SOCIOLOGY | RESEARCH ARTICLE

Evaluating the determinants of the perceptions of underemployment among young university graduates: A South African University case

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Abstract: There has been a wave of significant changes in labour markets worldwide, which has seen the pace of secure and stable employment decline significantly. South Africa has not been saved from this wave of change. Besides the country’s high unemployment rate, both at the national level and among the youth by global standards, non-standard employment such as casual and part-time work has been rising. Simultaneously, advanced education has additionally demonstrated no guarantee of employment. Rising labour market instability has therefore necessitated exploring alternative measures of labour underutilisation over and above the typical measures of unemployment. This is a critical study, particularly in South Africa, where youth’s extreme lack of employment opportunities is likely to push them towards non-standard forms of employment. Hence the primary objective of the study was to analyse underemployment among young university graduates in South Africa. The study followed a quantitative research approach that entailed primary data collection through a survey. Firstly, descriptive statistics of the frequency distribution for discrete data. Secondly, an ordinary least squares regression model was employed where three different types of regressions were used to analyse the determinants of the three types of underemployment. The main findings show race and marital status as significant factors determining underemployment status. The rest of the results are discussed, and conclusions and recommendations are drawn to show how dynamic youth labour markets are in

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PUBLIC INTEREST STATEMENT

This study highlights the importance of underemployment among young people given the changing labour markets around the world. Higher education is at the forefront in this regard since it is typically believed to improve labour market outcomes. Even though this is true, the manuscript emphasises that the aim should not just be about getting young graduates into employment, but ensuring that they are in good jobs. As seen in the study, a substantial challenge is in the means by which to encourage a smooth and successful transition for young graduates from entry-level employment to more stable and productive jobs. This is very important for African countries since many of them have erratic youth labour markets, where young people are mostly underutilised.
developing countries. The paper looks at associations and makes no causality claims.

Subjects: Labour Economics; Development Economics; Higher Education

Keywords: Underemployment; graduate underemployment; Subjective Underemployment; university graduates; South Africa

1. Introduction

Scholars from various disciplines have assessed the incidence of low-quality, inferior jobs, which all identify with work that results in underutilised labour in some way. For many years, research has focused on unemployment as a labour market component (Domfe et al., 2013, p. 33). However, as Beukes et al. (2017, p. 53) maintained, the research focus has shifted from differentiating between employment and unemployment to multi-dimensional labour market outcomes. As Mitchell and Carlson (2002) argued, there are other possibilities of labour resources wastage that are not captured by the unemployment rate, especially given the fact that labour markets consistently experience variations between the demand for and supply of labour (Kaufman & Hatchick, 1999, p. 2).

This occurs in various ways; for instance, there are times where available labour resources are not fulfilled, which often means it is underutilised (Baum & Mitchell, 2009). At other times, the supply of labour exceeds the demand for labour, hence unemployment. On the other hand, there are instances of hidden unemployment, which is often experienced by discouraged workers, who, according to Wilkins and Wooden (2011), would prefer to be in employment although they are outside the formal labour market (perhaps due to weak employment opportunities amongst others). This is the phenomenon Robinson (1936, p. 225) devised as “disguised unemployment” to reflect that some jobs have economic characteristics that lie between fair employment and unemployment.

Most employers seem to be in favour of casual/part-time work agreements because of the flexibility and cost reductions they provide related to labour regulations (Brown et al., 2009, p. 8). According to the ILO (International Labour Organization, 2020), young people have become increasingly exposed to informal, non-standard and less secure forms of employment over the years. These kinds of jobs can have adverse effects on incomes and benefits such as health and pension protection. The “2020 Global Employment Trends for Youth” report that globally, an estimated 30% of young people remain in moderate to extreme poverty despite having employment, and the statistics are worse in sub-Saharan Africa (ILO (International Labour Organization), 2020). These young workers are not in ‘good jobs, and as a result, they need “better” jobs (Sugiyarto, 2007). More statistics show that labour underutilisation is higher among young people than adults, with Africa constituting a larger share globally (ILO (International Labour Organization), 2020, p. 37). Hence the African Development Bank (AfDB), in its 2019 report on creating decent jobs, strategies, policies and instruments, argues that Africa is confronted with employment rather than an unemployment problem (African Development Bank, 2019). This implies that jobs are there, but the problem is the quality of the available jobs, which are often characterised by informality, precarity, instability and insecurity. This is a concern for economists, as labour underutilisation indicates inefficient labour market outcomes as loss of output can never be regained. These views are supported by Beukes et al. (2017, p. 35), who reiterate the lost productive capacity and national income through underutilisation, raising concerns about social exclusion for the affected individual.

The effects of other forms of labour underutilisation, particularly underemployment, are often underestimated due to inadequate research on the topic (Li & McCully, 2016, p. 1). Hence a grey area exists regarding a thorough understanding of other forms of underutilisation other than unemployment. This has fueled an examination of what underutilised labour means, especially given that the world is experiencing transforming labour markets where the prospects for a decent living wage and stable employment are not certain (Allan et al., 2017, p. 94). Therefore, it becomes
essential to refocus on the other forms of labour underutilisation within this study. This is an important study, particularly in South Africa, where an extreme lack of employment opportunities for young people and graduates is likely to push them towards a non-standard form of employment. Against this background, this study aims to analyse underemployment amongst young graduates in South Africa.

2. Literature review

2.1. Understanding underutilisation and underemployment
For decades, the unemployment rate has been one of the most widely reported single indicators of how an economy performs (Herrera & Merceron, 2013, p. 84). This meant that other employment statuses such as disguised unemployment hardly ever received public attention. Since the 1960s, the International Labour Organization (ILO) has had progressions of labour statistics conferences to develop better measures and understand the various kinds of underutilisation. As indicated in the 18th International Conference of Labour Statisticians (ICLS), the now broader underemployment model was actualised to cope with the unemployment rate’s limitations as an instrument used to measure underutilisation in the labour market. Figure 1 shows the revised three components of labour underutilisation and their sub-components.

As can be seen in Figure 1, labour underutilisation contains unemployment and other types of labour slack. At least one form of underemployment (i.e. time-related, income-related and skills-related) can be observed under each component of labour underutilisation, as indicated in Figure 1. Broadly, time-related underemployment, low remuneration and skills mismatch are subsets of employment. At the same time, discouraged workers and other inactive persons within the labour force are subsets of the non-economically active. Therefore, based on figure 1, underutilisation goes beyond the narrow notion of unemployment to include other types of inadequate employment or other forms of disequilibrium from the labour market. On the other hand, underemployment is seen as a more expanded form of underutilisation, a subcategory of the LUF (Collins & Long, 2015).

2.2. Empirical literature findings
A number of studies have been done on underemployment. Specific factors may constrain an individual’s ability to find jobs that make full use of their education, training, skills, and experience. Gender, specifically being female is seen as one of the crucial determinants of underemployment.
and is associated with intermittent work (Cam, 2014; Wilkins, 2006). To better understand this, gender has in fact been linked with marital status or family structure, where literature reveals that a woman’s marital status influences her behaviour in the labour market (Angrave & Charlwood, 2015). Family responsibilities may constrain the labour force behaviour of married women unlike that of single women (De Anda & Sobczak, 2011). For instance, due to family and home responsibilities and even religion, some women may be forced to seek employment with less hours than they desire, consequently also earning less income (McKee-Ryan & Harvey, 2011). However, some literature argues otherwise (see, Thompson & Fiorito, 2012), with the relationship between under-employment and gender not statistically significant. On the other hand, Sackey and Osei (2006) found that being married reduces the probability of being underemployed. At times, some women may prefer part-time work while men may want to work more hours (Wilkins, 2007).

Career guidance is another factor that has been connected to underemployment, where its role has been effective functioning of labour and work. The longer young people stay in education and training and the more complex labour markets become, the more important career guidance becomes (Musset & Kurekova, 2018). According to Cedofop (2016) career guidance can provide labour market and economic information that can assist students into becoming better career choices that will contribute to their own development and better employment prospects. It could prevent many students from graduation into courses irrelevant to the needs of the labour market, thereby becoming prone to vulnerable employment. For instance, Oluwajedolu et al. (2015) found that there is a perception among employers that certain HEI fail to hold regular career exhibitions and this could point to the reason why many graduates are unemployed. In other studies, such as Cape Higher Education Consortium (2013) more than two-thirds of students had never made use of career guidance facilities.

Discriminative and bias practices in the labour market are likewise amongst the determinants of underemployment and often increases the likelihood of underemployment as maintained by De Jong and Madamba (2001). For instance, during the employment screening process, Glyde (1977) argued that, if a candidate’s work history demonstrates various occupation changes (also known as job hopping) or long lengths of joblessness, their human capital may be undervalued, and thus end up being underemployed. Wilkins (2006) finds comparable results, that being without work for a long time fuels the chances of being underemployed.

Age is additionally a determinant of underemployment, where young people are increasingly inclined to be employed part-time on fixed term contracts (Reynolds, 2012). While, in some cases, being older is associated with higher underemployment (Erdogan & Bauer, 2009). In fact, the conflicting research suggests that the relationship between underemployment and age follows a U-shaped pattern, suggesting that underemployment tends to be present amongst both young and older workers (McKee-Ryan & Harvey, 2011). Tasci (2005) and Sackey and Osei (2006) on the other hand observed an inversely U-shaped relationship between underemployment and age, suggesting that the chances of underemployed initially increases with age and then declines. Generally, young peoples’ earnings are limited at the beginning of their careers since employment prospects seem to become better as they age. In addition to earning low-income, their earnings prospects are also as limited suggesting a lack of economic mobility (Ranchood, 2013).

Race is also another factor associated with underemployment, where non-white workers in comparison to their white counterparts have been found to have the highest probability of being underemployed (Bell & Blanchflower, 2013). A possible factor that can explain this is that some racial minorities (blacks in most cases) often follow courses with lower job market demand (Moleke, 2010), which is why study choice may add to the probability of being in underemployment (Caroleo & Pastore, 2013).

Literature also finds the geographical location as another potential source of underemployment (Jensen et al., 1999). According to Stéphane (2019) individuals who are from least developed regions are more likely to be underemployed regardless of whether they live in urban or rural
areas. This then relates to the economic sector in which the worker may work. Underemployment seems to be high in rural localities, where agriculture is the main source of sustenance (Pratomo, 2015). This finding is driven by the nature of not so predominant economic activities in these localities. Even when workers from these non-metro areas are already underemployed, they are still less likely to become adequately employed (Denu et al., 2005). On the contrary, Ansah (2013) found underemployment to be more prevalent in urban areas than rural areas. Hence, various contributing factors combined with economic, social, and geographic characteristics make underemployment unique to specific areas.

Underemployment is also triggered by job loss where those without jobs may be forced to accept any kind of job, even when they may be overqualified for it or it is inferior to their previous job. This view is supported by McKee-Ryan et al. (2005) who argue that at times, job loss creates an involuntary and an unexpected break to a career, consequently resulting in reduced earnings over time (Theunissen et al., 2011). The argument here is that a job loss results in mental and psychological stress and this distress according to Wanberg (2012) will be subsided by reemployment. Consequently, people who are currently without employment will attempt to find another job at the earliest opportunity as staying unemployed will exacerbate the distresses. Verbruggen et al. (2015) found that when laid-off individuals were able to find new jobs, these jobs were often with large reductions in wages or resulted in employment in a lower or inadequate job, leaving these workers underemployed.

Underemployment is likewise determined by years of work experience. Individuals employed with less working experience such as young people could be reluctantly underemployed, while those with longer years of experience may be the more elderly workers who work shorter hours as they are approaching retirement (Beukes et al., 2017). Underemployment in the form of being over educated was also found to be prevalent amongst young workers with limited working experience (Fleming & Kler, 2008).

3. The South African youth employment situation
Youth employment creation is a very contentious issue not only in South Africa but across the world. The “2020 Global Employment Trends for Youth” reports that since the 2009 Global Recession, the number of high-skilled employment has not been able to keep up with the increased number of graduate labour force participants (ILO (International Labour Organization), 2020). In South Africa’s case, the week employment creation represents a fundamental challenge mainly connected to years of established lethargic economic performance, proven to be systemic (Cloete, 2015, p. 513). Unemployment remains very high according to global standards, particularly amongst young people, further fuelling poverty and high inequality. In the first quarter of 2021, unemployment rates among young people (15–34 years) stood at 46.3%, with those in the 15–24 age category experiencing extreme unemployment rates of 63% (Stats SA (Statistics South Africa), 2021). Young first-time work-seekers are confronted with difficulties securing employment and gaining access to the labour market (Leibbrandt et al., 2010, p. 5). The country’s labour market has been characterised by uncertainty and volatility. In light of these conditions, quality employment and decent wages have proved essential and necessary. However, existing labour market conditions have not been conducive to this feat (Mncayi & De Jongh, 2017, p. 121). Although significant strides have been made to grow employment and improve economic growth, such increases have been unable to keep up with the persistently rising labour supply (Moleke, 2010, p. 88). According to Schoeman et al. (2010, p. 286), the fact that an economy and the labour market is not able to absorb all its excess labour and has not been able to do so for more than 20 years, and becomes more capital intensive as a result is an indication of structural challenges, which is the case in South Africa.

Following these enormous economic employment challenges, education has proven to become a significant force against unemployment (Leibbrandt et al., 2010, p. 5). The importance of education in getting employment is illustrated in the unemployment levels according to levels of education, where for instance, unemployment rates are lower as one becomes more educated
(Archer & Chetty, 2013, p. 135). However, there are arguments that despite the rapid progress in educational attainment, South Africa’s education system has not been successful in producing the desired employment outcomes (Der Berg S & Gustafsson, 2019, p. 25). In quarter one of 2021, the graduate unemployment rate was 40.3% for those aged 15–24 and 15.5% among those aged 25–34 years, while the rate among adults (aged 35–64 years) was 5.4% (Stats SA (Statistics South Africa), 2021). Inadequate skills, growing high-school drop-out rates and highly polarised educational attainment continue to hinder the school-to-work transition (D. D. Tewari, 2014; Stats SA (Statistics South Africa), 2020b, p. 91). The main concern is that high youth unemployment rates eventually threaten social, economic, and political stability (Lefko-Everett, 2012, p. 7). Skills shortages have also been a significant constraint on growth, with higher education failing to produce graduates with the necessary skills (D.D. Tewari, 2016; African Development Bank, 2019, p. 32). The result has been weak employment-to-working-age population rates and participation rates in the labour market. As argued by the ILO (International Labour Organization; 2020, p. 16): “encouraging young women and men to go to university will not solve alone the problem of youth unemployment. It is important to ensure that university curricula are of high quality and also that there is sufficient demand for graduates’ skills.” For young people, the decision to settle for substandard employment is fuelled by the growing number of people with university qualifications which raises the competition for jobs (Ndebele & n.d.lovu, 2019, p. 95). On the one hand, the lack of prior work experience seems to be one of the main stumbling blocks for the young South African graduate despite higher education (Stats SA (Statistics South Africa), 2021). On the other hand, the costs of finding employment are also seen as one of the major barriers to finding employment for young people (Khan, 2016). These costs can be very expensive, especially for the poor.

Young graduates globally are still struggling to find first-time employment aligned to their qualifications (ILO (International Labour Organization), 2020). Low university completion rates amongst young South Africans have also added to the challenge (Wangenge-Ouma, 2013, pp. 5–6). For young people in South Africa, entering the labour market at an early age perpetuates the likelihood of being in precarious employment, characterised by low wages. The ILO (International Labour Organization; 2020) shows that the returns to tertiary education in several countries, including South Africa, increase more for prime-age workers than young workers. Despite acknowledging the value of education as promoting positive employment outcomes, the decision to enter the labour market early is propagated by limited resources such as finances and poverty (Mlatsheni & Ranchhod, 2017, p. 7). In deciding for earlier labour market entry, these young people often accept any work, which is low paying and mediocre to increase their family income, and therefore look after themselves and their families. The failure to gain the right skills and education can make young people vulnerable to unstable, insecure, and low-paying jobs. If they do not find any work, they may be prone to lengthy spells of unemployment (World Development Report, 2007:4).

4. Research methodology

4.1. Research design and sample
This study is primarily an empirical analysis, which was based on primary data collected through a survey. The study targeted graduates in possession of a higher education qualification (i.e. at least a bachelor’s degree or equivalent) at a traditional university in South Africa. Whilst the survey attributed the collection of data across all ages of graduates, for the purpose of this study, the sample was restricted to young graduates in the 20–34 age category.

Data were collected through an online electronic survey. The questionnaire solicited data on demographics, education and employment information. The ideas of the survey were mostly adopted from the various ILO International Conference of Labour Statisticians working documents with the aim of going beyond unemployment and focusing on other forms of labour force underutilisation, particularly underemployment and inadequate employment situations. In addition, more ideas were adopted from the BLS Alternative Measures of Labour Underutilisation since
the USA is one of the countries in the world that comprehensively measures labour underutilisation over and above unemployment. More ideas were also taken from Berger, Bollinger & Coomes, 2003; Bonnal, Lira & Addy, 2009 among others. Also included in the questionnaire was a validated subjective underemployment scale by Allan et al. (2017, pp. 94–95), which is explained further in the next section. The questionnaire underwent a pilot process for validity purposes, and to make sure that there are no technical and applicability issues. In the study, many experts in the field were identified to test the questionnaire, and their comments were used to revise the final instrument. In order to identify and eliminate potential problems with the questionnaire, a sample of 15 respondents pre-tested the questionnaire. Adjustments to the questionnaire were made based on the feedback received.

Following the successful design of the study’s data collection instrument, the final questionnaire was presented before the university. After having followed various ethical procedures as required by the university’s Research Data Gatekeeper Committee (RDGC), permission to do the study was granted with Ethics Reference no: ECONIT-2017-061 and RDGC reference number ***-GK-2018 (the ethical clearance certificate can be given upon request. Please note the use of (*) is meant to hide the name of the university). For ethical reasons, the study does not under any circumstances disclose the name of the university where graduates were sourced.

The questionnaire was stored in a Google Forms server where the questionnaire received a unique link to follow the respondents. The research was carried out in 2018, 5 September until 30 October. In sending the invitation to participate in the study, participants were informed of the purpose of the study, how long the questionnaire would take, how the results of the questionnaire would be used and the details of the researchers. By completing the survey, participants were consenting their participation in the study. Participation complied with ethical standards of research ensuring voluntary participation, confidentiality and complete anonymity.

At the time of the study, the university in question had approximately 68,000 active emails in the alumni database. This brings the response rate at less than 2%, which is very low, hence the decision to close the survey. The overall sample size, disregarding the respondent’s age, was 1072, where graduates younger than 35 were only 576 in total, while those 35 years and older were 496. Statistically, the 576-sample size is considered to be adequate and in line with the proposed recommendations that the use of multivariate statistical analysis requires sample sizes between 200 and 500 (Avikaran, 1994, p. 29). Given the shortage of studies on graduate underemployment in South Africa, only limited studies were found at the time of writing (e.g., see Baldry’s 2016 study, which aimed to examine the influence of demographic and educational characteristics on the employment/unemployment status of South African graduates), which had a sample of 1175 respondents. Other studies, like Allan et al. (2017, p. 99), had a sample of 678. Since the study utilised a survey type of research, a quantitative research approach was regarded as appropriate and fit. The collected quantitative data was analysed using the Statistical Package for Social Sciences (SPSS version 26, year 2020) software tool.

4.2. Analysis of the data and model specification

4.2.1. Dependent variable

As mentioned in the previous section, one of the aspects included in the questionnaire was a subjective underemployment scale by Allan et al. (2017) which is categorised into six dimensions: pay, status, field, hours, involuntary temporary work and poverty-wage employment with 37 items in total. However, for the purposes of the analyses, the current study only extracted three sub-scales; pay, hours and field (see, Table 1). This scale touches on the most important aspects of underemployment, as indicated in the literature. It is the first to measure underemployment in this way expansively. At the time of this study, there was no indication of the use of the scale in South Africa and university graduates.
The original SUS scale made use of a Likert scale as a form of scaling technique which ranged from 1 = strongly disagree, disagree, slightly disagree, neither agree nor disagree, slightly agree, agree to 7 = strongly agree. However, the Likert scales were reversed in the study, given that the items under each underemployment outcome variable used were negative (Józsa & Morgan, 2017; Weijters & Baumgartner, 2012). The original Likert scales were also adjusted to 6, having removed the “neutral” scale (Garland, 1991); now ranging from 1 = strongly agree, agree, slightly agree, slightly disagree, disagree to 6 = strongly disagree. Respondents had to indicate how much the statements apply to them, considering their main job where they spend a large portion of their time. Even though the SUS is an existing scale that has been validated, as argued by Hyman et al. (2006), it is important to report how well an existing instrument performs in a new study and whether the structure of the constructs is what it was when it was originally conceptualised. In this study, the SUS was still subject to internal reliability using Cronbach’s alpha coefficient, and results were all above $\alpha = 0.80$, showing moderate to high reliability. In order to validate the survey tool, both face and content validity measures were applied, which was through the use of a pilot study.

Three regression models were individually employed to analyse the determinants of the three types of underemployment which were measured by the three underemployment outcome variables in the SUS scale (see, Table 2 (a)). As such, three indices were calculated based on the responses of the participants as regards the perceptions of underemployment. The perceptions as previously mentioned were adopted from the existing scale (Allan et al., 2017). The indices were measured as a continuous variable (1 to 6 Likert scales—see previous paragraph). Graduates were asked to indicate whether they agreed or disagreed with the statement on a scale from 1 to 6, thus a lower score (i.e. 1) indicated a strong agreement with the corresponding underemployment type and a higher score (i.e. 6) indicated a strong disagreement or absence of a corresponding underemployment type.

4.2.2. Independent variables
The following table describes the way in which the variables used in the study were coded. Table 1 elucidates the coding of these variables including a description of the dummy variables that were used.

| SUS subscales | Explanation | No of items under subscale |
|---------------|-------------|----------------------------|
| Pay          | This dimension entails an employee’s view of whether they are underpaid relative to their former employment or people with similar skills, abilities, knowledge, qualifications (SAKQ) and other characteristics (Feldman, 1996) | 7 |
| Hours        | This subscale defines underemployment as working fewer weekly hours than desired (involuntary part-time work) | 6 |
| Field        | Field-based definitions explain underemployment as working outside a person’s area of education, training or expertise | 6 |

Source: Allan et al. (2017, pp. 94–95)
4.2.3. Model specifications

A linear regression model was then applied to determine the perceptions of underemployment. The study follows an approach similar to the one adopted in studies by Grobler and Dunga (2016), in which three regression models were run for each perception of poverty. The linear regression model was formulated as follows:

\[ \beta_0 + \beta_1 X_{45} + \beta_2 X_{loc} + \beta_3 X_{car_guid} + \beta_4 X_{age} + \beta_5 X_{race} + u_i \]  \hspace{1cm} (1)

The indices used as dependent variables were: Income-underemployment for Regression 1, Skills-underemployment for Regression 2 and Time-underemployment for Regression 3. All three regressions employed the same independent variables as described in Table 2(b). The parameter \( \beta_0 \) is the intercept or constant; \( \beta_{1-5} \) are the coefficients for the independent variables. The \( u_i \) is the error term of the regression.

| The main type of underemployment | Index           | Reasons for underemployment                                                                 |
|---------------------------------|-----------------|---------------------------------------------------------------------------------------------|
| Income underemployment          | Underpayment    | • My pay is less than other people with my qualification                                    |
|                                 |                 | • I am paid less than those with similar credentials                                         |
|                                 |                 | • I am underpaid compared to those with my level of knowledge.                               |
|                                 |                 | • I earn less than people with similar skills.                                               |
|                                 |                 | • I make less than others with my level of education.                                        |
|                                 |                 | • My pay is lower than others with my level of experience.                                   |
|                                 |                 | • I earn less than others with my level of ability.                                          |
| Skills underemployment          | Field           | • I am forced to work outside my desired field.                                              |
|                                 |                 | • I had to take a job outside of my field.                                                   |
|                                 |                 | • I cannot get a job related to my education.                                                |
|                                 |                 | • I am unable to work in a job related to my formal training.                                |
|                                 |                 | • I was compelled to take a job unrelated to my education.                                   |
|                                 |                 | • I want to work in a different field, but there are no jobs available.                     |
| Time underemployment            | Hours’ discrepancy | • I need to find a job that allows me to work more hours.                              |
|                                 |                 | • I work fewer hours than I need.                                                           |
|                                 |                 | • I work too few hours.                                                                     |
|                                 |                 | • I do not work enough hours.                                                               |
|                                 |                 | • I would work more hours if I could.                                                       |
|                                 |                 | • The number of hours I work is not enough.                                                  |

Source: Compilation by Author, adapted from Allan et al. (2017, pp. 104–105).
Lastly, in order to determine the reliability of the results, a number of diagnostic tests were done. The results of the study and the discussion thereof are presented in the next section.

5. Results

5.1. Descriptive analysis

This Table 3 below shows the demographic characteristics of the sample. In particular, 28.6 per cent of the participants were between the ages of 20 and 24, 44.7 per cent in the 25–29 age category, 26.5 per cent between the ages of 30 to 34 years. There were more female respondents at 62 per cent than there were males at 38 per cent. This large gender distribution gap is reflected in the “2019 Post-School Education and Training Monitor” report, which shows that female enrolment in higher education institutions is significantly higher than for males (Department of Higher Education and Training, 2019, p. 24). These broad gender patterns are also observed for throughput and graduations.

Analysing the sample distribution in terms of race profile, the results indicate that a large proportion of the respondents were White at 62.5 per cent, followed by Blacks at 33.5 per cent and Coloureds at 2.8 per cent. The rest of the respondents were Asian/Indian. It is important to note that Blacks are the majority in South Africa’s population distribution and that together with Coloureds (mixed-ethnicity), they are considered previously disadvantaged.

The geographical location of the participants shows that 80 per cent of the sampled participants lived in urban areas or instead cities. In comparison, only 20 per cent of the participants resided in townships and or rural areas. According to Atkinson (2014, p. 5), the rural-urban comparison in South Africa is characterised by many complex and changing definitions that have diverse connotations. The implication is that some informal areas could be termed urban even though things such as living standards are not reflective of being urban. Therefore, in this study, urban areas were defined as areas situated in economic hubs, closer to markets and opportunities and formal and modernised, often referred to as metropolitan areas. On the other hand, rural areas lack an economic core, have limited opportunities, and are far from economic hubs.

The results in Table 3 further indicate that 82.6 per cent of the sample were employed, either full-time or part-time. Only 17.4 per cent of the participants were unemployed. These findings
| Aspect                  | Sub-cat.           | %    | Sub-cat.           | %    |
|------------------------|-------------------|------|-------------------|------|
| Age                    |                   |      | Gender            |      |
| 20 to 24 years         | 28.6              | 38   | Male              | 38   |
| 25-29 years            | 44.7              | 36   | Female            | 62   |
| 30-34 years            | 26.5              | 36   | Usage of career guidance services among the unemployed | 36.6 |
| Race                   |                   |      | Used              |      |
| Black/African          | 33.5              | 63.4 | Never used        |      |
| Colored                | 2.8               | 63.4 | Even though you are underemployed, do you wish to change jobs or to have another job in addition to the present one? | 43.3 |
| Asian/Indian           | 1.2               | 15.6 | Did not know the exist |      |
| Geographical location  |                   |      | Did not have time |      |
| Urban/City             | 80                | 41.1 | Never used        |      |
| Rural/Township         | 20                | 41.1 | They were not helping (waste of time) |      |
| Marital status         |                   |      |                    |      |
| Married/living together| 3.4               | 63.4 | Yes               |      |
| Not married/living alone| 66.5             | 33.5 | No                |      |
| Employment status      |                   |      |                    |      |
| Underemployed          | 45                | 37   |                    |      |
| Not underemployed      | 55                | 63   |                    |      |
| Employment status      |                   |      |                    |      |
| Underemployed          | 45                | 37   |                    |      |
| Not underemployed      | 55                | 63   |                    |      |
Table 4. Subjective Underemployment Scale (SUS) results (%)

| Factors                                                                 | Strongly agree | Agree | Slightly agree | Slightly disagree | Disagree | Strongly disagree | Mean (max = 6) |
|------------------------------------------------------------------------|----------------|-------|----------------|-------------------|----------|-------------------|---------------|
| Underpayment                                                           | 24.4           | 24.4  | 19.9           | 9.6               | 14.8     | 7.00              | 3.157         |
| My pay is less than other people with my qualification                | 26.9           | 23.3  | 19.9           | 9                 | 13.9     | 7.1               | 3.24          |
| I am paid less than those with similar credentials                    | 23.4           | 22.8  | 21.3           | 8.8               | 15.9     | 7.7               | 3.17          |
| I am underpaid compared to those with my level of knowledge.          | 24.4           | 25    | 20.7           | 7.8               | 15.3     | 6.9               | 3.12          |
| I earn less than people with similar skills.                          | 23.1           | 25.3  | 19.7           | 9.9               | 15.3     | 6.7               | 3.10          |
| I make less than others with my level of education.                   | 28.2           | 24.5  | 16.3           | 10.1              | 14       | 6.9               | 3.24          |
| My pay is lower than others with my level of experience               | 19.8           | 23.7  | 21.7           | 12                | 14.8     | 8                 | 3.13          |
| I earn less than others with my level of ability.                     | 25.3           | 26    | 19.5           | 9.5               | 14.3     | 5.4               | 3.10          |
| Hours discrepancy                                                     | 3.7            | 6.1   | 9.2            | 12.9              | 33.9     | 34.9              | 3.798         |
| I need to find a job that allows me to work more hours.               | 4.1            | 6.1   | 10             | 16.9              | 33       | 29.9              | 3.70          |
| I work fewer hours than I need.                                       | 2.4            | 7.2   | 8.9            | 13.9              | 34.1     | 33.5              | 3.71          |
| I work too few hours.                                                 | 2.2            | 4.6   | 6.3            | 12.2              | 34.6     | 40.1              | 3.93          |
| I do not work enough hours.                                           | 2.4            | 3.3   | 5.2            | 10                | 38.3     | 40.7              | 3.92          |
| I would work more hours if I could.                                   | 7.9            | 11.1  | 17.2           | 11.4              | 24.2     | 28.2              | 3.65          |
| The number of hours I work is not enough.                             | 3.3            | 4.1   | 7.6            | 12.7              | 34.9     | 37.3              | 3.88          |

(Continued)
| Factors | Strongly agree | Agree | Slightly agree | Slightly disagree | Disagree | Mean (max = 6) |
|---------|----------------|-------|----------------|------------------|----------|---------------|
| Underpayment | 24.4 | 24.4 | 19.9 | 9.6 | 14.8 | 7.00 |
| Field | 11.8 | 11.8 | 11.5 | 11.2 | 8.5 | 8.4 |
| I am forced to work outside my desired field. | 11 | 11 | 10.2 | 10.4 | 10.2 | 10.2 |
| I had to take a job outside of my field. | 11 | 11.5 | 12.5 | 12.5 | 10.7 | 11.1 |
| I cannot get a job related to my education. | 11.8 | 11.8 | 11.5 | 11.2 | 8.5 | 8.4 |
| I am unable to work in a job related to my formal training. | 11.8 | 11.8 | 11.5 | 11.2 | 8.5 | 8.4 |
| I was compelled to take a job unrelated to my education. | 10.6 | 10.6 | 10.3 | 10.3 | 10.2 | 10.2 |
| I want to work in a different field, but there are no jobs available. | 12.9 | 12.9 | 10.2 | 10.2 | 10.2 | 10.2 |

Kaiser-Meyer-Olkin Measure of Sampling Adequacy

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imply that compared to those with lower educational levels, such as just a grade 12 national senior certificate, graduates have better employment prospects and are more likely to find employment than those with low qualifications. As previously mentioned, the primary objective of this study was to analyse the existence of underemployment among graduates. Of those that considered themselves underemployed, 63.4 per cent had not made use of career guidance facilities compared to those that did 36.6%. To understand such low usage of career guidance, sampled graduates were asked to provide reasons, and 43.3 per cent did not know such services existed, while 15.6 per cent simply did not have time. It was also interesting to find that an estimated 63 percent of the underemployed graduates desired to change their jobs at the time of the survey or have another job in addition to their main one. Table 3 also confirms that many participants (76.7%) were in occupations with poor promotion prospects, hence delayed career progression, limiting earning potential, echoing the findings of Li & McCully, (2016) and Lacmanovic et al. (2016). Only 23.3 per cent of the participants were in jobs with relatively high promotion opportunities.

Table 4 is a summary of the SUS. Since the six-point Likert scale ranged from 1 = strongly agree to 6 = strongly disagree, higher mean values imply disagreement with the indicated factor, therefore creating a more positive perception regarding underemployment among the sample. On the other hand, a lower mean value implies an agreement with a factor associated with a more negative perception. In terms of the first factor: underpayment, Table 4 shows that a larger share of the graduates, 68.7 per cent, felt underpaid in their jobs at the time of the study, while 31.4 per cent did not perceive their jobs to underpay them. Within this factor, respondents strongly felt that their earnings are less than others with the level of education that is equal to theirs (28.2%), their pay is less than others who hold the same qualification (26.9%) and the same level of abilities (25.3%).

Perceptions relating to the second factor: hours’ discrepancy, which can be associated with time-underemployment, shows a high disagreement among the participants. More than a third (34.9%) of the participants strongly disagreed that they think in their job at the time of survey they are underemployed by time. According to the World Bank (2019), inadequate employment situations (i.e. income and skills underemployment) are often the most common forms of underemployment experienced by young people. A smaller share of participants identified with most of the scale
Table 7. ANOVA test for all regressions

| Model | Sum of Squares | df. | Mean Square | F    | Sig. |
|-------|----------------|-----|-------------|------|------|
| 1     | Regression     | 7   | 1073.544    | 6.186| .000 |
|       | Residual       | 565 | 173.544     |      |      |
|       | Total          | 572 |             |      |      |
| 2     | Regression     | 7   | 514.450     | 5.401| .000 |
|       | Residual       | 565 | 95.248      |      |      |
|       | Total          | 572 |             |      |      |
| 3     | Regression     | 7   | 295.679     | 2.351| .023 |
|       | Residual       | 565 | 125.743     |      |      |
|       | Total          | 572 |             |      |      |

Table 8. Regression results on the perceptions of income underemployment

| Model | Unstandardised Coefficients | Standardised Coefficients | t-value | Sig. |
|-------|-----------------------------|---------------------------|--------|------|
|       | B                           | Std. Error                | Beta   |      |
|       | Constant                    | 25.492                    | 1.663  | 15.332| .000*|
|       | Marital status              | 3.389                     | 1.205  | 0.118 | 2.813 | .005*|
|       | Geographical location       | −1.497                    | 1.437  | −0.044| −1.041| 0.298 |
|       | Career guidance (received)  | 2.457                     | 1.234  | 0.084 | 1.990 | 0.047*|
|       | Age (15–24)                 | 5.232                     | 1.216  | 0.174 | 4.303 | .000*|
|       | Black                       | 5.480                     | 1.179  | 0.190 | 4.647 | .000*|
|       | Indian/Asian                | 2.508                     | 5.035  | 0.020 | 0.498 | 0.619 |
|       | Coloured                    | 5.169                     | 3.369  | 0.062 | 1.535 | 0.125 |

*significant at 5% level of significance
Note** Age category 25-29 was not significant

items under the hours' discrepancy factor. These findings suggest that time-underemployment is not prevalent among graduates.

The last factor was concerned with field, which can be linked to skills-underemployment. More than two-thirds (68.4%) of the respondents did not perceive their job at the time of the study to be unrelated to their field of study, formal training or education. Specifically, in each of the scale items under this factor, more than 30 per cent of the participants strongly disagreed. About 39.8 per cent strongly disagreed with the statement that they were forced to take a job outside their education, followed by 38.9 per cent who also strongly disagreed with the statement that they are not able to get employed in the field of their formal training. Only 30.8 per cent perceived their job at the time of the study to be unrelated to their education, formal training and desired field.

5.2. Regression results
This section presents the results of the OLS regression model. As shown in the previous section, socio-demographic characteristics (marital status, geographical location, race, career guidance, and age) were selected as the (independent) explanatory variables, and the three underemployment types were used as the dependent variables in all three regressions. The choice of these independent variables is guided by the results of the cross-tabulations based on the statistically
significant relationships. Pre-analysis showed that none of the other variables, such as levels of education, gender and field of study, were statistically significant.

Collinearity diagnostic was also checked where the variance inflation factors (VIF) and the tolerance were observed, and the results confirmed that multicollinearity was not a serious threat. If the VIF values are less than 10 (or the tolerance values are greater than 0.1), then this is an indication that there is no cause for concern (Field, 2018:418). The results in Table 5 proves that multicollinearity does not exist between the explanatory variables used in the study.

Table 6 presents the model summaries about all three regressions, describing the R, R², adjusted R², and the standard error of the estimate. These statistics can be used to determine how well a regression model fits the data. For model 1, the R is indicated as .267 with an R² of 0.271, meaning that the independent variables explain about 27 per cent of the variability of the dependent variable. For the second model, the R is indicated to be .250 and R² as 0.263, meaning that the independent variables explain 26 per cent of the variability of the dependent variable. In the third model, the R is indicated to be 0.168 and R² of 0.328, meaning that the independent variables explain 32 per cent of the variability of the dependent variable. These percentages are acceptable values in social research where it may not be possible for a pragmatic model to capture variables that may affect a phenomenon.

Table 7 demonstrates the ANOVA results for all three regressions, which show a test of the null hypothesis about the model as a whole. The null hypothesis under the ANOVA test is that the model is not a good fit or is not significant. Results indicated to show that the independent variables significantly predict the dependent variable. The F-statistic of 6.186 and a p-value of 0.000 (model 1), followed by an F-statistic of 5.401, and a p-value of 0.000 (model 2) and an F-statistic is 2.351, with a p-value of 0.023 (model 3) are all significant at the 1 per cent level of significance. Statistically, the null hypothesis is rejected, and hence all three models are regarded as significant.

The results of the OLS regressions are illustrated in Table 8, Table 9 and Table 10. The p-values are distinguished between 5% $\alpha = 0.05$ and 1% $\alpha = 0.01$, and in some instances, 10%, $\alpha = 0.1$ significance level (Gujarati & Porter, 2010) as some of the variables in the study become significant when considering the 10% significance level. The 10% significance level is further justified by the study’s relatively low sample size (Sanford, 1968, p. 220). In terms of Table 8, the first independent
A variable for this regression was marital status, which uses the income index as the dependent variable where high indicates the agreement with the perception that they were underpaid. Marital status, in this study, is a categorical variable coded as 0 = married and 1 = not married. Marital status shows a positive coefficient of 3.389 and a p-value of 0.005, which expresses that the variable was significant at a 1 per cent level of significance. The positive coefficient indicates that respondents who indicated not being married agreed that they felt they were underemployed based on their income. Single respondents are most likely to feel underemployed since single individuals have more time than married and have family and household responsibilities. Therefore, they may desire to want to work more and consequently increase their income. The interaction between marital status and gender is shown in Appendix A.

5.3. Regression model one: income underemployment

Another independent variable for regression 1 was career guidance. A dummy variable was created because it was a categorical variable, coded 1 for received career guidance and 0 for not received. The results show a positive coefficient of 2.457 and a p-value of 0.047. The results expressed that the variable was significant at 5 per cent. The positive coefficient indicates that those who made use of career guidance facilities perceived themselves as being under-employed due to the income they were receiving when data was collected.

In this regression model, the age and race of respondents were the fourth and fifth independent variables. Both variables were categorically coded as (age) 1 for those below 24 years and 0 for those between 30 to 34, for race coded 1 for those who were black and 0 for white. The results show that both variables had a significant p-value at 1 per cent, meaning they were both good predictors of the perceptions of income underemployment. Age had a positive coefficient (5.232), meaning that those below the age of 24 perceived themselves as under-employed due to their income. Similarly, those who were black who had also a positive coefficient (5.480), meaning that black people perceived themselves as being underpaid. In their study, Beukes et al. (2017) found that in 2008 and 2014, a greater proportion of the underemployed were blacks in South Africa (Branson et al., 2019, p. 3) found that even when young people find employment, their earnings are most likely to be low because of their lack of experience. Employers cannot determine their productivity levels, which is why they would find themselves in unstable and lowest paid types of employment. Bhorat et al. (2016) reiterate the findings, where the trend compared to those in the 55–64 age category, young people below 24 have the highest incidence of low pay at almost 58 per cent, which is more than double those over 55 years. Bhorat et al. (2016) further found this to be evident among blacks, again reflecting arguments in the literature. Geographical location and race (Indian/Asian and coloured) were not statistically significant.

Table 9 reports the findings relating to skills underemployment. Marital status (categorical variable defined as 1 for not married and 0 for married) in this regard was the first independent variable in the second OLS regression model, which uses skills index as the dependent variable. Marital status shows a positive coefficient of 1.924 and a p-value of 0.033, which is statistically significant at the 0.05 significance level. These results imply that those who were not married agreed with the perceptions that they were underemployed by skills. Because the single individuals are most likely not to spend a large portion of their time facing competing demands relating to household responsibilities, they are most likely to be underemployed, earning low-income, as shown in Table 7. The feeling of being underemployed may fuel the feeling that they are earning low incomes because their job at the survey time is not in line with their qualifications and/or skills, maybe greater than their peers.

5.4. Regression model two: Skills underemployment

Geographical location was the second independent variable in regression two, a dichotomous variable, coded 0 for rural/township localities and 1 for more urban/city locality. Table 9 show that the urban/city location has a positive coefficient (2.331) and a significant p-value (0.078). These results indicate that urban graduates agreed with the perception that they were skilled under-employed at the time of the
Table 10. Regression results on the perceptions of time underemployment

| Model                  | Unstandardised Coefficients | Standardised Coefficients | t-value | Sig. |
|------------------------|-----------------------------|---------------------------|---------|------|
|                        | B   | Std. Error | Beta    |       |     |
| Constant               | 25.124 | 1.743     |         | 14.416 | 0.000* |
| Marital status (not married) | -1.395 | 1.082     | -0.058  | -1.289 | 0.198 |
| Geographical location (urban/city) | 0.568 | 1.516     | 0.020   | 0.375  | 0.708 |
| Career guidance (received) | 0.613 | 1.043     | 0.025   | 0.588  | 0.557 |
| Race (Black)           | 1.881 | 1.325     | 0.078   | 1.419  | 0.156 |
| Age (15-24)            | 3.540 | 1.107     | 0.141   | 3.197  | 0.001* |
| Race (Indian/Asian)    | 7.886 | 4.313     | 0.077   | 1.829  | 0.068** |
| Race (Coloured)        | 1.956 | 2.924     | 0.029   | 0.669  | 0.504 |

*significant at 5% level of significance
**significant at 10% level of significance

survey. Findings of Beukes et al. (2017) found that the majority of the under-employed in their study resided in relatively urban provinces, which are industrial and economic hubs (Gauteng, Western Cape and KwaZulu-Natal), and surprisingly have low unemployment rates, which could point to the existence of underemployment instead of open unemployment. Again, confirming that even though employment is better than the opposite, what also matters is the kinds of jobs people have. In addition, these findings are also indicative of the presence of skills-job mismatches.

Age, a categorical variable defined as 1 for 15–24 years and 0 for 30–34 years, was another statistically significant variable at the 1 per cent level of significance (p-value = 0.001) as shown in Table 8. The results show a positive coefficient of 3.534, which suggests that participants aged 15 to 24 agreed with the perception that they were underemployed by skills. However, Grapsa (2017, p. 6) found occupational mismatches to be higher for young people between 25 and 34 years. Lastly, regarding race categorically coded at 1 for black and 0 for white, the positive coefficient (3.811) and a significant p-value of 0.001 as shown in Table 9 imply that black participants were most likely to agree with the perception that they are skills underemployed. For black youth, transitions into the labour market are more challenging and negative than graduates of other races. Stats SA in the ‘2017 Labour Market Dynamics’ report showed that Blacks’ prospects of skilled positions are lower, followed by coloureds when they are contrasted with their white and Indian/Asian counterparts. Career guidance and race (Indian/Asian and coloured) were not statistically significant at any level of significance.

5.5. Regression model three: Time underemployment

Table 10 presents the OLS regression results for time underemployment. The first explanatory variable for this regression was marital status, which uses the hours’ index as the dependent variable while high indicates the agreement with the perception that they were working fewer hours than they would like to at the time of the survey. As can be seen in the table, of all the indicated explanatory variables, only age (15-24) and race (Indian/Asian) were statistically significant, both at the 0.01 and 0.10 level of significance, respectively.

Age has a positive coefficient (3.540), implying that young participants were most likely to agree that they worked fewer hours and would like to work more hours. For race, Indians/Asian graduates were most likely to agree with the time/hours unemployment perceptions with a positive coefficient of 7.886. These findings race reiterate what comes out of literature that regardless of
any indicator, non-white workers/graduates still encounter negative employment outcomes and have the highest prospects of being underemployed, as confirmed by the findings of Moleke (2010) and Bell and Blanchflower (2013, p. 13). In terms of age, Stats SA confirmed that a high proportion of young workers in South Africa face more negative employment outcomes compared to other age groups (Stats SA (Statistics South Africa), 2020a), and they are most likely to be in short-term work, which is temporal (Branson et al., 2019).

6. Discussions

Pertaining to the first OLS regression on income underemployment, participants who were not married tended to be underpaid. Participants who received career guidance perceived themselves as underemployed due to their income when data was collected. Similar findings are also reported by Cape Higher Education Consortium (2013, p. 8) where more than two-thirds of students had never make use of career guidance facilities offered by their respective universities. These findings suggest that perhaps career guidance facilities at HEI may not be as effective as thought. For instance, Oluwajodu et al. (2015) found a perception among South African employers that certain HEI fails to hold regular career exhibitions, explaining why many graduates experience negative labour market outcomes. It could also be argued that students do not make use of such services mainly because they are not available to them. At the same time, generally, young peoples’ earnings are limited at the beginning of their careers since employment prospects seem to become better as they age (e.g., Ranch hod, 2013), also resonating with findings of Branson et al. (2019) and Bhorat et al., 2016).

More findings regarding age and race show that respondents below the age of 24 perceived themselves as underemployed due to their income. Similarly, black people also had a positive coefficient (5.480), which meant that Black youth perceived themselves as underpaid. Bell and Blanchflower (2013) also found underemployment to be most likely high among non-White individuals. Young people’s lack of experience means that their earnings are likely to be low since employers cannot determine their productivity levels compared to those in the 55–64 age category (Bhorat et al., 2016; Branson et al., 2019).

The findings of the second OLS regression on skills underemployment showed that, again, the unmarried graduates were most likely to agree with the perception that they were employed in jobs outside their field of studies. These findings echo those of Nyimbanira (2016), who was examining time-related underemployment in South Africa. Never-married individuals also had the highest probability of being over skilled in the findings of Grapsa (2017, p. 13). Sackey and Osei (2006, p. 221) also found similar results in Ghana. In terms of geographical location, the regression analysis found that graduates in urban areas tended to agree with the perception that they were underemployed by skills at the time of the survey. Other studies (e.g., Beukes et al., 2017) also found those who resided in urban provinces to be underemployed. However, the fact that urban areas typically have lower unemployment rates relative to more rural areas could point to other forms of labour underutilisation such as underemployment. Unlike these findings, Domfe et al. (2013) found that underemployment was significant among those from least developed rural regions.

Regarding age, participants below 24 seem to agree with being underemployed, relative to the reference group (30–34 years). However, in some studies, skills-job mismatches were more prevalent among those 25 years and older (e.g., Grapsa, 2017). Lastly, Black graduates relative to white graduates seem to agree with the perception of being underemployed by skills. This is just confirmatory to the challenging transition of black young people into the labour market. Their prospects of being in skilled positions are lower when compared to their white counterparts (Stats SA (Statistics South Africa), 2017). For black youth, courses with low employment prospects are influenced by a myriad of factors. For instance, the majority pass their matric with low APS, which often forces them into courses requiring low points that are more general, such as humanities relative to the sciences. The problem with such courses is that graduates take a while to be absorbed in the labour market and have a high chance of facing negative labour market outcomes.
The third OLS regression found that young people younger than 25 are most likely to identify with time underemployment compared to their mature counterparts. In terms of race, Asians/Indians relative to graduates of other races were most likely to agree with the perception that they are working fewer hours than they would like to. According to Branson et al. (2019), short-term work that is casual and temporary seems to be the most prevailing kind of jobs for young people in South Africa.

7. Conclusions and recommendations

The study's main aim was to evaluate the determinants of underemployment among young university graduates in South Africa. The results of this research study are in numerous ways comparable to studies that were carried out in several countries around the globe. Firstly, employment is indeed still relatively high for graduates compared to young people with lower levels of education. This is representative of the South African situation where employment outcomes improve with the level of education. Be that as it may, what is concerning is the large number of young graduates who consider themselves as under-employed, irrespective of the kind of underemployment, i.e. income, time or skills. The findings showed that at least 45 per cent of the sampled graduates considered themselves underemployed. The common factor among the three regressions is that being younger than 25 is associated with underemployment, regardless of the type. Relating these findings, it could be argued that there is a natural rate of under-employment, particularly for young workers. This therefore implies that young people become more fully-employable and better skilled with age and work experience. In terms of income underemployment, graduates who were not married, black and did not receive any form of career guidance were most likely to be underpaid. The findings relating to skills underemployment, on the other hand, showed that being unmarried, being situated in urban areas, and being black was associated with skills underemployment, while those most likely to be underemployed by the time were Indian/Asian regression. Pre-analysis showed that gender, level of education and field of study were not significant factors associated with any type of underemployment which is different from previous findings in the literature.

The fact that graduates younger than 25 identify with all types of underemployment is a call for concern which shows that more is not being done to improve labour market outcomes of young people. The study recommends that efforts be made to improve the labour market attachment of young people, particularly black youth. The attention on tending to unemployment should not divert from the conceivably similarly crucial role of reinforcing the labour market attachment of young people who could be underemployed. Focusing exclusively on the unemployment rate or just time-underemployment numbers (as is the case in South Africa's national statistical services) gives an incomplete image of the actual labour environment. There could be more employed young workers in “dead-end” jobs living in poverty than there are unemployed ones.

As seen in the study, a substantial challenge is in the means by which to encourage a smooth and successful transition for young graduates from entry-level employment to more stable and productive jobs. The implication is that the government and the private sector need to enact institutional labour market tools that will manage atypical employment contracts to promote a process where young people can progressively move from entry-level occupations into occupations that offer career possibilities. These tools, of course, should be implemented so that the creation of productive employment for young people is not negatively impacted. The main goal should be about preventing the use of young people for low-paying and precarious jobs. South Africa needs to revisit career education and development in schools as presently basic education policies do not enforce career guidance, besides being embedded as study units in subjects like life skills and life orientation. Perhaps students never make use of these services at university because they were never exposed to them in their schooling years. For instance, South Africa only had its initial draft of a curriculum framework for career guidance in schools in 2020, which concerns that this is only being realised now. Equally important and on the part of HEI is the need to have visible and regular career guidance and recruitment drives; universities owe it to students to have a platform where students can meet with potential employers; where students can already be taught about work readiness, employability and individual branding among other things to ensure successful tertiary-to-work transition. More than 40% of the underemployed graduates did not know career guidance services exist as a cause for concern and speak to the universities themselves. This
career guidance education needs to be intentional at the same time focusing on future skills. These interventions will reposition the broader education system and help young people make informed decisions about their future careers, and promote decent work, among other importance (Robertson, 2019). Lastly, there is a need by the government to improve and accelerate the upliftment of previously disadvantaged groups, mainly blacks and young people. The existing policies are not effective. The end goal should not just be about getting these young people into employment but also about stable and sustainable employment opportunities. The practical implication is that with stable employment comes employment security and consistent earnings. All the recommendations discussed above can only be practical on social dialogues between the government, employers and higher education institutions.

Like any study, the study has some limitations which may open up avenues for future research. Firstly, care should be taken in generalising the results to the South African youth graduate population. Secondly, there were not enough numbers to run analyses on key variables such as field of study, level of education rather than the fact that these variables would not be associated with the types of underemployment. In addition, there were structural issues with the data, which is common in survey designs (and no methodology can overcome this problem). Hence many variables which were expected to be significant such as gender and level of education, were not. Also, it is important that participants in a study carefully read the questions before completing surveys as this will avoid problems during data analysis. Nonetheless, the study still makes important findings in the context of South Africa’s troubled labour market. Furthermore, the marital status distribution was somewhat skewed, with married graduates comprising only 34 per cent of the sample. Future research should go beyond a single cross-sectional data research design and perhaps look into utilising longitudinal data to have a more accurate reflection of the extent to which factors identified in this study influence underemployment status. Also, future studies could entail larger sample sizes for better predictions.

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Appendix

Table A1. Interaction between gender and marital status

| Marital status          | Gender   | Total |       |       |       |
|-------------------------|----------|-------|-------|-------|-------|
|                         | Female   | Male  |       |       |       |
| Married/Living together | Count    |       |       |       |       |
|                         | 135      | 56    | 191   |       |       |
| % within marital status | 70.7%    | 29.3% | 100.0%|       |       |
| % within Gender         | 38.0%    | 25.7% | 33.3% |       |       |
| % of Total              | 23.6%    | 9.8%  | 33.3% |       |       |
| Single/Living alone     | Count    |       |       |       |       |
|                         | 220      | 162   | 382   |       |       |
| % within marital status | 57.6%    | 42.4% | 100.0%|       |       |
| % within Gender         | 62.0%    | 74.3% | 66.7% |       |       |
| % of Total              | 38.4%    | 28.3% | 66.7% |       |       |
| Total                   | Count    |       |       |       |       |
|                         | 355      | 218   | 573   |       |       |
| % within marital status | 62.0%    | 38.0% | 100.0%|       |       |
| % within Gender         | 100.0%   | 100.0%| 100.0%|       |       |
| % of Total              | 62.0%    | 38.0% | 100.0%|       |       |

**Pearson $\chi^2$ (p-value = .002); **Crammer's $V = .127
### Table A2. Marital status * Gender * Underemployment status Crosstabulation

| Underemployment status | Marital status          | Count | Female | Male | Total |
|------------------------|-------------------------|-------|--------|------|-------|
| Not underemployed      | Married/Living together | 59    | 28     | 87   |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 67.8% | 32.2% | 100.0% |
|                        |                         | within Gender         | 37.6% | 28.0% | 33.9%  |
|                        |                         | % of Total            | 23.0% | 10.9% | 33.9%  |
|                        | Single/Living alone     | 98    | 72     | 170  |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 57.6% | 42.4% | 100.0% |
|                        |                         | within Gender         | 62.4% | 72.0% | 66.1%  |
|                        |                         | % of Total            | 38.1% | 28.0% | 66.1%  |
| Total                  |                         | 157   | 100    | 257  |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 61.1% | 38.9% | 100.0% |
|                        |                         | within Gender         | 100.0%| 100.0%| 100.0% |
|                        |                         | % of Total            | 61.1% | 38.9% | 100.0% |
| Underemployed          | Married/Living together | 59    | 22     | 81   |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 72.8% | 27.2% | 100.0% |
|                        |                         | within Gender         | 44.4% | 27.2% | 37.9%  |
|                        |                         | % of Total            | 27.6% | 10.3% | 37.9%  |
|                        | Single/Living alone     | 74    | 59     | 133  |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 55.6% | 44.4% | 100.0% |
|                        |                         | within Gender         | 55.6% | 72.8% | 62.1%  |
|                        |                         | % of Total            | 34.6% | 27.6% | 37.9%  |
| Total                  |                         | 133   | 81     | 214  |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 62.1% | 37.9% | 100.0% |
|                        |                         | within Gender         | 100.0%| 100.0%| 100.0% |
|                        |                         | % of Total            | 62.1% | 37.9% | 100.0% |
| Total                  | Married/Living together | 118   | 50     | 168  |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 70.2% | 29.8% | 100.0% |
|                        |                         | within Gender         | 40.7% | 27.6% | 35.7%  |
|                        |                         | % of Total            | 25.1% | 10.6% | 35.7%  |
|                        | Single/Living alone     | 172   | 131    | 303  |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 56.8% | 43.2% | 100.0% |
|                        |                         | within Gender         | 59.3% | 72.4% | 64.3%  |
|                        |                         | % of Total            | 36.5% | 27.8% | 64.3%  |
| Total                  |                         | 290   | 181    | 471  |
|                        |                         | %      |        |      |       |
|                        |                         | within marital status | 61.6% | 38.4% | 100.0% |
|                        |                         | within Gender         | 100.0%| 100.0%| 100.0% |
|                        |                         | % of Total            | 61.6% | 38.4% | 100.0% |

**Underemployed = Pearson χ² (p-value = .012); Crammer’s V = .172**
