due to reverse causality and omission of variables might have affected the results. As such, we do not claim that our results can be interpreted as causal effects.

Although we are not able to control for all the variables that are relevant for self-employment, nascent and high growth entrepreneurship, an attempt was made to reduce the endogeneity problems. We may have omitted important variables such as those related to cultural aspects (Campa et al., 2011), gender stereotypes (Bird et al., 2002) or different family and social roles (Ruef et al., 2003; Verheul, et al., 2012) which may constrain women's occupational choice and that would have helped in understanding how gender differences in these factors contribute to the gender gap in entrepreneurial activity. Here, we are limited by the data, from GEM, we used. In addition, we were limited in our use of single item measures because that may have led to measurement errors. Measurement errors often contribute to bias in the estimated effect of an explanatory variable towards zero. In other words, they lead to attenuation bias. Furthermore, the data generated by GEM does not contain information on individual income level, therefore, the head of household income was used which may imply measurement errors. In addition, the data does not contain information that could be used to understand financial bootstrapping strategies of entrepreneurs. Arguably, these may differ and could have helped in quantifying the gender gap in entrepreneurial activity. Moreover, our results indicate a strong relationship between self-employment, nascent and high growth entrepreneurship and risk-taking and ability. Therefore, we argue that in the presence of measurement errors, our estimates may tend to underestimate the actual effects of risk taking and entrepreneurial ability. Finally, another limitation we need to bear in mind is that various types of characteristics are related. For example, income often correlates with human capital; therefore, the two effects may become confounded and attenuated. In this case, there is potential attenuation bias which might work against our tests.

Discussion and conclusion

A popular economic theory of entrepreneurship is that risk-aversion decreases an individual's likeliness of becoming an entrepreneur (Douglas, et al., 2000). Other studies based on the balanced skills theory proposed by Lazear (2005) assumes that a balanced set of skills increases the probability of engaging in entrepreneurship. Despite the popularity of the risk-aversion and balanced skills theories, empirical studies have produced contradictory results on their effect on entrepreneurial decisions. In this paper, we incorporate opportunity costs perspectives (Cassar, 2006) into the utility maximisation model and present an occupational choice model where an individual's decision to become an entrepreneur is influenced by expected benefits, willingness to take risk and entrepreneurial ability. We argue that merging these theoretical frameworks enable us to accommodate gender differences in motivations for choosing an entrepreneurial career and may help to resolve some of the ambiguities found in the literature. We identified a variety of factors that contribute towards the gender differences in entry into self-employment, nascent and high growth entrepreneurship and ultimately help in explaining the gender gap.

Based on the GEM dataset we decomposed the gender gap in entry rates into self-employment, nascent and high growth entrepreneurship by factors which include risk taking and entrepreneurial ability. Splitting the overall gender gap into two parts enabled us to distinguish clearly the factors that contribute to gender differences in entrepreneurial activity. The explained gap indicates the heterogeneous distribution of risk-aversion and entrepreneurial ability among women and men. The unexplained gap captures part of the gender gap in entrepreneurial activity that is not explained by the characteristics.

The results reveal a positive and significant explained gender gap in entry into self-employment, nascent and high growth entrepreneurship. This suggests that women are less likely to be nascent and high growth entrepreneurs than men. The finding is in line with previous studies which show a negative correlation between women and entrepreneurship (Bönte, et al., 2013; Koellinger, et al.,

2013; Verheul, et al., 2012). The results also show an individual's propensity to engage in entrepreneurial activity is influenced by unobserved factors that explain about 35% of the gender gap in nascent activities and 54% in high growth entrepreneurship. These unobserved factors influence an individual's entrepreneurial entry propensity negatively. In this case, even when women had similar characteristics to men, their entry rates would increase but will remain lower than those of men. However, we do not have direct evidence of what these factors might be. The possible explanation may be the gender differences in the opportunity cost of starting and managing businesses which employ people or with rapid growth. Among them are opportunity costs of household responsibilities, putting more effort and time into entrepreneurial activity which provides women with higher incentives for not engaging in nascent and high growth entrepreneurship.

In contrast, we found that a substantial proportion of the gender gap in self-employment propensity is explained by the gender differences in risk-aversion, entrepreneurial ability and demographic variables. Our results show that the gender gap in self-employment disappears when the risk-aversion, entrepreneurial ability and demographic variables are controlled for. Thus, the positive and insignificant unexplained gender gap can be explained by lower opportunity costs of self-employment which motivates women to become self-employed. Indeed being a solo entrepreneur provides women with greater flexibility to control their time and to accommodate personal responsibilities alongside their entrepreneurial career.

The results indicate that a significant portion of the gender gap in entry into self-employment, nascent and high growth entrepreneurship is explained by risk aversion. In fact, it is fear of failure which contributes significantly to the gender gap whereas higher income appears to play minimal role. This suggests that lower levels of risk taking among women discourage women from engaging in entrepreneurial activities which in turn increase the gender gap in self-employment, nascent activities. This is in line with findings from previous studies which show that women are more risk averse than men (Bönte, et al., 2013; Croson, et al., 2009; Fossen, 2012). The lower risk taking

behaviour of women also has a significant contribution to the gender gap in high growth projects indicating that women are less likely to transition into high growth entrepreneurship than men.

Among the entrepreneurial ability variables, we found that a substantial part of the gender gap in entry into self-employment, nascent and high growth entrepreneurship is explained perceived knowledge and skills. Whereas the contribution of formal education and opportunity recognition skills to the gender gap in entrepreneurial activity is significant but smaller. Belief in one's own skills emerges as highly significant. On average, women are less confident in their entrepreneurial skills than men. Therefore lower self-confidence reduces women's entry into self-employment, nascent and high growth entrepreneurship and is consistent with Tegtmeier, Kurczewska and Halberstadt (2016), Hsieh, Parker and van Praag (2017) and Wagner (2006) findings.

In addition, the impacts of opportunity recognition skills, formal education and entrepreneurship specific skills differ. Opportunity recognition skills and formal education have an ambiguous effect, whereas entrepreneurship specific knowledge and skills has a clear positive effect on entry into self-employment, nascent and high growth entrepreneurship. Thus, one way to encourage women with higher levels of education to enter entrepreneurship is simply to complement their education with entrepreneurship specific knowledge and skills.

In summary, our empirical findings may be of interest beyond the academic community, include policy makers, entrepreneurs and practitioners. Our results offer insights into the specific individual characteristics that may lead to higher entry rates into self-employment, nascent and high growth entrepreneurship. The results suggest women and men in SA perceive the local environment differently. The gender difference in perceptions and cognitive processes influences their entrepreneurial decision and contribute in explaining the gender gap in entry into entrepreneurship. We stress that some cultures or environments may succeed either intentionally or otherwise in developing entrepreneurial specific skills or in fostering risk-aversion during the acquisition of skills among the population. Therefore, if the SA government and other developing countries wish

to promote entrepreneurship, they may need to offer a less specialised school curriculum as an indirect and long term method of achieving this objective. The combination of practical and theoretical courses seems to be an effective method of encouraging entrepreneurship. This approach seems to be a promising method of not forcing students to make a choice between practical and theoretical education instead allow them to integrate both within their learning and teaching environment (Neck et al., 2011).

Tables

Table 1: Sub-Saharan Africa Unemployment rate by gender, and country

	Overall unemployment rate %			*Youth unemployment rate %*		
Country names	Total	Male	Female	Total	Male	Female
Angola	8.3	8.0	8.7	14.0	13.7	14.3
Botswana	18.9	16.2	22.1	35.3	30.1	40.9
Ghana	4.8	4.6	5.0	9.3	8.3	10.3
Malawi	7.6	6.3	8.8	13.4	12.5	14.2
Mozambique	8.5	8.1	8.7	14.2	13.9	14.4
Namibia	18.5	16.8	20.3	36.8	32.7	41.7
Nigeria	7.5	7.6	7.3	13.6	14.0	13.2
South Africa	**25.2**	**22.5**	**28.7**	**52.9**	**48.3**	**58.3**
Swaziland	23.3	21.3	26.4	44.0	41.6	47.3
Uganda	3.6	3.0	4.2	6.2	5.8	6.6
Zambia	13.3	15.0	11.4	24.3	26.2	22.2
Average for SSA	**7.6**	**6.9**	**8.4**	**11.8**	**11.0**	**12.7**

Source: International Labour Organisation 2014 (ILO)

Table 2: Ranking of gender distribution of Total Early-Stage Entrepreneurial Activity (TEA)

Country	TEA		Male TEA		Female TEA	
	Rate	Rank	Rate	Rank	Rate	Rank
Botswana	33.2	3	36.6	2	30.1	3
Burkina Faso	29.8	5	33.6	5	26.6	4
Cameroon	25.4	7	27.2	7	23.6	6
Egypt	7.4	43	11.1	39	3.7	52
Morocco	4.4	56	6.1	57	2.8	60
Senegal	38.6	1	40.5	1	36.8	1
South Africa	**9.2**	**38**	**11.6**	**36**	**7.0**	**35**
Tunisia	10.1	33	15.0	26	5.3	43
Average for Africa	19.8		22.7		17.0	

Source: GEM 2015. Note: rank is the economy's position out of 60 participating countries

Table 3: Variable description

Variable name	Variable description
Individual level predictor	
Gender	Dummy variable = 1 if respondent is female, 0 if male
Risk aversion variables	
Income	Dummy variable = 1, if income is in the upper third of household incomes of respondents in South Africa, 0 if not
Fear of failure	Dummy variable = 1, if respondent answered yes to: ''would fear of failure prevent you from starting a business?'', 0 otherwise
Entrepreneurial ability variables	
Education	Dummy variable = 1, if respondent has Post-matric graduate or postgraduate educational attainment, 0 otherwise
Knowledge & skills	Dummy variable = 1, if respondent answered yes to: ''do you have the knowledge, skills and experience required to start a new business?'', 0 if not
Opportunity recognition	Dummy variable = 1, if respondent answered yes to: ''in the next six months will there be good opportunities for starting a business in the area where you live?, 0 otherwise
Control variables	
Race	Measured by a set of dummy variables = 1, if black (reference group); 2, if mixed; 3, if Asian and 4, if white
Age of respondent	Assigned respondents into five categories; 1, if 18 to 24 years (reference group); 2, if 25 to 34 years; 3, if 35 to 44 years; 4, if 45 to 54 years and 5, if 55 to 64 years
Knowing entrepreneurs	Dummy variable = 1, if personally knows entrepreneurs, in last 2 years, 0 if not
Business angel	Dummy variable = 1, if has been a business angel in past 3 years, 0 otherwise

Table 4: Differences between men and women in average scores of entrepreneurship rates, risk taking and ability.

	Full estimation sample				
	Women	SD	Men	SD	Diff
Occupation categories					
Nascent entrepreneur	0.0620	0.241	0.0907	0.287	-0.0287***
Self-employed	0.0480	0.214	0.0625	0.242	-0.0144***
High growth entrepreneur	0.00956	0.0973	0.0206	0.142	-0.0111***
Risk aversion variables					
High income	0.266	0.442	0.280	0.449	-0.0135*
Fear of failure	0.282	0.450	0.241	0.428	0.0417***
Entrepreneurial ability variables					
Education	0.0854	0.280	0.0996	0.300	-0.0142**
Knowledge & skills	0.354	0.478	0.440	0.496	-0.0864***
Opportunity recognition	0.286	0.452	0.336	0.472	-0.0502***
Control variables					
Age: 25 to 34	0.268	0.443	0.275	0.447	-0.00742
Age: 35 to 44	0.214	0.410	0.180	0.384	0.0341***
Age: 45 to 54	0.173	0.379	0.149	0.356	0.0241***
Age: 55 to 64	0.126	0.332	0.112	0.316	0.0138**
Knowing entrepreneurs	0.258	0.437	0.328	0.469	-0.0702***
Business angel	0.0129	0.113	0.0216	0.145	-0.00862***
Race: Mixed	0.139	0.346	0.136	0.343	0.00218
Race: Asian	0.0608	0.239	0.0593	0.236	0.00145
Race: White	0.173	0.379	0.172	0.377	0.00153
Observations	8887		8582		17469

Mean comparison test based on a full sample. *Diff* refers to t test equality of means.
Asterisks indicate differences in mean significant at * $p<0.05$, ** $p<0.01$, *** $p<0.001$ levels.

Table 5: Correlations: Spearman rho correlation coefficients for all the variables used in the analysis

	1	2	3	4	5	6	7	8	9	10	11
1 Nascent activity	1										
2 Income	0.01	1									
3 Fear of failure	-0.06	-0.00	1								
4 Education	0.10	0.11	-0.01	1							
5 Knowledge & skills	0.28	0.03	-0.07	0.14	1						
6 Opportunity recognition	0.16	-0.02	0.01	0.01	0.30	1					
7 Female	-0.05	-0.02	0.05	-0.02	-0.09	-0.05	1				
8 Race	-0.03	0.08	-0.01	0.19	0.09	-0.10	0.00	1			
9 Age	-0.02	0.05	0.02	0.07	0.00	-0.08	0.07	0.21	1		
10 Knowing entrepreneurs	0.19	0.00	0.04	0.07	0.28	0.30	-0.08	-0.07	-0.07	1	
11 Business angel	0.15	0.01	-0.01	0.05	0.11	0.08	-0.03	0.01	0.00	0.11	1

Table 6: Marginal effects after probit estimations, on the probability of men and women becoming self-employed, nascent and high growth aspiration entrepreneur.

	Nascent entrepreneurs		Self-employed		High growth entrepreneurs	
	Men (1)	Women(2)	Men (1)	Women(2)	Men (1)	Women(2)
Risk aversion variables						
Income	-0.000305	-0.000726	0.00355	0.0000728	-0.000269	-0.00108
	(0.00639)	(0.00543)	(0.00552)	(0.00490)	(0.00322)	(0.00236)
Fear of failure	-0.0306***	-0.0249***	-0.0164**	-0.0207***	-0.0130**	-0.00539*
	(0.00736)	(0.00577)	(0.00636)	(0.00528)	(0.00414)	(0.00258)
Entrepreneurial ability variables						
Education	0.0495***	0.0199**	0.0201**	0.0120+	0.0227***	0.00839**
	(0.00818)	(0.00734)	(0.00734)	(0.00672)	(0.00400)	(0.00279)
Knowledge & skills	0.129***	0.102***	0.0998***	0.0835***	0.0288***	0.0152***
	(0.00717)	(0.00606)	(0.00673)	(0.00576)	(0.00426)	(0.00284)
Opportunity recognition	0.0237***	0.0235***	0.00850	0.0192***	0.0127***	0.00295
	(0.00609)	(0.00511)	(0.00536)	(0.00468)	(0.00331)	(0.00217)
Control variables						
Age: 25 to 34	0.0258***	0.0174*	0.0170*	0.0154*	0.00469	-0.000653
	(0.00769)	(0.00693)	(0.00677)	(0.00641)	(0.00404)	(0.00273)
Age: 35 to 44	0.0311***	0.0228**	0.0219**	0.0226***	0.00755+	-0.000550
	(0.00858)	(0.00720)	(0.00745)	(0.00659)	(0.00444)	(0.00293)
Age: 45 to 54	0.0143	0.0127	0.00768	0.0133+	0.00266	-0.00149
	(0.00940)	(0.00800)	(0.00826)	(0.00728)	(0.00496)	(0.00333)
Age: 55 to 64	-0.00624	-0.00838	-0.00521	-0.00256	0.00184	-0.00687
	(0.0118)	(0.01000)	(0.0102)	(0.00909)	(0.00633)	(0.00465)
Knowing entrepreneurs	0.0518***	0.0319***	0.0332***	0.0239***	0.0167***	0.00624**
	(0.00605)	(0.00503)	(0.00542)	(0.00466)	(0.00329)	(0.00211)
Business angel	0.0973***	0.0786***	0.0487***	0.0334*	0.0187**	0.0187***
	(0.0137)	(0.0142)	(0.0121)	(0.0136)	(0.00578)	(0.00429)
Race: Mixed	-0.0429***	-0.0373***	-0.0248**	-0.0325***	-0.0169**	-0.00486
	(0.00972)	(0.00848)	(0.00831)	(0.00782)	(0.00580)	(0.00372)
Race: Asian	-0.0124	-0.0225*	-0.00604	-0.0129	-0.00251	-0.00460
	(0.0117)	(0.00996)	(0.0101)	(0.00879)	(0.00570)	(0.00439)
Race: White	-0.0351***	-0.0273***	-0.0182*	-0.0191**	-0.0151**	-0.00800*
	(0.00835)	(0.00690)	(0.00709)	(0.00610)	(0.00490)	(0.00357)
Observations	8582	8887	8582	8887	8582	8887
Pseudo R2	0.203	0.214	0.156	0.191	0.183	0.160

Notes: Margins calculated at the mean of the explanatory variables.
Models (1) and (2) are based on sub samples of men and women.
Clustered standard errors in parentheses.
Asterisks indicate significant level where + $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 7: Effect of being a woman on the probability of becoming self-employed, nascent and high growth entrepreneur

	Nascent entrepreneurs				Self-employed			
	Model 1	*Model 2*	*Model3*	*Model4*	*Model 1*	*Model 2*	*Model3*	*Model4*
Gender: Female	-0.0287***	-0.0211***	-0.0194***	-0.0112**	-0.0144***	-0.0101**	-0.00899**	-0.00305
Robust standard errors	(0.000)	(0.00391)	(0.00390)	(0.00373)	(0.000)	(0.00341)	(0.00341)	(0.00331)
Control variables	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Risk aversion variables	No	No	Yes	Yes	No	No	Yes	Yes
Entrepreneurial ability variables	No	No	No	Yes	No	No	No	Yes
Observations	17469	17469	17469	17469	17469	17469	17469	17469
Log Likelihood	-4960.8	-4265.3	-4223.7	-3707.6	-3926.3	-3483.7	-3457.6	-3084.3
Wald's chi2	48.87	835.4	882.7	1667.5	16.03	491.7	524.9	1160.2
Count R2	0.931	0.924	0.924	0.924	0.950	0.945	0.945	0.945
Pseudo R2	0.00493	0.0926	0.101	0.211	0.00204	0.0652	0.0722	0.172

Table 7: continued

	High growth entrepreneurs			
	Model 1	*Model 2*	*Model3*	*Model4*
Gender: Female	-0.0111***	-0.00912***	-0.00860***	-0.00667***
Robust standard errors	(0.000)	(0.00193)	(0.00192)	(0.00187)
Control variables	No	Yes	Yes	Yes
Risk aversion variables	No	No	Yes	Yes
Entrepreneurial ability variables	No	No	No	Yes
Observations	17469	17469	17469	17469
Log Likelihood	-1407.7	-1228.5	-1213.7	-1113.3
Wald's chi2	37.50	251.7	285.4	404.4
Count R2	0.986	0.985	0.985	0.985
Pseudo R2	0.0137	0.0969	0.108	0.182

Notes: Discrete effects of being a female on the probability to be a nascent entrepreneur, self-employed and high growth aspiration entrepreneur.
Clustered standard errors in parentheses
Asterisks indicate significant level where + $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 8: Non-linear decomposition of the gender gap in nascent entrepreneurship, self-employment and high growth entrepreneurship: contribution from gender differences in risk taking and ability

	(Model 1)		(Model 2)		(Model 3)	
	Nascent	*%*	*Self-employed*	*%*	*High growth*	*%*
Probability for women	0.0619***	-	0.0480***	-	0.00956***	-
	(0.000)		(0.000)		(0.000)	
Probability for men	0.0906***	-	0.0624***	-	0.0206***	-
	(0.000)		(0.000)		(0.000)	
Raw differential	-0.0287***	1.0000	-0.0144***	1.0000	-0.0111***	1.0000
	(0.000)		(0.000)		(0.000)	
Explained	-0.0188***	0.6551	-0.0124***	0.8611	-0.00504***	0.4541
	(0.000)		(0.000)		(0.000)	
Risk aversion variables						
Income	0.00000731	-0.0003	-0.0000280	0.0019	0.00000956	-0.0009
	(0.914)		(0.621)		(0.794)	
Fear of failure	-0.00139***	0.0484	-0.000857***	0.0595	-0.000503**	0.0453
	(0.000)		(0.000)		(0.001)	
Entrepreneurial ability variables						
High education	-0.000590**	0.0206	-0.000251*	0.0174	-0.000288**	0.0259
	(0.004)		(0.022)		(0.004)	
Knowledge&skills	-0.0120***	0.4181	-0.00871***	0.6049	-0.00252***	0.2270
	(0.000)		(0.000)		(0.000)	
Opportunity recognition	-0.00142***	0.0495	-0.000770***	0.0535	-0.000509***	0.0459
	(0.000)		(0.001)		(0.001)	
Control variables						
Group of controls variables	-0.00340***	0.1185	-0.00178**	0.1236	-0.00123***	0.1108
	(0.000)		(0.001)		(0.000)	
Unexplained	-0.00992**	0.3456	-0.00202	0.1403	-0.00604***	0.5441
	(0.004)		(0.510)		(0.000)	
Risk aversion variables						
Income	-0.000120	0.0042	-0.000202	0.0140	-0.000562	0.0506
	(0.945)		(0.714)		(0.753)	
Fear of failure	-0.000512	0.0178	-0.000566	0.0393	0.000899	-0.0810
	(0.780)		(0.505)		(0.677)	
Entrepreneurial ability variables						
Education	-0.00137	0.0477	-0.0000942	0.0065	-0.000747	0.0673
	(0.137)		(0.712)		(0.414)	
Knowledge&skills	0.00216	-0.0752	0.000576	-0.0400	-0.000146	0.0132
	(0.330)		(0.497)		(0.960)	
Opportunity recognition	0.00163	-0.0568	0.00106	-0.0736	-0.00260	0.2342
	(0.385)		(0.451)		(0.296)	
Control variables						
Group of controls variables	-0.00373	0.1300	-0.000225	0.1563	-0.00770	0.6937
	(0.542)		(0.897)		(0.228)	
Constant	-0.00798	0.2780	-0.00257	0.1785	0.00481	-0.4333
	(0.277)		(0.523)		(0.612)	
Observations	17469		17469		17469	

Notes: *P*-values in parentheses denotes a test of significance of the differentials
    Clustered standard errors in parentheses.
Asterisks indicate significant level where + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 9: Probit estimations of the probability of entry into nascent entrepreneurship, self-employment and high growth aspiration entrepreneurship

	Nascent entrepreneurs				Self-employed			
	1	2	3	4	1	2	3	4
	Pooled	Pooled	Men	Women	Pooled	Pooled	Men	Women
Gender: Female	-0.162***	-0.0976**			-0.0960**	-0.0325		
	(0.0299)	(0.0326)			(0.0325)	(0.0352)		
Risk aversion variables								
Income		-0.00394	-0.00231	-0.00743		0.0201	0.0337	0.000882
		(0.0365)	(0.0485)	(0.0556)		(0.0393)	(0.0524)	(0.0593)
Fear of failure		-0.243***	-0.233***	-0.255***		-0.200***	-0.155*	-0.250***
		(0.0407)	(0.0563)	(0.0590)		(0.0439)	(0.0605)	(0.0638)
Entrepreneurial ability variables								
Education		0.303***	0.376***	0.204**		0.172**	0.191**	0.145+
		(0.0476)	(0.0625)	(0.0750)		(0.0526)	(0.0696)	(0.0811)
Knowledge&skills		0.491***	0.477***	0.508***		0.475***	0.460***	0.491***
		(0.0189)	(0.0257)	(0.0279)		(0.0212)	(0.0290)	(0.0308)
Opportunity recognition		0.206***	0.180***	0.241***		0.149***	0.0807	0.233***
		(0.0346)	(0.0463)	(0.0520)		(0.0378)	(0.0508)	(0.0563)
Control variables								
Age: 25 to 34	0.255***	0.189***	0.196***	0.178*	0.228***	0.170***	0.162*	0.187*
	(0.0413)	(0.0450)	(0.0584)	(0.0708)	(0.0454)	(0.0493)	(0.0641)	(0.0775)
Age: 35 to 44	0.301***	0.238***	0.236***	0.233**	0.293***	0.237***	0.208**	0.274***
	(0.0445)	(0.0486)	(0.0651)	(0.0736)	(0.0484)	(0.0525)	(0.0706)	(0.0796)
Age: 45 to 54	0.173***	0.123*	0.109	0.130	0.158**	0.114+	0.0729	0.161+
	(0.0495)	(0.0537)	(0.0715)	(0.0818)	(0.0540)	(0.0583)	(0.0784)	(0.0881)
Age: 55 to 64	-0.0659	-0.0610	-0.0474	-0.0858	-0.0542	-0.0414	-0.0494	-0.0311
	(0.0617)	(0.0671)	(0.0893)	(0.102)	(0.0666)	(0.0723)	(0.0964)	(0.110)
Knowing entrepreneurs	0.628***	0.366***	0.394***	0.327***	0.548***	0.305***	0.315***	0.290***
	(0.0301)	(0.0342)	(0.0460)	(0.0513)	(0.0330)	(0.0377)	(0.0510)	(0.0559)
Business angel	0.952***	0.766***	0.739***	0.805***	0.611***	0.436***	0.462***	0.404*
	(0.0785)	(0.0854)	(0.105)	(0.145)	(0.0868)	(0.0940)	(0.114)	(0.165)
Race: Mixed	-0.256***	-0.348***	-0.326***	-0.382***	-0.223***	-0.303***	-0.235**	-0.394***
	(0.0509)	(0.0561)	(0.0738)	(0.0866)	(0.0555)	(0.0601)	(0.0785)	(0.0940)
Race: Asian	0.0313	-0.149*	-0.0942	-0.231*	0.0635	-0.0993	-0.0573	-0.156
	(0.0621)	(0.0665)	(0.0887)	(0.102)	(0.0663)	(0.0710)	(0.0954)	(0.106)
Race: White	-0.0763+	-0.270***	-0.267***	-0.279***	-0.0387	-0.199***	-0.172*	-0.232**
	(0.0419)	(0.0470)	(0.0634)	(0.0704)	(0.0449)	(0.0495)	(0.0672)	(0.0735)
Constant	-1.764***	-2.282***	-2.282***	-2.374***	-1.913***	-2.414***	-2.377***	-2.490***
	(0.0382)	(0.0491)	(0.0630)	(0.0706)	(0.0426)	(0.0548)	(0.0698)	(0.0785)
Observations	17469	17469	8582	8887	17469	17469	8582	8887
Log Likelihood	-4265.3	-3707.6	-2079.8	-1624.1	-3483.7	-3084.3	-1693.4	-1385.9
Wald's chi2	835.4	1667.5	882.2	764.1	491.7	1160.2	559.8	598.7
Count R2	0.924	0.924	0.911	0.937	0.945	0.945	0.938	0.952
Pseudo R2	0.0926	0.211	0.203	0.214	0.0652	0.172	0.156	0.191

Table 9 Continued.

	High growth expectation entrepreneurs			
	1	2	3	4
	Pooled	Pooled	Men	Women
Gender: Female	-0.262***	-0.208***		
	(0.0542)	(0.0576)		
Risk aversion variables				
Income		-0.0165	-0.00642	-0.0484
		(0.0624)	(0.0767)	(0.106)
Fear of failure		-0.281***	-0.310**	-0.242*
		(0.0743)	(0.0975)	(0.114)
Entrepreneurial ability variables				
Education		0.472***	0.541***	0.376**
		(0.0724)	(0.0916)	(0.122)
Knowledge &s kills		0.679***	0.687***	0.681***
		(0.0728)	(0.0946)	(0.114)
Opportunity recognition		0.236***	0.303***	0.132
		(0.0599)	(0.0768)	(0.0962)
Control variables				
Age: 25 to 34	0.148*	0.0643	0.112	-0.0293
	(0.0706)	(0.0759)	(0.0959)	(0.122)
Age: 35 to 44	0.184*	0.105	0.180+	-0.0247
	(0.0769)	(0.0823)	(0.105)	(0.131)
Age: 45 to 54	0.0880	0.0195	0.0633	-0.0667
	(0.0882)	(0.0938)	(0.118)	(0.149)
Age: 55 to 64	-0.0701	-0.0800	0.0439	-0.308
	(0.114)	(0.121)	(0.151)	(0.207)
Knowing entrepreneurs	0.565***	0.351***	0.399***	0.280**
	(0.0523)	(0.0581)	(0.0748)	(0.0920)
Business angel	0.760***	0.586***	0.446**	0.838***
	(0.106)	(0.110)	(0.136)	(0.181)
Race: Mixed	-0.269**	-0.319**	-0.402**	-0.218
	(0.0984)	(0.108)	(0.137)	(0.166)
Race: Asian	0.0377	-0.0964	-0.0599	-0.206
	(0.107)	(0.110)	(0.136)	(0.196)
Race: White	-0.165*	-0.349***	-0.360**	-0.359*
	(0.0803)	(0.0928)	(0.116)	(0.159)
Constant	-2.393***	-2.778***	-2.899***	-2.802***
	(0.0618)	(0.0776)	(0.105)	(0.107)
Observations	17469	17469	8582	8887
Log Likelihood	-1228.5	-1113.3	-704.5	-403.0
Wald's chi2	251.7	404.4	277.5	147.5
Count R2	0.985	0.985	0.979	0.990
Pseudo R2	0.0969	0.182	0.183	0.160

Notes: on the probability to be a nascent entrepreneur, self-employed and high growth aspiration entrepreneur.
Robust standard errors in parentheses
Asterisks indicate significant level where + $p<0.1$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

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