Investigating the self-employed: the South African perspective

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Received 18 December 2022
Revised 28 January 2023
6 April 2023
Accepted 4 May 2023

Abstract

Purpose – In a country that is marred by an excessively high unemployment rate, there is a need for policymakers to prioritise entrepreneurship in South Africa. The study aims to explore the determinants of self-employment among the youth in South Africa and in the process answer the following question: Who are the self-employed youths in South Africa?

Design/methodology/approach – Different potential predictors of self-employment empirically used in the literature were used in this study. A probit regression model was used with the binary self-employment variable as the dependent variable and a host of independent variables. A nationally representative survey consisting of youths was used in the analysis.

Findings – The findings show that financial literacy increases the odds of being self-employed. Secondly, the odds of being self-employed increase with age as mature people are expected to have gathered enough networks and wisdom over the years. Thirdly, being male decreases the odds of being self-employed. When it comes to education, the only category that statistically increases the odds of being self-employed compared with no schooling is the tertiary level of education. The other educational levels are all statistically insignificant. From a policy perspective, the government should promote self-employment by investing in financial literacy as well as increasing access to tertiary education among disadvantaged groups.

Originality/value – The study is one of the first, to the best of the authors' knowledge, to examine the characteristics of the self-employed using a nationally representative survey in South Africa.

Keywords Self-employment, South Africa, NIDS, Labour demography, Entrepreneurial behaviour, Youth unemployment

Paper type Research paper

1. Introduction

Faced with unprecedentedly high levels of unemployment currently pegged at 32.6% (Smit, 2021) in the first quarter of 2021, many South Africans are increasingly finding it difficult to be integrated into the formal job market after completing secondary and tertiary education. Of the 82 countries monitored by Bloomberg, South Africa had the highest unemployment rate in the first quarter of 2021 [1]. The scourge of unemployment in South Africa has been particularly dire, especially for the youth. The COVID-19 pandemic amplified a problem that was already deeply embedded in South Africa, as statistics show that the country lost more than 2.2 million jobs in the second quarter of 2021 (Martin, 2021). This, together with other unavoidable developments such as the increasing role of the Fourth Industrial Revolution,

Journal of Entrepreneurship in Emerging Economies
Emerald Publishing Limited
2053-4604
DOI 10.1108/JEEE-12-2022-0376

which is replacing manual labour with machines and robots (Guliwe, 2019), has also decreased the chances of being employed in the formal sector. According to Martin (2021), the recent "free Zuma protests", instigated by disgruntled followers after the arrest of the former president of South Africa for contempt of court, can be attributed to disgruntled unemployed youths than genuine concern for the arrest. It is against this backdrop that alternative avenues for encouraging self-sustainability outside of formal employment should be explored.

Empirical evidence shows that dependence on employment in the formal sector to reduce unemployment is not enough (Kumalo and Kaseeram, 2019). Faced with decreasing chances of landing jobs in the formal market, many people globally are turning to self-employment as the easiest way to generate income as well as secure their future (Baluku *et al.*, 2020). In the recent past, several studies have been done on the notion of self-employment across developed and emerging economies. In an African context, some studies have also been done on the determinants of self-employment, but these studies have mainly concentrated on specific geographical areas such as Ladysmith, Kwazulu-Natal Province (Kumalo and Kaseeram, 2019). Not much has been done to explore the determinants of self-employment using a database that is nationally representative to help the government to prescribe and adopt informed national policies to encourage self-employment among the youth. This study seeks to fill this gap by using the National Income Dynamics Study (NIDS) [2], which is a nationally representative survey and allows findings to be inferred about the population.

The issue of unemployment in South Africa has been a problem that has obsessed the Government of South Africa. Unemployment in South Africa currently sits at 32.6% according to recent statistics (first quarter of 2021) and is higher compared with fellow BRICS countries (Mazorodze, 2020). Because the formal sector cannot absorb every youth who is unemployed, it, therefore, becomes imperative to promote self-employment among the youths so that they can get sustainable incomes, thereby reducing the burden on the formal sector. Burchell and Coutts (2019) state that during high unemployment periods, promoting a culture of self-employment provides the youth with alternative sources of income, which also protects them from social ills that are associated with not being employed. In a South African context, there are, however, gaps regarding the determinants of self-employment among the youth to accurately prescribe the correct policies to promote self-employment among the youth. This study, therefore, seeks to fill this gap by exploring the characteristics of self-employed youth in South Africa.

2. Problem statement

Unemployment among the youth in South Africa is of higher concern, as shown by the 2021 first quarter statistics, which estimate that 46.3% of young people aged 15–34 are unemployed. A report by StasSA (2021) also shows that youth unemployment is high, irrespective of the level of education. This is further supported by national statistics that put graduate unemployment among the 15–24 age group at 40.8% compared to 5.5% for the 35–64 age group. The above statistics show that unemployment is highly concentrated among the youth in South Africa. The high levels of unemployment among the youth in South Africa have also been linked to suicides, drugs and other social ills such as rape and robberies (Mazorodze, 2020). Because of the sluggish economic growth that the country has been experiencing over the years, the formal labour market cannot absorb most of the new entrants into the labour market and self-employment becomes a viable alternative. However, for the government to accurately prescribe the correct policy interventions that encourage and inculcate a culture of self-employment, there is a need to understand the characteristics of the youth who are already self-employed *vis-à-vis* those who are not self-employed. In the

South African context, some studies have examined the characteristics of Black entrepreneurs (Kumalo and Kaseeram, 2019) and women (Lalthapersad-Pillay, 2004).

There is a gap in the literature on the specific characteristics of youth who become self-employed. The youth are particularly important to understand relative to self-employment because they have specific disadvantages that hinder them from competing with other age groups in the labour market, for example, the requirement for previous experience even for recent graduates. Studies that have examined the self-employed youths in South Africa have specifically investigated issues such as the determinants of individual unemployment durations (Ismail and Kollamparambil, 2015), gender inequality in the self-employed youths (Magidimisha and Gordon, 2015) and how the self-employed can be aided by the government (Booth, 1986). However, it is essential to understand the specific characteristics of the youths who are already self-employed so as to draft relevant policies that can engender a culture of entrepreneurship.

3. Literature review

3.1 Self-employment and entrepreneurship

The self-employment phenomenon has been widely explored by different authors, and different definitions of self-employment have also been seen in different studies. According to Blanchflower (2000), "self-employment presents an opportunity for the individual to set his or her own schedule, to work when they like and to answer to nobody". This definition shows that individuals who are self-employed look out for opportunities in the economy and use their networks and resources to supply goods or services in a niche market. The defining characteristic of self-employment is the autonomy that the self-employed have to drive the nature of the business in the direction that they deem viable. There is therefore less burden on the formal employment labour market in an economy where the majority of employable youths are self-employed.

While the focus of this study is on self-employment, it is essential to put it in the context of entrepreneurship. Startiene and Remeikiene (2009) note that a thin line exists between self-employment and entrepreneurship and that in most studies, these concepts are used interchangeably. Rona-Tas and Sagi (2005) distinguished self-employment from entrepreneurship based on household-centred and enterprise-centred businesses. In this vein, self-employment involves engaging in businesses aimed at increasing household income, while the defining characteristic of entrepreneurship is innovation. Effectively, the literature suggests that all entrepreneurs are self-employed, while not all self-employed individuals are entrepreneurs (Startiene *et al.*, 2010). For this study, however, because we do not have specific terminology within the questionnaires that can help us distinguish these terms, we use these terms interchangeably.

3.2 Theoretical framework

The study is anchored on the liquidity constraint theory of entrepreneurship (Evans and Jovanovic, 1989). According to this theory, people with better access to financial capital are more likely to establish new businesses because financial capital makes it simpler to get the resources needed to launch businesses. Blanchflower and Oswald (1998) found evidence consistent with the theory by looking at the impact of receiving an inheritance or gift upon an individual's probability of entering self-employment. They report that individuals who receive a gift or inheritance have increased odds of entering into self-employment. The liquidity constraint theory is appropriate for examining the determinants of self-employment because of several reasons. First, most of the determinants of self-employment that have been empirically examined in the literature can be directly linked to the theory.

For example, the theory explains some of the historically lower self-employment rates among African-Americans (Fairlie, 1999) who have traditionally faced more pronounced liquidity constraints than their White counterparts. Demographic characteristics such as age, education, formal employment, risk aversion and health status can affect the extent to which individuals face liquidity constraints to enter into self-employment. For example, older people would have accumulated more assets and resources and have fewer liquidity constraints; increased health problems may consume an individual's accumulated liquidity, thereby decreasing the odds of being self-employed.

3.3 Determinants of self-employment

This section presents empirical findings on the determinants of self-employment gathered from previous studies. The determinants of self-employment outlined in this subsection include age, education, gender, household income, marital status and gender.

3.3.1 Education. Studies that have examined the impact of education on self-employment have produced inconclusive results. On one hand, several studies have been done that have documented that education plays a crucial role in determining the levels of self-employment (Elert *et al.*, 2015; Humphries, 2017). Humphries (2017) argues that education provides an individual with the requisite skills that are needed to run a successful business. Vlachos (2016) reports that in Greece, though the probability of self-employment increased with education, this was only for post-secondary education but not for university. In the United Kingdom, Rees and Shah (2016) report that the reason why education is significantly aligned with chances of being self-employed is that the more educated are likely to tap into the self-employment opportunities provided by regulating professionals and specialists.

On the other hand, Joona and Wadensjö (2011) report that the likelihood of an educated individual getting into self-employment is low, especially because the labour market usually pays competitive rates for skilled individuals. Butler and Herring (1991) bring racial dynamics to the extent to which the level of education leads to self-employment. They assert that increasing levels of education had a significant effect on the likelihood of self-employment among the White community, while among the Black community, the likelihood was statistically insignificant. They argued that African Americans would rather have salaried jobs that give them security and high earnings as well as assured retirement benefits. In Portugal, Macieira (2009) reports that individuals with low levels of education are more likely to engage in self-employment activities out of necessity than out of opportunity. Because of the inconclusive findings on the effect of education on self-employment, this study hypothesises a significant relationship between education and self-employment without specifically stating the direction of the relationship.

3.3.2 Age. Like education, the effect of individuals' age on the likelihood of getting into self-employment is not conclusive, as there are two diverging strands of literature on this effect. One strand of the literature suggests a significantly positive relationship between self-employment and age as it is presumed that older people are the ones most likely to be self-employed compared with the younger (Halvorsen and Morrow-Howell, 2017). Kibler *et al.* (2015) note that the age of an individual has a bearing on the wealth of that individual. This means that the older a person is, the more the person is expected to have accumulated wealth. Thus, the more wealth accumulated by an individual, the greater the chances of starting a business as the wealth accumulated can be used as start-up capital. Gindling and Newhouse (2013) also note that the older are more likely to be self-employed because of their robust human capital as well as their essential networks built over years, which could be important in deciding whether to be self-employed or not.

Another school of thought departs from the above predictions, as it is presumed that there is a negative relationship between age and self-employment. According to this line of thought, the youth are more likely to venture into self-employment because of the incentives that are advanced by governments in efforts to fight youth unemployment (Minola, Criaco and Obschonka, 2015). Empirically, the above prediction has been supported by Arenius and Minniti (2005), who report that the young are more likely to be employed using samples drawn from the United Kingdom and Mexico. Macieira (2009) reports that young people tend to be concentrated in the world of self-employment because older individuals are usually risk-averse and frequently lack the energy and zeal that are often demanded when one is in self-employment. Because of the inconclusive findings on this variable, this study, therefore, hypothesises a significant relationship between age and self-employment without stating the direction of the relationship.

3.3.3 Marital status. There are empirical studies that have documented a positive relationship between being married and being self-employed. Rees and Shah (1986) contend that marriage provides social capital as it increases the probability of success for a firm. Thus, the married are predicted to have higher chances of engaging in self-employment than those who are unmarried. Tokila (2009) argues that the reason why married people are more likely to engage in self-employment activities is that they are more risk-takers compared with the unmarried, who are usually considered to be risk-averse. Married individuals often have more responsibilities to take care of monetarily and are more motivated to enter into self-employment compared to unmarried individuals. Macieira (2009) also argues that marriage reflects stability and provides a married individual with a spouse's income to fall on in situations where a business fails, which gives married individuals more incentives to engage in self-employment projects compared with their unmarried counterparts. Parker (2005) further supports this view by arguing that in the United States of America, the married are more likely to enter into self-employment because of the need to tap into the knowledge that the other partner has, thereby forming an alliance that is more versatile compared with the unmarried. Thus, this study hypothesises a positive and significant relationship between self-employment and marital status.

3.3.4 Gender. Empirical evidence on the effect of gender on the probability of one entering the self-employment space is also inconclusive. Eddleston and Powell (2012) report that gender plays a fundamental role in determining whether a person engages in self-employment or not. Studies that support the above assertion include Livanos (2009), who reports that men are more likely to enter self-employment than women, and Arenius and Minniti (2005), who report reduced chances of females becoming self-employed. Some countries in which the increased chances of males entering self-employment compared with their female counterparts have been reported include Greece (Vlachos, 2016), the United States of America (Nikolova and Bargar, 2010) and Portugal (Macieira, 2009). Almqvist and Bjornberg (2010) argue that traditionally, entrepreneurship has been viewed as a male-dominated sector and as a result leading to more males being self-employed than females.

On the other hand, Millan *et al.* (2010) contend that studies that document increased participation of males in self-employment activities may be biased because of underestimations, as women are usually categorised as unpaid family workers in national statistics. From a South African context, Kumalo and Kaseeram (2019) report that being female increases the possibility of being self-employed by 57.35% in a study that examined the determinants of self-employment among Black entrepreneurs in Ladysmith, Kwazulu Natal. This study hypothesises a significant effect of gender on the probability of being self-employed without stating the direction of the relationship.

3.3.5 Financial literacy. One of the earliest definitions of the concept of financial literacy can be attributed to Noctor *et al.* (1992), who defined financial literacy as "the financial knowledge that leads to informed decision making". Financial literacy has been empirically linked with different outcomes such as stock market participation, retirement and savings. Recent studies are increasingly exploring the impact of financial literacy on entrepreneurial tendencies as well as the likelihood of being self-employed. Using a sample of German respondents, Ćumurović and Hyll (2019) report a positive relationship between financial literacy and self-employment. It is expected that knowledge of financial skills such as interest rate compounding as well as issues such as inflation and risk diversification is essential for one to establish a viable business. This study, therefore, hypothesises a significant and positive relationship between financial literacy and the probability of being self-employed.

3.3.6 Health problem. A significant factor that can prevent entry into self-employment is poor health. Until the 1990s, some authors (Borjas, 1986) included this dimension in their models by using a dummy variable with a value of 0 if health was not a constraint on becoming self-employed. There are typically two opposite outcomes for two groups of authors when using empirical studies. According to the first (Cahill *et al.*, 2013; Parker and Rougier, 2007), there is a negative correlation between poor health and being self-employed, while the second (Jones and Latreille, 2011; Pagán-Rodríguez, 2011) asserts the reverse. For the first category, poor health increases the likelihood of switching to self-employment because of the increased chances of coping with the demands of formal employment.

3.3.7 Risk aversion. The ability to tolerate risk is a personality trait that is important in determining an individual's willingness to enter into self-employment. The decision to work for oneself is a risky one, and thus the willingness of the individual to incur risks is important (Wu and Knott, 2006). Less risk-averse individuals are more inclined to work for themselves (Baluku *et al.*, 2021). However, some studies claim there is no clear connection between risk aversion and self-employment (Cramer *et al.*, 2002). In this study, we hypothesise a statistically significant association between risk aversion and self-employment.

3.3.8 Environment. Another individual determinant of self-employment is the environment that an individual resides in, whether it is urban or rural. It is a factor that could have a significant impact on an individual's decision to work for themselves. Rural areas are expected to have higher unemployment rates than metropolitan areas. Therefore, based on the recession-push theory (Brünjes and Diez, 2013), which views unemployment as a push factor for entering self-employment, we believe that people are more drawn to self-employment, especially to co-operatives, in rural areas (Pérotin, 2006). In a similar vein, urban areas are characterised by high business density, well-established businesses and fierce competition (Phillipson *et al.*, 2019). Therefore, integrating into urban markets will probably be more challenging for cooperatives and small firms (Audretsch and Fritsch, 1999). On the other hand, according to Faggio and Silva (2014), higher rates of self-employment strongly and positively correspond with the development of new businesses and innovations in urban regions but not in rural ones. We, therefore, hypothesise a statistically significant association between self-employment and the environment that individuals reside in.

4. Research methodology

4.1 Research design

A positivistic research paradigm guided the study's execution. The investigation was informed by the philosophical views of objectivism and empiricism in terms of ontology and epistemology. A cross-sectional survey methodology with a quantitative foundation was employed. A quantitative research design was particularly chosen because of its ability to

infer results from the population. A quantitative research design can also be replicated under different conditions.

4.2 Data

The data used in this study are sourced from the South African NIDS [3], which was the first nationally representative panel delete study to be conducted in South Africa. The NIDS is the brainchild of the Department of Planning, Monitoring and Evaluation (DPME) in South Africa and is implemented by the Southern Africa Labour and Development Research Unit (SALDRU) based at the University of Cape Town's School of Economics. NIDS currently has five waves, with the initial wave having been conducted in 2008 (other waves are spaced by two years), while the most recent wave was conducted in 2017. The NIDS uses a stratified two-stage cluster sample where 400 out of the 3000 primary sampling units (PSUs) with approximately 25 households in each are randomly selected for inclusion (Tomita *et al.*, 2015). Two clusters of the 12 dwelling units from each PSU were drawn (Southern Africa Labour and Development Research Unit, 2017).

While the survey currently contains five completed waves, some variables used in the study were only introduced during the last wave of the survey. Thus, only the last wave of the survey is used for this study, which is also the most recent data. According to Daniels *et al.* (2020), the attrition of respondents across the NIDS surveys has been concentrated among high-income earners. The most recent wave of NIDS (2017) coincided with a top-up sample that targeted high-income households, thereby further strengthening the rationale for using Wave 5 only. This study adopts a broader definition of the youth as prescribed by the National Youth Policy, which defines the youth as any person between the ages of 14 and 35. Though legally, employers can employ persons above the age of 15, for those individuals between 15 and 17 years, employers should ensure that this does not interfere with their school-going activities. As a result, this study excludes all persons below 18 years, ultimately leaving a database of those aged between 18 and 35 years. The final database contains 10,961 respondents, including the self-employed and those who are not self-employed.

4.3 Variables

The study uses a host of independent variables that have been empirically confirmed as predictors of self-employment in the literature. These variables include age, education, gender, race, financial literacy and employment status. A list of the control variables used in this study as well as their derivation is shown in Table 1.

4.4 Econometric model

The study uses a Probit regression model to test the association between self-employment and the independent variables hypothesised to influence self-employment. The Probit model made it possible for the researcher to determine which set of variables enhances the likelihood that the dependent variable will have a value of 1 (i.e. becoming self-employed). We opted for the Probit model because our dependent variable was dichotomous and did not use a logistic model because the former is sensitive to outliers, though both methods have been found to perform equally well under multivariate normality (Jose *et al.*, 2020). Several studies investigating the determinants of self-employment have used Probit models and/or logistic models (Dvoulety, 2018; Kumalo and Kaseeram, 2019). The following specification was used to model the relationship between the dependent variable and the independent variables:

Variable Group	Variable	Description	Nature
Dependent variable	Self-employment	Whether the respondent is self-employed or not	Dummy variable: It takes a value of 1 if the respondent is self-employed and "0" if not self-employed
Basic individual determinants	Age	Number of years lived by each individual	Continuous variable
	Gender	Sex of each respondent	Dummy variable: It takes a value of 1 if the respondent is male and "0" otherwise
	Marital status	Whether a respondent is formally married or not	Dummy variable: It takes a value of "1" if formally married or "0" otherwise
	Financial literacy	The financial literacy score of each individual is computed using the Bartlett method as described in Appendix 1	Continuous variable
	Race	The race of the respondents categorised as Black, Asian/ Indian, White and other	Categorical variable: It takes a value of "1" if Black, "0" otherwise; "1" if Asian/Indian, "0" otherwise; "1" if White, "0" otherwise; "1" if other, "0" otherwise Reference category: Black
	Environment	Shows the geographical area the respondents reside	Categorical variable: It takes a value of "1" if an individual stays in an urban area or "0" otherwise.
Human capital	Education	Represents the highest level of education attained by the respondents and categorised into no education, primary education, secondary education and tertiary education	Categorical variable: It takes a value "1" if no education, "0" otherwise; "1" if primary education, "0" otherwise; "1" if tertiary education, "0" otherwise Reference category: No education
Personality	Risk aversion	Indicates whether an individual is risk averse or not	Categorical variable: Question 5 of the financial literacy questions (Appendix 1) is used and an individual is assigned "0" if they are risk-averse or "1" otherwise Reference category: Risk-averse
Health condition	Health problem	Indicates whether an individual has a health problem or not	Categorical variable: It takes a value of "0" if a respondent professes to have no health problem or "1" otherwise Reference category: No health problem

Table 1.
List of variables and their derivation

Source: Authors' own work

$$Self.employed \quad [1,0] = \alpha_1 + \beta_1 Gender + \beta_2 Age + \beta_3 Education + \beta_4 Race + \beta_5 Net.income + \beta_6 Marital.status + \beta_7 Financial.literacy + \beta_8 Environment + \beta_9 Health.problem + \beta_{10} Risk.aversion + \varepsilon$$

where the *Self_Employed* [1, 0] is the probability of being self-employed, α_1 is a constant, ε is the error term and the rest of the independent variables are as defined in Section 6.2. A quantitative study needs both reliability and validity to have quality controls. Within the NIDS data, the

majority of reliability factors have been controlled for. The NIDS data strives to have a valid subject selection because it tries to provide a representative sample of South African households. The sample selection of the NIDS data, which guarantees that the same households are in each wave of the study, has taken into account the mortality of subjects. Additionally, the methods and procedures used for data gathering appear to have produced reliable data (Brophy *et al.*, 2018).

5. Results and discussion

This section presents the results from the empirical specification outlined in Section 4.4. Before the presentation of the results, Table 2 shows the distribution of the sample by selected variables used in the study.

Variable	Observations	Percentage
Gender		
Male	6,071	55.38
Female	4,890	44.62
Self-employed		
No	10,574	96.59
Yes	373	3.41
Race		
African	9,269	84.19
Coloured	1,374	12.48
Asian/Indian	128	1.16
White	237	2.15
Other	2	0.02
Marital status		
Married	9,300	84.85
Not married	1,661	15.15
Age groups		
<20	684	13.72
20–24	3,391	32.33
25–29	3,014	28.74
>30	2,644	25.21
Education		
No schooling	684	6.27
Primary	2,269	72.63
Secondary	17	0.16
Tertiary	2,269	20.78
Other	53	0.49
Environment		
Rural	5,197	47.41
Urban	5,764	52.59
Health problem		
NO	10,859	99.18
YES	89	0.82
Risk averse		
No	4,974	45.41
Yes	5,980	54.59

Source: Authors own work

Table 2. Distribution of the sample according to the variables

Table 2 shows that males constituted a greater percentage of the sampled respondents (55.38%) compared with women (44.62%). Those who were self-employed only constituted 3.41% of the total sample, showing the low uptake of self-employment opportunities by South African youth generally. In terms of education, Table 2 shows that the majority of the respondents had primary education (72.63%) as their highest educational qualification, followed by those who had tertiary education as their highest qualification (20.78%). As expected, the majority of the respondents were Black Africans (84.19%), followed by the coloured population with a percentage of 12.48%. Most of the respondents (52.59%) stay in urban areas compared with the percentage that stay in rural areas (47.41%). Table 3 presents the results from the empirical model deployed to examine the determinants of self-employment among South African youths.

Variable	Coefficients		Odds ratio	Marginal effects	
	Estimate	*z*-Value	Odds	Marginal effects	*z*-Value
Gender (Female)					
Male	−0.3595 (0.0544)	−6.604***	0.6980	−0.0159 (0.0078)	−2.0381**
Race (Black African)					
Coloured	−0.1382 (0.0967)	−1.429	0.8708	−0.0052 (0.0041)	−1.2690
Asian/Indian	0.0762 (0.2381)	0.3200	1.0791	0.0034 (0.0117)	0.2938
White	0.4762 (0.1408)	3.3820***	1.6099	0.0323 (0.0194)	1.6653**
Other	1.4812 (0.9384)	1.578	4.3980	0.2437 (0.3112)	0.7832
Marital status (not married)					
Married	−0.0926 (0.0717)	−1.290	0.91156	−0.0041 (0.0039)	1.4232
Age group (<20)					
20–24	0.4673 (0.1529)	3.057***	1.5958	0.0239 (0.0141)	1.698**
25–29	1.0473 (0.1529)	7.004***	2.8499	0.0767 (0.0337)	2.2748**
≥30	1.2951 (0.1505)	8.605***	3.6513	0.1172 (0.0465)	2.5205***
Education (no schooling)					
Primary	0.2146 (0.1296)	1.656	1.2394	0.0081 (0.0059)	1.3701
Secondary	−3.4489 (0.8172)	−0.0650	0.0317	−0.0175 (0.0015)	−11.215***
Tertiary	0.4965 (0.1356)	3.913***	1.6430	0.0289 (0.0163)	1.7704*
Other	0.4997 (0.5493)	0.910	1.6483	0.0353 (0.0603)	0.5862
Financial literacy	0.2252 (0.1170)	1.924***	1.2525	0.0094 (0.0066)	1.4232
Employed (no)					
YES	0.9238 (0.0749)	12.244***	2.5187	0.0298 (0.0144)	2.056**
Health problem (no)					
YES	−0.2427 (0.3345)	−0.7260	0.78443	−0.0079 (0.0091)	−0.8687
Environment (rural)					
Urban	0.0913 (0.0554	1.649**	1.0956	0.0038 (0.0029)	1.3030
Risk aversion (yes)					
NO	−0.1810 (0.1503)	−1.204	0.8343	−0.0077 (0.0075)	−1.0271
Constant	−3.4708 (0.2105)	−15.047***	0.0310		

Table 3.
Results from the empirical model

Notes: *, ** and *** denote statistical significance at the 10, 5 and 1% level, respectively; numbers in parentheses show standard errors
Source: Authors' own work

The results from the probit regression model shown in Table 3 show that some variables were statistically significant at the conventional levels of significance while some were not significant. First, the results show that gender is a significant predictor of the probability of being self-employed. The coefficient of gender is negative ($\beta = -0.3595$) and statistically significant at the 1% level. Because the reference category for gender is male, the results show that being a male decreases the odds of being self-employed by 0.6980 or about 30.20%. This shows that females are more likely to be self-employed than men. These findings are in line with a study by Kumalo and Kaseeram (2019), which reports that being female increases the odds of being self-employed by 57.35%. However, Kumalo and Kaseeram's (2019) sample included Black entrepreneurs of all age groups based in Ladysmith, KwaZulu Natal, compared with this study, which used a nationally representative sample of youths across South Africa. These findings are consistent with Blanchflower (2000), who asserted that mothers were more likely to use self-employment to balance work and family life. The results might also be a reflection of discrimination by gender in the workplace where men have increased chances of being formally employed than women. This might then push women towards self-employment as a coping mechanism to generate income. Also, women have been traditionally found to have lower qualifications than their male counterparts because of some beliefs, for example, the belief that families should send the boychild to school and not the girlchild. This could make women less competitive in the labour market and end up seeking opportunities for self-employment.

When it comes to race, the categories that were used in this study were Black Africans, coloured, Asian/Indian, White and Other and the reference category was Black Africans. The coefficient for Whites is the only category that is statistically significant at the conventional levels of significance. Compared with Black Africans, Whites had increased odds of being self-employed by 60.99%. The other races did not have significantly different odds of being self-employed compared with Blacks. The results resonate with Butler and Herring (1991), who found that in America, African Americans would rather have salaried jobs that give them security and high earnings as well as assured retirement benefits compared with being self-employed in comparison with their White counterparts. Manyande (2006) also reported that in South Africa, Blacks and coloured people were less likely to be self-employed than their White counterparts. The results reflect the gaps in self-employment between Black Africans and Whites that have been documented in other studies. The gap in the odds of being self-employed for Whites *vis-à-vis* Black Africans also reflects the income inequalities between the groups that have been documented in other studies. Thus, it could be possible that Black South Africans are less likely to be self-employed compared with their White counterparts because of the lack of capital to enter into self-employment. A recent study by Fourie (2019) shows that even in terms of profitability, self-employment by Whites generates more profit compared with Black Africans. This increases the potential of the self-employed Whites to accumulate more liquidity, which can be further used to expand businesses and thereby sustain the gaps between the businesses owned by Blacks and Whites.

The effect of age on the probability of being self-employed is statistically significant across all the age categories, with the <20 age group being the reference category. Interestingly, the odds of being self-employed increase with age, from 1.5958 to 2.8499 to 3.6513 in the 20–24, 25–29 and >30 age groups, respectively. It can also be noted that the estimates of the age categories become more statistically significant as we move to higher age categories. This corroborates Kumalo and Kaseeram (2019), who reported similar findings. As people grow older, they are likely to find it easy to engage in self-employment

activities that arise from increased networks as well as increased exposure that comes with increased age. Also, older people could have accumulated the appropriate financial and human capital necessary to start a new venture compared with younger people.

On the level of education, the only category that is statistically significant at the conventional levels of significance is tertiary education. The reference category includes those respondents who did not have any schooling background. Compared with the reference category, having tertiary education increases the odds of being self-employed by 64.34% compared with having no schooling at all. The results are in line with Manyande (2006), who reported tertiary education as the only significant category that increased the odds of being self-employed compared with those with no schooling. The results echo the argument made by Koellinger (2008), who postulates that higher education levels are needed to enable individuals to spot gaps in the market and, in the process, establish viable businesses. The results generally show that the odds of being self-employed are not statistically significant between those with no schooling on the one hand and those with primary schooling and secondary schooling on the other hand. It seems that tertiary education provides candidates with the skills needed to be self-employed compared with the exposure gained from primary and secondary levels of education. Some studies have also documented that opportunities for self-employment have been particularly amplified in the knowledge economy (Tiwari *et al.*, 2020). This sector of the economy is more conducive for individuals who have higher qualifications, as technological advancements have increased opportunities, especially using the internet. This could explain the reason why tertiary education holders have increased odds of being employed compared with their counterparts with no school at all.

Financial literacy has become one of the most researched phenomena in regard to self-employment. Table 3 shows that the financial literacy variable, which is a continuous variable, has a positive coefficient and is statistically significant at the 1% level. This shows that an additional unit increase in financial literacy increases the odds of being self-employed by about 25%. Thus, financial literacy is a requisite as it allows potential candidates for self-employment to know the basics of financial management such as interest compounding, inflation and other financial concepts that are essential for business. The results show that national programmes to promote financial literacy among the youth, other than ensuring financial literacy, can also help encourage self-employment. Table 3 also shows that being formally employed increases the odds of being self-employed by about 148% compared with not being employed. This suggests that those who are formally employed are more likely to resort to self-employment of some sort. This could be motivated by the ability of those who are already formally employed to use the salaries of formal employment as capital in self-employment. Also, those who are already formally employed are likely to get loans from banks to invest in self-employment because they are already getting meaningful income, which can be used by banks as collateral for loans. That the formally employed are more likely to be self-employed refutes the recession-push theory, which argues that it is unemployment that pushes individuals to self-employment. This shows that individuals might be encouraged to enter into self-employment because they have the capital rather than they are currently unemployed. As a result, it is essential to ensure that if the currently unemployed are to be enticed into self-employment, more support should be given in the form of capital, capacity-building programmes and access to markets.

Health problems and risk aversion do not have a statistically significant relationship with being self-employed. This shows that these factors are not important in determining whether an individual becomes self-employed or not. Because the results have already

shown that those who are likely to become self-employed are mostly those who are formally employed, it might reflect that the nature of the business might be too casual for a person to leave formal employment, and hence risk aversion or the presence of a health problem might not be important for such ventures. Also, the insignificance of risk aversion could be a signal that the self-employed in our sample are actually not entrepreneurs for the latter are usually less risk averse. Finally, the environment variable shows that residing in an urban area increases the odds of being self-employed by about 10% compared with residing in rural areas. This resonates with Faggio and Silva (2014), who report that urban areas are centres of innovation compared with rural areas and are therefore likely to witness an increased likelihood of being self-employed. The dense population in South African urban areas provides easy access to markets, ideas, networks and access to funding that make these places cradles of new business ventures.

6. Implications of the study

The findings from this study have various policy implications for different stakeholders. Firstly, it is recommended that the government should invest more in tertiary education among the youth to make sure that they get the exposure that is needed for them to be self-employed. Secondly, more education should be directed towards specific groups so that they are financially literate, thereby increasing their odds of being self-employed. Black Africans can be particularly targeted when they are sponsored to attend financial literacy training sessions because they are the racial group with the lowest odds of being self-employed. While studies have shown that women are grossly discriminated against in terms of their access to formal job opportunities, this study has shown that women have increased odds of being self-employed than their male counterparts. The government can therefore allocate more resources towards supporting self-employment among women than men so that the inequalities between these two groups in the formal and informal labour markets can be narrowed. Finally, institutions of higher learning should incorporate entrepreneurship in their curricula because the findings have shown that those with tertiary education have increased odds of being self-employed compared with those with no schooling.

7. Conclusions

The study sought to explore the determinants of self-employment among the youth in South Africa and, in the process, answer the question; Who are the self-employed youths in South Africa? Different potential predictors of self-employment empirically used in the literature were used in this study. A probit regression model was used, with the binary self-employment variable as the dependent variable and a host of independent variables. The findings show that financial literacy increases the odds of being self-employed. Secondly, the odds of being self-employed increase with age as mature people are expected to have gathered enough networks and wisdom over the years. Thirdly, being male decreases the odds of being self-employed. When it comes to education, the only category that statistically increases the odds of being self-employed compared with no schooling is the tertiary level of education. The other educational levels are all insignificant. Health and risk aversion are insignificantly associated with self-employment, while individuals who stay in urban areas have increased odds of being self-employed than their rural counterparts. The results of the study broadly concur with the liquidity constraints theory of entrepreneurship in that the variables significantly associated with increased odds of being self-employed were variables associated with more wealth and income (e.g. tertiary education, Whites, age and urban dwellers).

8. Limitations and future research directions

Though the study provided some new insights on issues surrounding self-employment in a high-unemployment emerging economy, there are various limitations that the reader should take note of when attaching meaning to the results. First, the study only used the last wave (Wave 5) of the NIDS data because some of the important variables used in the study did not exist in the previous waves. The last wave of NIDS data was also last updated in 2017 and might not reflect the current state of affairs as far as self-employment is concerned. However, the NIDS data provides the most recent and comprehensive source of data to undertake a study like ours. Other studies have also used this approach of restricting the data to the last wave to incorporate as many variables as possible (Nyakurukwa and Seetharam, 2022). Future studies can also expand this line of research by tackling other issues related to self-employment in South Africa. First, understanding the characteristics of the self-employed and expecting this to reduce unemployment is not enough. There is a need to investigate the success rates of business concerns that are started by the self-employed (Millan *et al.*, 2010). This will help governments to craft the appropriate policies to inculcate a culture of entrepreneurship that will ultimately help reduce pressure on the labour market. Finally, this study has examined the individual and personality characteristics of self-employed youth. Future studies could expand this to include the firm characteristics of small businesses started by the self-employed using the Survey of Employers and Self-Employed data set.

Notes

1. www.aljazeera.com/economy/2021/8/24/south-africas-unemployment-rate-is-now-the-worlds-highest
2. The survey can be accessed on www.nids.uct.ac.za/nids-data/data-access
3. The adult questionnaire can be accessed at www.nids.uct.ac.za/nids-data/documentation/questionnaires/wave-5

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Appendix 1. Computing the financial literacy score

Five questions are used to measure financial and four topics are incorporated in the five financial literacy questions used in the NIDS survey. These four topics are numeracy, inflation, compound interest and risk diversification. All four topics are allocated a question each except for the compound interest topic which is allocated two questions. The financial literacy questions included in the last wave of the NIDS survey are shown below:

(1) Numeracy: Suppose you need to borrow R100. Which is the lower amount to pay back: R105 or R100 plus three percent?
- R105
- *R100 plus 3%*
- Don't know
- Refused

(2) Inflation: Suppose over the next 10 years the prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today or more than you can buy today?
- Less
- *The same*
- More
- Don't know

(3) Compounding 1: Suppose you put money in the bank for two years and the bank agrees to add 15% per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money in both years?
- *More*
- The same
- Don't know
- Refused

(4) Compounding 2: Suppose you had R100 in a savings account and the bank adds 10% per year to the account. After five years, if you did not remove any money from the account, would you have. . .
- *More than R150*
- Exactly R150
- Less than R150
- Don't know
- Refused

(5) Risk diversification: Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?
- One business or investment
- *Multiple businesses or investments*
- Don't know
- Refused

The financial literacy index for this study is constructed following van Rooij *et al.* (2011) and applied by Nyakurukwa and Seetharam (2022). For each question, a dummy variable is created for respondents who correctly answer the question. Factor analysis is then performed on those binary

variables using the iterated principal factor method. Because the interest compounding topic has two questions, the study follows Nanziri and Olckers (2019) by considering a respondent to have correctly answered on the compounding topic in at least one of the two questions. One factor is retained with the following factor loadings.

Basic literacy questions	Factor loadings
Numeracy	0.27
Interest compounding	0.28
Inflation	0.19
Risk	0.63

Note: Given the factor loadings in Table 1, factor scores are then obtained using the Bartlett method (Bartlett, 1937)
Source: Authors' own work

Table A1. Factor loadings corresponding to the basic literacy questions

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