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Examining entrepreneurial intentions among South African youth: a study using GEM individual data

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Abstract

Youth entrepreneurship could help to decrease unemployment, increase economic growth and restore social stability in South Africa. Using micro data from the Global Entrepreneurship Monitor (GEM) from 2017, this study investigates what factors are correlated with the entrepreneurial intentions of South African youth. The sample consists of 1,017 individuals in the age category 18-34. Logistic regression is used to measure the correlations between various perceptual variables and entrepreneurial intentions. The findings reveal that perceived opportunities and perceived capabilities are positively and significantly associated with entrepreneurial intentions. Fear of failure and networking did not show significant correlations with entrepreneurial intentions. In addition, two interaction effects were tested. Fear of failure was found to weaken the positive relationship between perceived capabilities and entrepreneurial intentions. Networking did not significantly moderate the relationship between perceived capabilities and entrepreneurial intentions. Based on the results, policy implications are discussed. Recommendations include implementing mandatory entrepreneurship education at all levels and increasing the visibility of entrepreneurial support services.

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1. Introduction

Youth unemployment is a huge problem in South Africa. In the last quarter of 2021, the South African unemployment rate was 35.3%. In the same quarter, 32.8% of the population between 15-24 years old was not in employment, education or training. For the age group 15-34, this number was 44.7% (Statistics South Africa, 2022). The changing population demographics in South Africa may result in even higher levels of unemployment, as there are not enough jobs available. This can lead to young people having no future perspective. One way to solve this potential problem is to increase entrepreneurial activity among young people. New generations can then provide a job for themselves and others. This could in turn reverse the current downward trend of GDP per capita in South Africa.

Another problem in South Africa is inequality. With a Gini coefficient of 63.0 in 2014 (World Bank, 2022a), South Africa is the most unequal country in the world. Increased entrepreneurial activity and lower unemployment levels among young people, could help to decrease this inequality.

Furthermore, a smooth transition into the labour market for young people can help to reduce poverty by better allocating the available labour. Being unemployed for a long time, can hinder the accumulation of human capital for young people. Early work experience is an important driver of integration into the labour market and it can help in finding productive employment (World Bank, 2007).

Using individual level data from the Global Entrepreneurship Monitor (GEM), this paper will test empirically what factors influence the entrepreneurial intentions of South African youth (18-34 years old). The data that will be used is from 2017. This paper focuses on entrepreneurial intentions because intentions are the first step towards possible entrepreneurial activity. Beginning a business is not an overnight event; rather, it is a long process that may take several years to develop and bear fruit (Mazzarol, Volery, Doss, & Thein, 1999). Based on Ajzen's theory of planned behaviour (1991), Krueger and Carsrud (1993) highlight that intentions are the best predictor of entrepreneurial behaviour. They point out that it is particularly relevant to look at intentions because it allows us to understand people's attitudes towards entrepreneurship and the importance of people's perceptions in the process of developing these attitudes. Our capacity to comprehend and forecast entrepreneurial activity may be significantly improved with the use of intentions models (Krueger JR, Reilly, & Carsrud, 2000). Krueger JR et al. suggest that policy initiatives can increase business start-up rate if these policy actions have a favourable impact on attitudes, and thus intentions. Based on the findings of a logistic regression model, this paper will give various suggestions for policy. Consequently, the main research question is:

What are effective ways to stimulate entrepreneurial intentions among South African youth in order to increase entrepreneurial activity, decrease unemployment and boost the economy?

To thoroughly answer this question, this paper will use several sub questions:

1. *To what extent do perceived opportunities in the area where young South Africans live influence their entrepreneurial intentions?*
2. *To what extent do perceived capabilities to start a business influence young South Africans' entrepreneurial intentions?*
3. *To what extent does fear of failure discourage young South Africans from having entrepreneurial intentions?*
4. *Does fear of failure influence the relationship between perceived capabilities and entrepreneurial intentions among South African youth?*
5. *To what extent are social networks a driving factor for entrepreneurial intentions among South African youth?*
6. *Does networking influence the relationship between perceived capabilities and entrepreneurial intentions among South African youth?*

The subject is relevant for the South African government, charitable organisations, companies, banks and other investors, and the South African population. If each group of stakeholders knows what their role can be to solve this problem of youth unemployment, the South African economy can benefit and grow. This is crucial in order to restore social stability.

To be able to implement new policies that potentially stimulate and increase youth entrepreneurship, it is important to understand what drives and discourages young people from having entrepreneurial intentions. Research on entrepreneurial propensity of women by Langowitz and Minniti (2007) indicates that perceptual variables can influence entrepreneurial behaviour significantly. Arenius and Minniti (2005) also highlight the importance of looking at perceptual variables when examining entrepreneurial behaviour. Subsequently, previous studies have analysed the influence of various perceptual variables on entrepreneurial intentions and behaviour (Arafat & Saleem, 2017; Vodă, Butnaru, G. I., & Butnaru, R. C., 2020a; Vodă, Haller, Anichiti, & Butnaru, 2020b). However, to my knowledge, no such research has been conducted focusing on entrepreneurial intentions among youth in South Africa, using GEM individual level data. Therefore, this study adds to the existing literature on youth entrepreneurship. Previous studies on this topic often focused on either high school or university students. By employing a larger sample of individuals in a wider age range, the results of this study better reflect the South African youth population. Furthermore, this research adds to existing literature on entrepreneurship in South Africa by providing quantitative analysis on the relationship between

various perceptual factors and entrepreneurial intentions. Hence, this study can inform policymakers, public and private organisations and the South African population in general. The research is scientifically, as well as socially relevant.

In order to answer the main research question, the paper will use the following structure. First, I will provide definitions of the most relevant concepts, together with an overview of the existing literature on this topic. Based on the existing literature, I will formulate my hypotheses. After this, I will describe the data, present the corresponding descriptive statistics and explain the research methodology. The fourth chapter will present the results of the study. Finally, I will draw a conclusion and answer my main research question.

2. Theoretical framework

2.1 Defining entrepreneurship and entrepreneurial intentions

The term entrepreneurship has taken on various definitions over the years. It was first used by the French economist Richard Cantillon at the beginning of the eighteenth century (Sharma & Chrisman, 1999). Cantillon described entrepreneurs as economic agents who seek to make a profit by participating in market transactions at their own risk. While Joseph Schumpeter emphasized the theory of creative destruction and the importance of innovation by entrepreneurs, Theodore Schultz pointed out the relevance of human capital in the definition of entrepreneurship. Schultz identified that entrepreneurship can also concern non-market activities. In contrast to Cantillon, who focuses on risk when defining entrepreneurship, Schultz centres his definition of the term around the ability to deal with disequilibria. Israel Kirzner also used disequilibria in his concept of entrepreneurship. Furthermore, he emphasized the importance of alertness to opportunities (Hébert & Link, 1989). Thus, some economists have a more broad view of entrepreneurship and use a more static definition which includes all small firms or all small business owners. Others employ a more dynamic definition and emphasize the entry or creation of new firms when explaining entrepreneurship. GEM also uses a more dynamic definition of entrepreneurship, namely: “Any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business" (GEM, 2022a).

This study focuses on intentions and therefore it is relevant to specify what is meant with entrepreneurial intentions. Bird (1988) describes intentionality as a mental state that focuses one’s attention (and thus experience and activity) on a certain target in order to accomplish something. According to Bird, entrepreneurial intentions are directed towards starting a new business or adding new value to existing businesses. Katz and Gartner (1988) define organisational intentionality as the process by which an individual seeks for information that may be used to further the objective of establishing a new organisation. They characterize entrepreneurial intention as an individual’s interest to create a new organisation. GEM uses a more concrete definition of entrepreneurial intention, namely: “percentage of the population aged 18-64 years (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years” (Herrington & Kew, 2018). Since this study focuses on youth, this definition will be adopted and directed towards entrepreneurial intention in the age range 18-34.

Regarding the relationship between entrepreneurial intentions and actual entrepreneurship, Bird (1992) explains that start-ups are the direct outcome of people’s entrepreneurial intentions and their subsequent actions. Entrepreneurial intentions and actual entrepreneurship are influenced by external

factors in the environment. Not all entrepreneurial intentions result in entrepreneurial activity. However, according to Krueger and Carsrud (1993), intentions are the best predictor of entrepreneurial behaviour. When comparing the trends over time for entrepreneurial intentions and Total early-stage Entrepreneurial Activity (TEA) in South Africa, it can be seen that these two variables move together. The trend line for entrepreneurial intentions lies just below the line for TEA (GEM, 2022b). Kong, Zhao and Tsai (2020) find a highly significant positive relationship between entrepreneurial intention and entrepreneurial behaviour among Chinese students. Bird (1988) points out that action is needed in order to effectively translate entrepreneurial intentions into a new venture. By understanding entrepreneurial intent, we can predict new venture creation more accurately (Krueger JR et al., 2000).

2.2 Youth (un)employment in South Africa

According to Mlatsheni and Leibbrandt (2011), one important cause of high youth unemployment (also amongst higher educated youth), is that the formal economy does not generate enough jobs in South Africa. Similarly, Chigunta (2017) notes that the formal economy in sub-Saharan Africa has a low labour absorptive capacity. He points out that most of the micro, small and medium-sized enterprises in this region are active in the informal sector. Although large enterprises are responsible for most economic growth, small enterprises employ more workers. Young people often perform low-productivity, low-income tasks in the informal economy.

2.3 Youth entrepreneurship in South Africa

Mlatsheni and Leibbrandt (2011) indicate that most young people in South Africa are motivated to become an entrepreneur because labour market opportunities are limited. However, lack of intrinsic entrepreneurial ability, skills, capital and poor market accessibility constraint new venturing and hinder the chances of survival for new small, medium and micro enterprises (SMMEs). To promote new venturing and sustainability of existing SMMEs, the South African government passed the National Small Business Act in 1995. With this came the establishment of the Small Business Council and Ntsika Enterprise Promotion Agency. In 2004, the Small Enterprise Development Agency was founded.

While there are already various entrepreneurial support agencies active in South Africa, sometimes people are simply not aware of their existence. Bowmaker-Falconer and Herrington (2020) show that the knowledge of Seda, an agency that provides non-financial support to small businesses, is limited across the young age cohorts. In 2019, only 11.9% of the 18-24 year old South African population was familiar with Seda. Furthermore, an average of less than 20% of the adult population used the recognized government agencies that are meant to drive and support entrepreneurial activity in South Africa.

Using a sample of high school and university students, Fatoki and Chindoga (2011) analyse the barriers to youth entrepreneurship in South Africa. After collecting survey responses and conducting quantitative analysis, they find that the main obstacles are: lack of capital, skills, support and market prospects, combined with risk. Focusing on South African student entrepreneurship, Shambare (2013) observes that lack of exposure and lack of entrepreneurial support are the main barriers for entering entrepreneurship. He recommends universities to include practical business education in their curricula, so that the students are exposed to entrepreneurship. This will benefit students' attitude towards entrepreneurship, leading to increased student entrepreneurial activity and higher success rates.

Von Broembsen, Wood and Herrington (2005) indicate that compared to other developing countries, the South African school system fails to equip students with the primary skills and knowledge needed to start a business. Compared to young people from Argentina, Brazil, Chile, China and Uganda, South African youths are much less likely to start their own business out of opportunity. This is true for all levels of educational attainment.

2.4 Perceived opportunities

Governmental policy and legislation, and economic development and performance are examples of determining factors for entrepreneurial activity and success (Bowmaker-Falconer & Herrington, 2020). These country-specific contextual factors can influence an individual's perception of opportunities for starting a business. According to Bowmaker-Falconer and Herrington, the South African government is responsible for developing economic policy that favours the country's entrepreneurial climate. The government recognizes the need to increase entrepreneurial activity and although it has allocated substantial resources to this end, expert judgements show that these attempts were ineffective.

A GEM report by Herrington and Kew (2018) indicates that in 2017, 11.7% of the South African adults (18-64 years) who were not involved in entrepreneurial activity, had entrepreneurial intentions for the future. The Total early-stage Entrepreneurial Activity (TEA) rate in South Africa was 11%, meaning that 11% of the adult population was either in the process of starting their own business or just launched their own business. Necessity-driven entrepreneurship accounted for 24.9% of TEA, while opportunity-driven entrepreneurship made up 75.1% of TEA.

An important factor that could drive an individual's perception of good opportunities to start a business, is access to finance. Bowmaker-Falconer and Herrington (2020) claim that the entrepreneurial funding that is available in South Africa does not go to the entrepreneurs who need it most. Pretorius and Shaw (2004) identify that the largest South African commercial banks put too much

emphasis on the creditworthiness of the applicant and too little on the potential success of the new venture.

Market openness and easy entry are other aspects that could stimulate entrepreneurship. Bowmaker-Falconer and Herrington (2020) conclude that the South African market is dominated by large monopolies. This hinders easy market entry for new entrepreneurs and limits the ability to be competitive with these large players that have economies of scale.

The importance of alertness to opportunities was emphasized by Israel Kirzner's concept of entrepreneurship (Hébert & Link, 1989). Shane, Locke and Collins (2003) illustrate that the entrepreneurship process starts with the identification of an entrepreneurial opportunity. There cannot be entrepreneurship without an opportunity, even when the individual is hardworking and possesses relevant entrepreneurial skills (Short, Ketchen Jr, Shook, & Ireland, 2010). Correspondingly, Shane and Venkataraman (2000) highlight that the identification of an opportunity is a prerequisite for entrepreneurship. After the discovery of the opportunity, the individual still needs to act upon it in order to become an entrepreneur.

As opportunity identification is a crucial factor in determining entrepreneurship, we would expect a positive relationship between perceiving good opportunities and having entrepreneurial intentions. When people think that there will be good opportunities for starting a business in their region, they will probably be more inclined to actively think about these opportunities and about how these opportunities could be exploited. Hence, we would expect individuals who see good opportunities to be more likely to develop entrepreneurial intentions. If an individual does not see opportunities for entrepreneurship in their region to start with, it will be unlikely that he or she will consider a career as entrepreneur.

Previous research on the effect of perceived opportunities on entrepreneurial intentions, often indicates a positive correlation. Using GEM individual level data on Indian start-up intention, Arafat and Saleem (2017) find that Indian individuals who see good opportunities to start a business in their region, are significantly more likely to have entrepreneurial intentions. Correspondingly, a study across 18 European countries finds a positive relationship between perceived opportunities and early stage entrepreneurial activity (Vodă et al., 2020a). When examining Indians, Saraf (2015) identified a positive association between perceiving opportunities and being a nascent entrepreneur. Langowitz and Minniti (2007) also find a positive correlation between opportunity perception and entrepreneurial propensity in a sample of women from 17 different countries. Arenius and Minniti (2005) study entrepreneurship data covering 28 countries, including South Africa, and find that opportunity perception is positively associated with the probability to become a nascent entrepreneur. Honjo

(2015) also concludes that the probability that an individual engages in a business start-up is higher for individuals who perceive opportunities.

The large proportion of opportunity-driven TEA in South Africa (75.1%) suggests that identifying opportunities also plays an important role in determining entrepreneurial activity in South Africa. As South African youth unemployment levels are high, we would expect young individuals to actively look around them to see whether there are opportunities to start their own business. If they see good opportunities, they will probably be more likely to consider a career in entrepreneurship.

Based on the existing theory and previous research, this study aims to test the following hypothesis:

Hypothesis 1 (H1): *Seeing good opportunities for starting a business in the region where an individual lives, is positively and significantly associated with entrepreneurial intentions of South African youth.*

2.5 Perceived capabilities

Fatoki (2010) analyses entrepreneurial intentions of South African graduates and the corresponding motivations and obstacles to it. He argues that entrepreneurship education could reduce the existing obstacles by expanding skills and knowledge. Risk-taking, creativity and innovation are examples of such entrepreneurial skills.

Bowmaker-Falconer and Herrington (2020) also indicate that education plays a vital role in stimulating entrepreneurship. They point out that educational inequality in South Africa is huge and that the failing education system hinders the majority of the population in acquiring the relevant skills needed for further development. The availability of entrepreneurship education at the primary and secondary levels, had the lowest rating in the 2019 GEM National Expert Survey in South Africa. Moreover, South Africa ranked 119th out of 141 countries on quality of the education system on the Global Competitiveness Index 2019/2020. There has been no significant enhancement over the years. This lacking educational system could hinder entrepreneurial activity in the future. The probability that an individual perceives that he or she has the required skills to start and run a business, increases with the attained level of education. Moreover, GEM research reveals that education is related to entrepreneurial intentions.

Using a sample of final-year commerce students in the South African provinces Eastern Cape and Limpopo, Malebana (2017) found that more than 57% of the surveyed students acknowledged that the government provides good support for setting up an enterprise. However, the study indicated that the information about the different types of support and services by government agencies was hard to access for the students. Malebana identifies a positive and significant relationship between knowledge of (the availability of) governmental support institutions and services, and entrepreneurial

intentions. He also finds a positive and significant relationship between knowledge of these institutions and entrepreneurial self-efficacy.

Perceived self-efficacy is described as one's belief in one's own ability to carry out tasks that are needed to deal with situations that may arise. It influences people's patterns of cognition and their behaviour (Bandura, 1982). Ajzen (1991) supports this view and points out that an individual's perceived ability, together with their behavioural intentions, account for a significant amount of variation in their actual behaviour. In this line of reasoning, perceived capabilities, could influence someone's entrepreneurial intentions, which could in turn influence the probability that the person actually starts their own business.

Based on Ajzen's theory of planned behaviour, Krueger and Carsrud (1993) established a model of entrepreneurial intention, arguing that self-efficacy influences entrepreneurial intention. Equivalently, other existing literature often indicates a positive association between self-efficacy and entrepreneurial intentions. Arafat and Saleem (2017) examine entrepreneurial intentions of Indians and find a positive and highly significant coefficient for confidence in one's skills. Pihie and Bagheri (2013) study Malaysian university students and find that their intention to become an entrepreneur is strongly and significantly influenced by their perceived self-efficacy. Furthermore, a study on entrepreneurial activity across 18 European countries by Vodă et al. (2020a) establishes a positive and significant relationship between self-confidence about one's capabilities to start a business and Total early-stage Entrepreneurial Activity. Self-confidence, according to Chaudhary (2017), is a key factor in distinguishing entrepreneurs from non-entrepreneurs in a sample of Indian university students.

Fatoki and Chindoga (2011) indicate that one of the main obstacles to entrepreneurial intention among South African youths is lack of skill. In sub-Saharan Africa, young people often perform low-productivity tasks in the informal economy (Chigunta, 2017). This, together with the fact that young people often lack previous business experience, can limit the possession of relevant entrepreneurial skills and knowledge across young South African adults. When a young individual does possess these skills and knowledge, and is self-confident about it, he or she might be more inclined to consider entrepreneurship as a career. Being self-employed comes with many responsibilities and risks, and when youths think they have the capabilities to start their own business and deal with this, they might be more likely to develop entrepreneurial intentions.

Based on the existing theory and previous research, this study aims to test the following hypothesis:

Hypothesis 2 (H2): *Self-confidence about one's capabilities to start their own business, is positively and significantly associated with entrepreneurial intentions of South African youth.*

2.6 Fear of failure

Ekore and Okekeocha (2012) describe fear of failure as an emotion that, even before making an attempt, discourages individuals from setting up a business because of the feeling that they will not succeed. Based on this description, one would expect that fear of failure lowers entrepreneurial intentions.

Previous research has found a negative and significant correlation between fear of failure and entrepreneurial intentions. Focusing on entrepreneurial intentions in nine European post-transition economies, Vodă et al. (2020b) find that individuals who indicate to experience fear of failure, are 30% less likely to have entrepreneurial intentions, compared to individuals who are not afraid of failure. Arafat and Saleem (2017) also observe that fear of failure is negatively correlated to the intention to start a business in India. Regarding entrepreneurial activity, Vodă et al. (2020a) studied 18 European countries and identified a negative and significant association between fear of failure and Total early-stage Entrepreneurial Activity. Furthermore, using a sample of 18-34 year old individuals from the Czech Republic, Hungary, Slovakia and Poland, entrepreneurial activity was found to be significantly inhibited by fear of failure (Holienka, Pilková, & Jancovicová, 2016). Arenius and Minniti (2005) also find a negative relationship between fear of failure and the likelihood of being a nascent entrepreneur in their sample of 28 countries, including South Africa. Research among Malaysian postgraduate students has found that fear of failure reduces entrepreneurial inclination (Sandhu, Sidique, & Riaz, 2011). Similarly, a study concerning students in Bosnia and Herzegovina found that fear of failure has a negative impact on entrepreneurial intentions (Turulja, Veselinovic, Agic, & Pasic-Mesihovic, 2020).

Fatoki and Chindoga (2011) identify risk as one of the main obstacles to youth entrepreneurial intention in South Africa. It is expected that individuals with low fear of failure will be less deterred by the risks associated with conducting business (Schøtt, Kew, & Cheraghi, 2015). According to GEM interviews with South African entrepreneurship experts, failure is not tolerated in South Africa. Fear of failure, together with society's negative judgement towards failure, discourage South Africans to start a business (Herrington & Kew, 2018).

Based on the existing theory and previous research, this study aims to test the following hypothesis:

Hypothesis 3 (H3): *Fear of failure is negatively and significantly associated with entrepreneurial intentions of South African youth.*

Based on the description of fear of failure as a negative emotion that an individual thinks that he or she will not succeed in setting up a successful business, we would expect that fear of failure and perceived capabilities could influence each other when it comes to the relation with intentions.

Specifically, fear of failure could influence the strength of the relationship between perceived capabilities and entrepreneurial intentions. Ng and Jenkins (2018) find that the positive association between perceived capabilities and entrepreneurial intentions is diminished by fear of the social repercussions of failure.

Fear of failure and thinking that you do not have the capabilities or knowledge to start a business are not the same. For example, it could be that a South African young individual thinks that he or she has the skills necessary for entrepreneurship, but is still afraid to fail. This could be because the individual is expected to help take care of the family and household, resulting in more stress and less time available for their potential own business. Therefore, the positive relation between perceived capabilities and entrepreneurial intention could be reduced for this individual due to fear of failure.

Based on this rationale and previous research hinting at an interaction effect between fear of failure and perceived capabilities, this study aims to test the following hypothesis:

Hypothesis 4 (H4): *The positive relationship between perceived capabilities and entrepreneurial intentions is weakened for South African youth who experience fear of failure.*

2.7 Social networks

Young individuals frequently lack access to entrepreneurial role models whom they can ask for support and business advice. Besides, young people often do not yet have work experience themselves, which makes it more difficult for them to establish proper professional networks (Schøtt et al., 2015). Social networks may help with mobilising resources, receiving appropriate support and assistance, building credibility during start-up and expansion phases, and developing valuable commercial relationships (Welter & Kautonen, 2005). Additionally, social networks can function as a platform for entrepreneurial role models.

A study among college and university students in the United States revealed that having entrepreneurial role models as parents, partly predicts an individual's entrepreneurial intentions (Geldhof, Weiner, Agans, Mueller, & Lerner, 2014). Similarly, Muofhe and Du Toit (2011) find a positive relationship between exposure to entrepreneurial role models and entrepreneurial intentions among university students in Johannesburg.

Danis, De Clercq and Petricevic (2011) find that the relationship between social networks and new business activity is stronger for emerging economies than for developed economies. Associational activity, the degree to which a country's inhabitants are actively involved in voluntary associations, can boost new business activity through the exchange of information, knowledge and resources (Dakhli & De Clercq, 2004). Danis et al. (2011) highlight that in emerging countries, the effect of social networks

on new business activity is stronger for nations with higher regulatory and normative institutional burdens. These moderating effects of institutions are not present in developed economies. Thus, social networks seem to function as a substitute for weak institutions in emerging economies such as South Africa.

Focusing on nine European former transition economies, previous research found a significant positive correlation between the presence of an entrepreneur in an individual's network and their entrepreneurial intention (Vodă et al., 2020b). Networking is also found to be positively and significantly associated with early-stage entrepreneurial activity in 18 European countries (Vodă et al., 2020a). Using a sample of 18-34 year old individuals from the Czech Republic, Hungary, Slovakia and Poland, access to entrepreneurial networks was found to be a significant driver of entrepreneurial activity (Holienka, Pilková, & Jancovicová, 2016). Social networks are also found to have a positive effect on entrepreneurial intentions among Bangladeshi university students (Hossain, Asheq, & Arifuzzaman, 2019). Klyver and Schøtt (2008) used GEM data covering Denmark and found that contact to an entrepreneur is positively associated with the intention to start a business. Saraf (2015) also identifies a positive correlation between knowing entrepreneurs and entrepreneurial intent in India. After examining South African commerce students in Limpopo, Malebana (2016) concluded that students who know other (successful) entrepreneurs are more likely to have entrepreneurial intentions. Besides, the believe that someone will be supported by their family and friends in the decision to start a business, is also positively correlated with the probability of forming entrepreneurial intentions.

Based on the existing theory and previous research, this study aims to test the following hypothesis:

Hypothesis 5 (H5): *The presence of entrepreneurs in an individual's social network is positively and significantly associated with entrepreneurial intentions of South African youth.*

Chen and He (2011) investigate the relationship between strong ties and entrepreneurial intentions among undergraduates in China. They notice that the effect of strong ties on entrepreneurial intentions is indirect. Strong ties appear to increase the probability of having entrepreneurial intentions by boosting an individual's self-efficacy. Research covering a rural community in Pakistan found a strong and positive effect of social capital on an individual's perceived self-efficacy. This perceived self-efficacy was in turn found to have a positive effect on entrepreneurial intention (Ali & Yousuf, 2019). When studying a sample of South African students in the Limpopo province, Malebana (2016) identified a positive correlation between personally knowing an entrepreneur and perceived behavioural control. The latter was in turn positively correlated with entrepreneurial intention. Muofhe and Du Toit (2011) suggested that exposing students to entrepreneurial role models could

enhance their perceived behavioural control, which in turn could increase students' entrepreneurial intentions.

Based on this previous research hinting at an interaction effect between networking and perceived capabilities, this study aims to test the following hypothesis:

Hypothesis 6 (H6): *The positive relationship between perceived capabilities and entrepreneurial intentions is strengthened for South African youth with entrepreneurs in their network.*

3. Data and methodology

3.1 Data and sample

Data on Entrepreneurial Behaviour and Attitudes is collected by the Global Entrepreneurship Monitor (GEM) through the Adult Population Survey (APS). The APS gives insight into the entrepreneurial activity in an economy and the characteristics and motivations of entrepreneurs. It is also used as a tool to evaluate the social attitudes towards entrepreneurs and entrepreneurship. The APS uses a random sample of the population. The questionnaire is completed by a minimum of 2,000 individuals in every participating country, either by telephone, face-to-face interview or online. By publishing anonymous results, GEM provides data covering the formal as well as the informal economy (GEM, 2022c).

For this analysis, I will be using individual level APS data from South Africa. I will use the most recent data that is available, which is from 2017. Since I am interested in youth entrepreneurship, I will select a sample of young people (age 18-34). Using this age range also allows me refer to a GEM youth entrepreneurship report by Schøtt et al. (2015). After deleting all observations for which the age did not fall into this range, I am left with a sample of 1,423 young South African people. For the purpose of effectively running the logistic regression model, answers such as “don’t know” or “refused” should be turned into a missing value. After recoding these answers in Stata, the sample consists of 1,017 observations.

3.2 Description of variables

3.2.1 Dependent variable

For the analysis, the dependent variable is entrepreneurial intention (FUTSUPyy), which indicates whether an individual is expecting to start a new business within the next three years. This binary variable takes value 1 when the answer to the question “Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years?” is “yes” and value 0 when the answer is “no”.

3.2.2 Independent variables

The goal of this study is to investigate the associations between various perceptual variables and entrepreneurial intention. The variables of interest are: perceived opportunities (OPPORTyy), perceived capabilities (SUSKILyy), fear of failure (FRFAILyy) and networking (KNOWENyy). All of the independent variables in this study are binary. When the answer to the respective APS survey question is affirmative, the variables take value 1. When an individual respondent answers “no”, the variable will take on value 0.

The corresponding GEM APS survey questions for these variables are:

- "In the next six months, will there be good opportunities for starting a business in the area where you live?"
- "Do you have the knowledge, skill and experience required to start a new business?"
- "Would fear of failure prevent you from starting a business?"
- "Do you know someone personally who started a business in the past 2 years?

3.2.3 Control variables

The regression model will include several demographic and economic control variables: gender, age, education level (GEMEDUC), work status (GEMWORK) and annual household income (GEMHHINC). These control variables are added to enhance the internal validity of the study. They are expected to have an influence on an individual's entrepreneurial intention and could be correlated with the variables of interest.

Arafat and Saleem (2017) find that in a sample of Indians, the probability of having entrepreneurial intentions is higher for men than for women. It is also relevant to include gender as a control variable when studying South Africa as many young South African women might be expected to stay home and look after the children, possibly reducing the probability that they develop entrepreneurial intentions.

Previous research highlights the relevance of age as predictor for entrepreneurial intention (Hatak, Harms, & Fink, 2015; Tsai, Chang, & Peng, 2016). Since this study focuses on a specific age group (18-34 years), age will most likely not have large predictive power. However, entrepreneurial inclination among South African youth could increase with age, as they gain more work-related experience and income for example. Furthermore, people become more independent as they grow older. This might increase the probability of developing entrepreneurial intentions as older youths want to be able to provide for themselves (and their families).

Education level is another relevant factor to control for when analysing entrepreneurial intention (Ahmad, Xavier, & Bakar, 2014; Vodă et al., 2020b). The attained level of education can be seen as a proxy for human capital. Davidsson and Honig (2003) find that human capital is a significant predictor for entry into nascent entrepreneurship.

Work status is another variable that is relevant for entrepreneurial intentions (Arafat & Saleem, 2017; Vodă et al., 2020b). Individuals who are not working, might have a higher probability of developing entrepreneurial intentions. If an unemployed individual has a hard time finding a job on the labour market, he or she might consider a career in entrepreneurship. Students might be less inclined towards entrepreneurship as they first want to finish their education.

In addition to work status, household income is another relevant factor to consider when analysing entrepreneurial intention (Vodă et al., 2020b) and nascent entrepreneurship (Arenius & Minniti, 2005). On one hand, a higher household income might increase the availability of money an individual could invest in his or her own business, leading to enhanced feasibility and increased entrepreneurial intention. On the other hand, having a low income could increase entrepreneurial intention when individuals need to earn more money in order to provide for themselves and their families.

Controlling for the abovementioned variables, makes it easier to understand the actual relationships between the dependent variable and the variables of interest. Similar studies (e.g. Arafat & Saleem, 2017) also use these control variables.

Regarding the operationalisation of the control variables, gender is a dichotomous variable, taking value 0 when the respondent's gender is male and 1 when the respondent is female. Age is a continuous variable that indicates the age of the respondent. The other control variables are categorical. Education level can take on four values: none, some secondary, secondary degree and post-secondary. As there are only 26 observations with the answer "none", this answer category will be merged with the "some secondary" category. The merged category will be named "lower educated" and will serve as the reference category for education level. Work status can be classified into: full or part time (including self-employment), part time only, retired or disabled, homemaker, student or not working. As there are only 4 individuals in the sample who answered "retired or disabled" and 18 who answered "homemaker", the results of these categories will not be statistically relevant. Therefore these two categories will be merged into the "not working" category. For work status, full or part time (including self-employment) will be used as the reference category. Lastly, annual household income is classified into three percentile ranks: lowest, middle and highest 33 percentile. The lowest category is used as reference.

3.3 Descriptive statistics

Table 1 shows the descriptive statistics of the sample. In this sample of South African youth, 16.13% indicates to have entrepreneurial intentions in the next three years. More than half of the respondents do not see good opportunities to start a business in their region and do not think that they have the necessary skills and knowledge to start a business. In addition, 36.58% of the respondents said that they would be hesitant to start a new business because they are afraid of failing. Furthermore, approximately one-third of the youth indicates to personally know an entrepreneur. Gender is roughly evenly distributed, with slightly more men in the sample. The mean age in the sample is 25.64, with a standard deviation of 4.78. The majority of the youth in this sample has a secondary degree, followed by the group with lower education. What is striking is that 45.62% of the individuals in this sample are

not working. This highlights the underemployment of youth in South Africa. A bit over 16% of the respondents said they were students. The income percentiles are approximately evenly spread, with slightly less respondents in the highest category.

Table 1: Descriptive statistics

Variable	Category	No. of observations	Percentage	Mean	Std. Dev.	Min	Max
Entrepreneurial intentions	No	853	83.87			0	1
	Yes	164	16.13				
Perceived opportunities	No	563	55.36			0	1
	Yes	454	44.64				
Perceived capabilities	No	621	61.06			0	1
	Yes	396	38.94				
Fear of failure	No	645	63.42			0	1
	Yes	372	36.58				
Networking	No	691	67.94			0	1
	Yes	326	32.06				
Gender	Male	522	51.33			0	1
	Female	495	48.67				
Age		1,017		25.64	4.78	18	34
Education	Lower educated	312	30.68				
	Secondary degree	611	60.08				
	Post-secondary	94	9.24				
Work status	Full or part time (including self-employment)	315	30.97				
	Part time only	73	7.18				
	Student	165	16.22				
	Not working	464	45.62				
Income	Lowest 33%tile	352	34.61				
	Middle 33%tile	353	34.71				
	Highest 33%tile	312	30.68				

Notes: Age is a continuous variable. The other variables are all binary or categorical. The data comes from the GEM APS survey in South Africa in 2017. The sample consists of 1,017 observations. There are no missing answers for any individual in our sample, for any of the variables used.

3.4 Methodology

In order to test the hypotheses, several logistic regression models (logit models) will be run. The logit, or natural logarithm of an odds ratio, is the fundamental mathematical idea behind logistic regression. This method allows to estimate the probability of a certain outcome when the outcome variable is binary. The predictor variables can be categorical or continuous and the parameters are estimated using maximum likelihood. Logistic regression does not assume normal distribution of the data. Instead it assumes binomial probability distribution. The observations should be independent from each other (Peng, Lee, & Ingersoll, 2002). In our sample this is the case as the observations do not come from repeated measurements or matched data.

Furthermore, for logistic regression it is important that there is no multicollinearity among the predictor variables. Tay (2017) indicates that the issue of multicollinearity is often addressed by looking at the correlations between predictor variables. The value thresholds for the correlation coefficients often range from 0.6 to 0.8. Accordingly, Dormann et al. (2013) find that the commonly used threshold of $|r| > 0.7$ for correlation coefficients between predictor variables, is appropriate to use as an indicator for problematic collinearity. Hence, to test for multicollinearity, I calculated the correlation coefficients for the independent variables. These can be seen in Appendix A, Table A1. As most correlations are fairly small and the highest absolute value is 0.549, multicollinearity will not be a considerable problem in this study.

In previous research concerning entrepreneurial intention and activity determinants, logistic regression is used as well (Arafat & Saleem, 2017; Vodă et al. 2020a; Vodă et al., 2020b).

I will use several models in order to test my hypotheses. The regression formula corresponding to my main model (Model 6) is:

$$Y = \alpha + \beta_1 * perceived\ opportunities + \beta_2 * perceived\ capabilities + \beta_3 * fear\ of\ failure + \beta_4 * networking + \gamma X + \varepsilon \quad (1)$$

where Y is the dependent variable, indicating whether someone has entrepreneurial intentions or not. The parameter α represents the constant in the regression and ε is the error term. The parameters β_1 to β_4 represent the regression coefficients that correspond to the variables of interest (the predictor variables). The control variables are added as a vector in the regression. The parameter γ estimates the coefficient of the control variables and X indicates the control variable vector of an individual. The vector incorporates gender, age, education, work status and household income. Formula 2 specifies the calculation of the probability of having entrepreneurial intentions, depending on the values of the set of predictor variables (X_j).

$$\text{Prob}\left(\text{Y} = 1|\, X_j\right) = \frac{1}{1 + e^{-Y}} \quad (2)$$

I will first run the regression without control variables (Model 1). After this, I will run separate regressions for all variables of interest. These models (Models 2-5) will include control variables. Model 6 includes all variables of interest, as well as the control variables. This is done in order to isolate the effects of the perceptual variables on entrepreneurial intention.

In order to test whether one variable of interest strengthens or weakens another factor, interaction terms are added to the model. Models 7 and 8 will analyse the interaction between perceived capabilities and fear of failure. The former will exclude control variables while the latter will include them. To investigate the interaction between perceived capabilities and networking, two other models will be run. Model 9 will exclude control variables and Model 10 will include them. After this, Models 11 and 12, which include both interaction terms, will be run. Model 11 will exclude control variables. The interaction hypotheses will be evaluated using Model 12, which includes control variables. The formula that will be used to predict the abovementioned models can be written as:

$$\begin{aligned}\text{Y} = {} & \alpha + \beta_1 * perceived\ opportunities + \beta_2 * perceived\ capabilities + \beta_3 * \\ & fear\ of\ failure + \beta_4 * networking + \beta_5 * perceived\ capabilities * \\ & fear\ of\ failure + \beta_6 * perceived\ capabilities * networking + \gamma X + \varepsilon\end{aligned} \quad (3)$$

The general model's null hypothesis claims that all βs are equal to zero. When one beta is significantly different from zero, the null hypothesis can be rejected. If this is the case, the logistic regression equation predicts the probability of having entrepreneurial intentions better than the mean of the dependent variable (Peng et al., 2002).

The study will use heteroskedasticity-robust standard errors. For the statistical analysis, I will use the computer program Stata. The results will be expressed in odds ratios (e^{β}), making it easier to interpret the effects. An odds ratio with a value below 1, indicates a negative association.

4. Results

This chapter will discuss the results of the logistic regression models explained in the data and methodology section. The paper will go over every hypothesis and answer whether it is supported by the data or not. The results of the different logistic regression models are reported in Table 2.

Table 2: Logistic regression results

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Perceived opportunities	1.887*** (0.364)	2.515*** (0.456)				1.843*** (0.360)
Perceived capabilities	4.372*** (0.833)		4.818*** (0.933)			4.155*** (0.824)
Fear of failure	1.126 (0.220)			0.777 (0.145)		1.091 (0.219)
Networking	1.338 (0.256)				1.886*** (0.334)	1.293 (0.252)
Female		0.731* (0.130)	0.772 (0.140)	0.718* (0.126)	0.726* (0.128)	0.793 (0.145)
Age		0.982 (0.021)	0.975 (0.021)	0.975 (0.020)	0.977 (0.020)	0.979 (0.022)
Education						
Secondary degree		1.251 (0.260)	1.205 (0.257)	1.280 (0.261)	1.323 (0.273)	1.195 (0.260)
Post-secondary		1.665 (0.569)	1.541 (0.526)	1.651 (0.538)	1.681 (0.559)	1.570 (0.553)
Work status						
Part time only		0.731 (0.278)	0.810 (0.325)	0.654 (0.249)	0.702 (0.269)	0.886 (0.352)
Student		0.228*** (0.095)	0.331*** (0.139)	0.208*** (0.086)	0.229*** (0.094)	0.352** (0.150)
Not working		0.915 (0.196)	1.084 (0.235)	0.884 (0.184)	0.914 (0.192)	1.093 (0.242)
Income						
Middle 33%tile		0.839 (0.181)	0.840 (0.188)	0.839 (0.180)	0.848 (0.183)	0.857 (0.194)
Highest 33%tile		0.676* (0.157)	0.578** (0.136)	0.656* (0.149)	0.662* (0.152)	0.586** (0.141)
Constant	0.055*** (0.011)	0.271* (0.190)	0.213** (0.145)	0.592 (0.379)	0.381 (0.251)	0.127*** (0.095)
Observations	1,017	1,017	1,017	1,017	1,017	1,017

Notes: This table displays the logistic regression results of various (perceptual) variables on the probability to have entrepreneurial intentions. The numbers represent odds ratios. Model (1) excludes control variables, Models (2) to (6) include them. Age is a continuous variable. The other variables are all binary or categorical. The reference category for gender is "male", for education "lower educated", for work status "full or part time (including self-employment)", and for income "lowest 33%tile". The data comes from the GEM APS survey in South Africa in 2017. The sample consists of 1,017 observations. The results are obtained by performing logistic regression analysis in Stata. Robust standard errors are in parenthesis; *p < 0.1, **p < 0.05, ***p < 0.01.

Table 2: Logistic regression results – continued from previous page

Variable	(7)	(8)	(9)	(10)	(11)	(12)
Perceived opportunities	1.816***	1.774***	1.838***	1.787***	1.773***	1.722***
	(0.352)	(0.349)	(0.356)	(0.353)	(0.345)	(0.341)
Perceived capabilities	7.286***	6.954***	5.270***	5.029***	8.859***	8.572***
	(2.025)	(1.981)	(1.307)	(1.298)	(2.878)	(2.886)
Fear of failure	2.291***	2.244**	1.109	1.074	2.275***	2.237**
	(0.717)	(0.710)	(0.216)	(0.214)	(0.716)	(0.713)
Networking	1.311	1.269	1.845*	1.796*	1.831*	1.803*
	(0.251)	(0.248)	(0.594)	(0.593)	(0.590)	(0.595)
Perceived capabilities x fear of failure	0.292***	0.285***			0.290***	0.281***
	(0.121)	(0.120)			(0.120)	(0.118)
Perceived capabilities x networking			0.624	0.616	0.612	0.595
			(0.242)	(0.245)	(0.238)	(0.237)
Female		0.779		0.790		0.775
		(0.143)		(0.144)		(0.142)
Age		0.978		0.979		0.977
		(0.021)		(0.022)		(0.021)
Education						
Secondary degree		1.202		1.183		1.190
		(0.262)		(0.257)		(0.259)
Post-secondary		1.653		1.556		1.637
		(0.596)		(0.546)		(0.589)
Work status						
Part time only		0.854		0.864		0.830
		(0.340)		(0.344)		(0.333)
Student		0.353**		0.350**		0.350**
		(0.152)		(0.149)		(0.150)
Not working		1.105		1.099		1.111
		(0.247)		(0.244)		(0.248)
Income						
Middle 33%tile		0.849		0.852		0.845
		(0.193)		(0.193)		(0.192)
Highest 33%tile		0.597**		0.594**		0.606**
		(0.145)		(0.143)		(0.147)
Constant	0.038***	0.092***	0.050***	0.118***	0.035***	0.084***
	(0.010)	(0.070)	(0.011)	(0.089)	(0.010)	(0.065)
Observations	1,017	1,017	1,017	1,017	1,017	1,017

Notes: This table displays the logistic regression results of various (perceptual) variables on the probability to have entrepreneurial intentions. The numbers represent odds ratios. These six models include interaction terms. Models (7), (9) and (11) exclude control variables, Models (8), (10) and (12) include them. Age is a continuous variable. The other variables are all binary or categorical. The reference category for gender is "male", for education "lower educated", for work status "full or part time (including self-employment)", and for income "lowest 33%tile". The data comes from the GEM APS survey in South Africa in 2017. The sample consists of 1,017 observations. The results are obtained by performing logistic regression analysis in Stata. Robust standard errors are in parenthesis; *p < 0.1, **p < 0.05, ***p < 0.01.

4.1 Hypothesis 1 – perceived opportunities

The first hypothesis concerns the positive relationship between seeing good opportunities to start a business in the region where an individual lives and their entrepreneurial intentions. Table 2 shows that when control variables are excluded (Model 1), the odds ratio for perceived opportunities is positive and significant at the 1% significance level. When control variables are added but the other variables of interest are left out (Model 2), the odds ratio slightly increases, remaining positive and significant. The main model (Model 6), which includes all independent and control variables, can be used to evaluate the hypothesis. It shows a positive odds ratio of 1.843, which is significant at the 1% significance level. This can be interpreted as follows: the odds of those individuals who see good opportunities for starting a business to have entrepreneurial intentions are 1.843 times higher than the odds of the group who do not see good opportunities, holding all other predictors constant. Seeing good opportunities to start a business is thus associated with a higher probability of having entrepreneurial intentions. Therefore, H1 can be accepted.

4.2 Hypothesis 2 – perceived capabilities

Hypothesis 2 states that self-confidence about one's capabilities to start their own business, is positively and significantly associated with entrepreneurial intentions of South African youth. In Table 2, Model 1 shows a positive and significant odds ratio for perceived capabilities. After adding the control variables and removing the other predictor variables from the equation, the odds ratio remains significant and becomes slightly more positive. In the main model, the odds ratio for perceived capabilities is 4.155 and this ratio is significant at the 1% significance level. Thus, the odds of having entrepreneurial intentions when an individual perceives that he or she has the required capabilities are 4.155 times the odds of the group who do not perceive they have the required capabilities to start their own business. Accordingly, self-confidence about one's capabilities to start their own business is associated with a higher probability of having entrepreneurial intentions. Therefore, H2 can be accepted.

4.3 Hypotheses 3 and 4 – fear of failure

Hypothesis 3 proposes that fear of failure is negatively and significantly associated with entrepreneurial intentions of South African youth. When excluding control variables from the model, the odds ratio for fear of failure is 1.126 and insignificant. Model 4 shows an odds ratio of 0.777, suggesting a lower probability of having entrepreneurial intentions when an individual experiences fear of failure. However, this odds ratio is not statistically significant. In the main model, which includes all predictor and control variables, the odds ratio for fear of failure is 1.091, suggesting a higher

probability of having entrepreneurial intentions when an individual experiences fear of failure. However, this odds ratio is insignificant and H3 is not supported.

After evaluating the association between entrepreneurial intentions and perceived capabilities, we can check whether this relationship is strengthened or weakened by other variables. Hypothesis 4 states that the positive relationship between perceived capabilities and entrepreneurial intentions is weakened for individuals who experience fear of failure. Model 7, which excludes control variables, establishes a significant odds ratio of 0.292 for the interaction between perceived capabilities and fear of failure. After the addition of control variables (Model 8), the odds ratio remains significant and approximately the same, namely 0.285. Models 11 and 12 also include the interaction term between perceived capabilities and networking. When excluding control variables, the odds ratio for the interaction between perceived capabilities and fear of failure is 0.290 (Model 11). This odds ratio is significant at the 1% significance level. To evaluate hypothesis 4, Model 12, which includes both interaction terms and all control variables, will be used. In this model, the respective odds ratio is 0.281. This odds ratio is again significant at the 1% significance level. An odds ratio below 1, represents a negative coefficient. This means that the interaction term between perceived capabilities and fear of failure is negative. Hence, the presence of fear of failure weakens the relationship between perceived capabilities and entrepreneurial intentions. H4 can thus be accepted.

4.4 Hypotheses 5 and 6 – networking

Regarding the relationship between networking and entrepreneurial intentions, hypothesis 5 states that the presence of entrepreneurs in an individual's social network is positively and significantly associated with their entrepreneurial intentions. In the model which excludes control variables, the odds ratio for networking is 1.338 and insignificant. When control variables are added but the other variables of interest are left out (Model 5), the odds ratio for networking increases to 1.886 and becomes significant at the 1% significance level. Model 6 can be used to evaluate the hypothesis. It shows an odds ratio of 1.293, suggesting a higher probability of having entrepreneurial intentions when an individual has entrepreneurs in his or her network. However, the odds ratio is statistically insignificant. As a result, H5 is not supported.

To see whether networking also influences the strength of the relationship between perceived capabilities and entrepreneurial intentions, hypothesis 6 is tested. H6 proposes that the positive association between perceived capabilities and entrepreneurial intentions is strengthened for individuals with entrepreneurs in their network. Model 9, which excludes control variables, shows that the interaction term between perceived capabilities and networking is 0.624. This odds ratio is statistically insignificant. After adding the control variables in Model 10, the odds ratio decreases to

0.616 and remains insignificant. Models 11 and 12 also include the interaction term between perceived capabilities and fear of failure. When excluding control variables, the odds ratio for the interaction between perceived capabilities and networking is 0.612 and insignificant (Model 11). To evaluate hypothesis 6, Model 12, which includes both interaction terms and all control variables, will be used. In this model, the respective odds ratio is 0.595, suggesting that having entrepreneurs in an individual's network weakens the relationship between perceived capabilities and fear of failure. However, this odds ratio is statistically insignificant. As the odds ratio for the interaction term between perceived capabilities and networking is below 1 and insignificant, H6 is not supported.

4.5 Control variables

In addition to the variables of interest, two control variables in Model 6 appear to be significantly associated with entrepreneurial intentions of South African youth. For the work status category 'student', the odds ratio is 0.352 and this ratio is significant at the 5% significance level. This means that students are 0.352 times less likely to have entrepreneurial intentions within the next three years, compared to South African youth working full or part time (including self-employment). The other categories for work status do not show significant odds ratios.

Besides 'student', the odds ratio for the highest income category is also significant at the 5% significance level. This ratio implies that the odds of having entrepreneurial intentions for youth in the upper 33 income percentile are 0.586 times the odds of youth in the lowest 33 percentile group. This finding indicates that being in the highest 33 percentile income category is associated with a lower probability of having entrepreneurial intentions, compared to youth from the lowest income group. The middle income category does not show a significant odds ratio.

In Model 6, gender, age and education level do not show statistically significant odds ratios. This suggests that these factors are not significantly related with entrepreneurial intentions of South African youth.

5. Conclusion and discussion

The aim of this study is to formulate an answer to the following question: What are effective ways to stimulate entrepreneurial intentions among South African youth in order to increase entrepreneurial activity, decrease unemployment and boost the economy? Several logistic regression models are run to test six hypotheses. By analysing GEM individual level data from the Adult Population Survey, this study tested empirically what factors are correlated with the entrepreneurial intentions of South African youth (18-34 years). The study focused on entrepreneurial intentions because intentions are the first step towards possible entrepreneurial activity. Krueger and Carsrud (1993) suggest that it is particularly relevant to look at intentions because it allows us to understand people's attitudes towards entrepreneurship and the importance of people's perceptions in the process of developing these attitudes. Our capacity to comprehend and forecast entrepreneurial activity may be significantly improved with the use of intentions models (Krueger JR et al., 2000). Furthermore, Ajzen's (1991) theory of planned behaviour suggests that entrepreneurial intentions are a good predictor for people's actual behaviour. That is why the results of this study are also a step forward in understanding the factors that influence youth entrepreneurship in South Africa.

The results of this study suggest that seeing good opportunities to start a business in the region where an individual lives is positively and significantly associated with the odds of having entrepreneurial intentions. This positive correlation is in line with previous research (Arafat & Saleem, 2017). The factor with the strongest association with the probability of having entrepreneurial intentions is perceived capabilities. In this study's sample, individuals who are self-confident about their capabilities to start their own business, are over four times more likely to have entrepreneurial intentions than individuals who are not confident about this. The positive correlation between perceived capabilities and entrepreneurial intentions confirms previous literature (Krueger & Carsrud, 1993; Pihie & Bagheri, 2013; Arafat & Saleem, 2017). The relationship between fear of failure and entrepreneurial intentions was found not to be significant. This result is not in line with previous studies that found a negative and significant association (Arafat & Saleem, 2017; Vodă et al., 2020b; Turulja et al., 2020). It could be that South African youths do experience fear of failure, but that this fear does not prevent them from having entrepreneurial intentions. Since youth unemployment levels are so high in South Africa, young people might be more likely to consider a career as an entrepreneur, despite experiencing fear of failure. The correlation between networking and entrepreneurial intentions was also found not to be significant. This contradicts previous studies that found a positive and significant relationship (Klyver & Schøtt, 2008; Saraf, 2015; Hossain et al., 2019; Vodă et al., 2020b). It could be that young people simply do not have the right or relevant social networks in South Africa or that the entrepreneurs they know are not very successful.

Regarding the interaction effects, the positive relationship between perceived capabilities and entrepreneurial intentions was shown to be weaker for individuals who experience fear of failure. Having entrepreneurs in an individual's network was not found to have a significant influence on the relationship between perceived capabilities and entrepreneurial intentions. Thus, H1, H2 and H4 were accepted, while H3, H5 and H6 were not supported.

Regarding the correlations between the control variables and entrepreneurial intentions, students were found to be significantly less likely to have entrepreneurial intentions, compared to youth working part or full time (including self-employment). A possible explanation for this could be that students want to finish their education first, and possibly gain some experience working for an employer, before starting their own business. The entrepreneurial intention variable measures whether an individual has entrepreneurial intentions in the next three years, not in their lifetime. The other control variable category which was found to be significantly associated with entrepreneurial intention was the highest income category. The probability of having entrepreneurial intentions is significantly lower for individuals in the highest income category, compared to individuals in the lowest percentile group. This could be a sign that entrepreneurship out of necessity dominates among South African youth.

5.1 Policy implications

Since perceived capabilities are found to be most strongly correlated with entrepreneurial intentions among South African youth, it is particularly relevant to consider what policies could help to increase entrepreneurial self-efficacy. Fatoki (2010) already pointed out that entrepreneurship education could reduce existing obstacles by expanding skills and knowledge. As the correlation between the attained level of education and entrepreneurial intentions was found to be insignificant, this study recommends to introduce and expand entrepreneurship education at all levels. The availability of entrepreneurship education at primary and secondary level was rated low in South Africa in 2019 (Bowmaker-Falconer & Herrington, 2020). Hence, there is room for improvement. The positive correlation between entrepreneurship education and developed self-efficacy was confirmed by Bux and Van Vuuren (2019) for a sample of 15-18 year old South African high school students. Based on their suggestions, together with the findings of my own research, I recommend the South African government and schools to introduce compulsory entrepreneurship education at all levels, as a way to increase entrepreneurial intentions among their youth. The positive effect of entrepreneurship education on self-employment aspirations was confirmed by a Ghanian study by Owusu-Ansah and Poku (2012) and a South African study by Bignotti and Le Roux (2020). When children are exposed to entrepreneurial subjects at a young age, their understanding about what it entails to be an entrepreneur increases.

Entrepreneurship education can equip children and young adults with fundamental skills, which in turn can increase an individual's perception of their own capabilities.

Besides entrepreneurial self-efficacy, opportunity recognition is another important factor to take into account when developing policy recommendations. As mentioned in the theoretical framework, the public knowledge about the existence of various entrepreneurial support agencies and their services, is limited in South Africa. These agencies, together with the South African government, should strive to increase the visibility of their services. When individuals know that there are agencies that can support them on their path to becoming an entrepreneur, they might see increased opportunities. This awareness may also result in enhanced perceived capabilities, declined fear of failure and an increased feeling of assurance. Malebana (2017) established a positive relationship between knowledge of these support institutions and entrepreneurial self-efficacy. To increase perceptions of opportunities among youth, successful South African entrepreneurs could play a role by sharing their experiences. They could visit local communities or tell their stories at schools, which links back to the policy recommendation of increasing entrepreneurship education. Entrepreneurship education can contribute to improving young people's capacity to spot opportunities. Another factor that could strengthen perceived opportunities is increased accessibility to finance. South African banks and investors can play an important role here by focusing more on the potential success of a new venture, and not only on the creditworthiness of a potential entrepreneur.

Musara, Mabila, Gwaindepi and Netsai L (2020) analyse the relationship between entrepreneurial activity, employment and economic growth in South Africa. They find a positive relationship, indicating the importance of stimulating entrepreneurship in order to reduce unemployment and increase economic growth. Peprah and Adekoya (2020) also find a positive effect of entrepreneurship on economic growth when studying 10 African countries, including South Africa. They recommend policy-makers to stimulate entrepreneurial activities among the young population by investing in entrepreneurial education. Apart from economic growth, higher levels of entrepreneurial activity are also associated with better global competitiveness (Ferreira, Fayolle, Fernandes, & Raposo, 2017). According to Musara et al. (2020), entrepreneurial education could be one way to possibly increase entrepreneurial activity. The South African government and policymakers should strive for a favourable entrepreneurial climate and restrain corruption.

5.2 Limitations and suggestions for further research

This research has some limitations. First, there are endogeneity concerns, which threaten the internal validity of the study. The employed models control for various economic and demographic factors. However, there could still be other factors that are not included in the models, that affect both an

independent variable and entrepreneurial intentions. This omitted variable bias is the reason that this study can only establish correlations, and no causal effects. A possible way to deal with omitted variable bias is to use an instrumental variable approach to check whether the results still hold. However, in the GEM dataset I could not find suitable instruments to test the relationships between the predictor variables and entrepreneurial intentions. For future research, it would be interesting to employ an instrumental variable approach.

The second limitation of this study is that it uses data covering one year only. The results could therefore partly be explained by specific circumstances impacting South Africa in 2017. Worldwide, the presidency of Donald Trump in the United States caused great political turmoil in 2017. In 2016, South African GDP per capita amounted to 5,757 current US dollars, while in 2017 this number increased to 6,691 (World Bank, 2022b). After economic contraction in the last quarter of 2016 and the first of 2017, the South African economy recovered in the second quarter of 2017. GDP rose by 2.5 percent quarter-on-quarter, due to increased economic activity in most industries, especially in the agriculture, finance and mining sectors (Statistics South Africa, 2017). Political and economic factors such as these, could influence the results of this study. An important note is that in 2017, the COVID-19 pandemic did not play a role yet. The pandemic most likely changed the business and entrepreneurial environment substantially. Future research could investigate which policies enhanced the entrepreneurial intentions and activity among youth after the pandemic. Moreover, further research could use data from multiple years and look for long term trends in the entrepreneurial intentions of South African youth.

The study did not find a significant effect of networking on entrepreneurial intentions, while this was expected based on previous research. An interesting observation is that when excluding the other predictor variables, the effect of networking was statistically significant. The interaction effect between perceived capabilities and networking was insignificant. Therefore, it seems that in Model 6, perceived opportunities takes over part of the effect of networking. This could mean that if you have entrepreneurs in your networks, this helps you to see good opportunities. When accounting for seeing good opportunities, the significant association of networking reduces (in this case even becomes insignificant). Future research could empirically test the potential mediation effect of perceived opportunities on the relationship between networking and entrepreneurial intentions.

Another relevant point on the agenda for future research is investigating the effect of public media attention for entrepreneurship on young people's entrepreneurial intentions. Moreover, it would be interesting to compare the results of countries with similar and different economic development stages to possibly identify where South Africa can still improve.

6. References

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Appendix A

Table A1: Correlation matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(7c)
(1) Perceived opportunities	1								
(2) Perceived capabilities	0.367	1							
(3) Fear of failure	-0.179	0.273	1						
(4) Networking	0.424	0.332	-0.053	1					
(5) Gender	-0.100	-0.133	0.091	-0.080	1				
(6) Age	0.039	-0.097	0.028	-0.033	-0.091	1			
Education									
(7a) Lower educated	-0.094	-0.195	0.131	-0.024	0.008	0.049	1		
(7b) Secondary degree	0.085	0.094	-0.091	-0.013	-0.003	0.019		1	
(7c) Post-secondary	0.001	0.186	-0.070	0.079	-0.011	-0.110			1
Work status									
(8a) Full or part time	0.094	0.332	-0.106	0.153	-0.204	-0.303	-0.300	-0.009	0.549
(8b) Part time only	-0.140	-0.065	0.006	-0.091	-0.010	-0.063	0.052	0.003	-0.137
(8c) Student	-0.068	-0.344	-0.068	-0.137	-0.104	0.468	0.251	-0.104	-0.469
(8d) Not working	0.005	-0.082	0.133	-0.026	0.247	-0.033	0.075	0.072	-0.342
Income									
(9a) Lowest 33%tile	-0.008	-0.112	0.016	0.024	0.098	0.005	0.439	-0.266	-0.421
(9b) Middle 33%tile	0.023	-0.066	0.063	-0.039	-0.005	-0.014	-0.056	0.138	-0.217
(9c) Highest 33%tile	-0.016	0.183	-0.083	0.016	-0.097	0.009	-0.458	0.143	0.514

Notes: This table displays the correlations between the independent variables. Variables (1) to (5) are binary. The numbers for the correlations between these variables represent *tetrachoric* correlation coefficients. The categorical variables (education, work status and income) are recoded into multiple binary variables (one for each answer category). This enables the use of *tetrachoric* correlation coefficients for these variables too. Age is a continuous variable. All of the correlations involving age are *point-biserial* correlations. The work status category "full or part time" includes self-employment. The data comes from the GEM APS survey in South Africa in 2017. The sample consists of 1,017 observations. The correlations are calculated using the statistical program Stata.

Table A1: Correlation matrix – continued from previous page

Variable	(8a)	(8b)	(8c)	(8d)	(9a)	(9b)	(9c)
(1) Perceived opportunities							
(2) Perceived capabilities							
(3) Fear of failure							
(4) Networking							
(5) Gender							
(6) Age							
Education							
(7a) Lower educated							
(7b) Secondary degree							
(7c) Post-secondary							
Work status							
(8a) Full or part time	1						
(8b) Part time only		1					
(8c) Student			1				
(8d) Not working				1			
Income							
(9a) Lowest 33%tile	-0.380	-0.005	0.020	0.312	1		
(9b) Middle 33%tile	-0.003	0.070	-0.014	-0.014		1	
(9c) Highest 33%tile	0.369	-0.071	-0.007	-0.319			1

Notes: This table displays the correlations between the independent variables. Variables (1) to (5) are binary. The numbers for the correlations between these variables represent *tetrachoric* correlation coefficients. The categorical variables (education, work status and income) are recoded into multiple binary variables (one for each answer category). This enables the use of *tetrachoric* correlation coefficients for these variables too. Age is a continuous variable. All of the correlations involving age are *point-biserial* correlations. The work status category "full or part time" includes self-employment. The data comes from the GEM APS survey in South Africa in 2017. The sample consists of 1,017 observations. The correlations are calculated using the statistical program Stata.