Journal of Economic and Financial Sciences
ISSN: (Online) 2312-2803, (Print) 1995-7076

Antecedents of youths who are not in employment, education or training: Micro-level evidence

Authors:
Jacques J.J. de Jongh[1]
Precious Mncayi-Makhanya[1]
Phindile Mdluli-Maziya[1]

Affiliation:
[1]Department of Economics, Faculty of Economic and Management Sciences, North-West University, Vanderbijlpark, South Africa

Corresponding author:
Precious Mncayi-Makhanya,
precious.mncayi@nwu.ac.za

Dates:
Received: 31 July 2023
Accepted: 25 Jan. 2024
Published: 05 Apr. 2024

How to cite this article:
De Jongh, J.J.J., Mncayi-Makhanya, P. & Mdluli-Maziya, P., 2024, 'Antecedents of youths who are not in employment, education or training: Micro-level evidence', *Journal of Economic and Financial Sciences* 17(1), a899. https://doi.org/10.4102/jef.v17i1.899

Orientation: The increasing number of young people not in employment, education or training (NEET) is a concerning global trend.

Research purpose: This study aimed to identify the factors that contribute to young individuals being classified as NEET in South Africa.

Motivation for the study: Given the rising NEET rates in South Africa and the potential loss of human capital, this study addresses a critical gap in understanding the drivers of youth unemployment and disengagement from education and/or training.

Research approach/design and method: Employing cross-sectional data analysis techniques, the study used the Quarterly Labour Force Survey data with a sample of 14 338 youths aged 15–34 years from Statistics South Africa.

Main findings: The study identified education level, race and age as significant predictors of NEET status. The research highlighted the role of social capital and geographical barriers in determining the NEET status of young individuals, with location and gender having an impact.

Practical/managerial implications: The study's findings have important implications for policymakers. Possible strategies can target the specific factors identified, such as improving access to education and training, addressing racial disparities and reducing gender-related barriers.

Contribution/value-add: This study reveals the causes of NEET among South African youth. Policymakers can use this information to create targeted interventions, reduce the NEET population and promote socio-economic development. The research provides a valuable resource to guide efforts in reducing the NEET population and harnessing the potential of the country's youth.

Keywords: youth; young people; not in employment; education or training; youth NEET; South Africa.

Introduction

The number of youths not in employment, education or training (NEET) is rising globally, and the proportion of young women is more than double that of their male counterparts (International Labour Organisation [ILO] 2022). Young people are generally regarded as disengaged from the labour market and society (Khuluvhe & Negogogo 2021). The intricacy of the NEET has been commanding attention in the global agenda. For instance, the Sustainable Development Goal 8 (SDG 8) promotes full, productive, and decent employment for everyone. Within this SDG target, a commitment was made to improve the NEET status of the youth by 2020 (ILO 2019). However, the world needs to catch up as the deadline has passed, with little to no progress, especially in African countries. Some have attributed the lack of progress to the global COVID-19 pandemic, which has negatively affected the labour market in numerous countries (Cieslik, Barfordb & Virad 2021).

Globally, nearly 4 in 10 young people are involved in the labour force; however, there are striking discrepancies across subregions. North America is highly represented regarding labour force participation (52.6%), followed by Latin America – the Caribbean (48.9%) and sub-Saharan Africa (48.2%) slightly lagging (ILO 2022). The lowest youth labour force participation rates are found in the Arab States and North America, where a mere 27% of the youth are engaged in the labour force. Regardless of the differences, there was a global decline between 1999 and 2019 in youth labour force participation of approximately 12%. The total number of youths engaged in the labour force fell to 497 million from 568 million,

regardless of the increase in the population (1 to 1.3 billion) of young people during this period (ILO 2020, 2022).

Youths in South Africa endeavour to attain economic freedom and to find their identity amid unstable households, community and educational structures that frequently fail to equip young people with the skills required by the labour market (African Development Bank 2015). According to Schirmer et al. (2021), of the five young people looking for employment, approximately three cannot secure jobs. In the second quarter of 2021, 919 000 fewer youths (15–34-year-olds) had jobs compared to quarter four in 2019. These unprecedented unemployment statistics belittle the scope of the challenges confronting South Africa's youth. Even though policymakers in South Africa are concerned about the increasing numbers of youths who are NEET, there is barely recognition of the diversity and different needs of this group, leading to minimal engagement with the attributes of young people in numerous NEET subgroups (De Lannoy & Mudiriza 2019). Nearly 9.1 million young people in South Africa's youth fall into the NEET category, which explains the massive scale of the crisis in the country's labour market, particularly where the youth is concerned.

The unemployment rate has increased constantly in South Africa (currently sitting at 32.1% as of the third quarter of 2023) (Statistics South Africa [Stats SA] 2024); however, this figure is not comprehensive enough as it fails to measure the NEET status, and it is not broad enough to include the youth not accounted for in the labour force, education and training. Therefore, the argument is that, although measuring and attempting to deal with unemployment is still a grave issue in South Africa, the NEET is slightly neglected. Additionally, when observing young people's livelihood and general living conditions in South Africa, it becomes apparent that a more comprehensive approach is required beyond solely focusing on youth unemployment (Beukes et al. 2017). The gravity of involuntary NEET status in the country is underscored by an association to a decline in human capital or a state of stagnation. This is rather disturbing as it adversely affects young people with lower education attainment who have acquired little or no work experience (Cabral 2018; Carcillo et al. 2015). Examining the NEET provides a broader perspective on the struggles of the youth and creates a leeway towards tackling the issue. The study aims to determine the factors that serve as predictors to classify young people within the NEET category. The remainder of the article is the following: section 'Literature review' reviews the literature on NEET, theoretically and empirically; section 'Research design' provides the methodology and outlines the model used in the study; section 'Results' presents the results, which are discussed in section 'Discussions' and section 'Conclusion' concludes the study and provides recommendations.

Literature review

Theoretical underpinnings

As societies navigate the diverse landscapes of economic, sociocultural and educational domains, there is an array of perspectives that attempt to decipher the underlying causes of NEET prevalence. The first theory relates to the human capital theory. It provides an explanation for the returns on investments made in education and training, viewing them as strategic investments in human resources (Becker 1964). From this perspective, education and training are perceived as intentional endeavours aimed at equipping the workforce, thereby contributing positively to employee and organisational productivity (Fleischhauer 2007). These competencies not only play a crucial role in enhancing productivity within the labour market but also contribute substantially to the development of other essential skills. Thus, not having the necessary education and training may force young people into NEET (Mncayi 2020). Within the realm of human capital lies the issue of skills mismatch. Sala (2011) argues that holding other factors constant, young individuals may fall into NEET status because of disparities in their proficiency and acquisition of relevant skills, thus contributing to mismatch. This situation arises when there are discrepancies between the skills acquired by potential employees and those required by employers, leading to an inability to fill vacancies (Pitan & Adedeji 2012). Because of a skills mismatch, employers encounter difficulties in finding individuals possessing the required skills and education (Restrepo 2015).

The second perspective is grounded in the spatial mismatch theory, which suggests that individuals with lower skills often face unfavourable labour market outcomes because of their detachment from suburban job opportunities (Bunel, L'Horty & Petit 2016). The theory underscores the importance of proximity to specific types of low-skilled employment (Gobillon & Selod 2021). The physical distance between an individual's residence and available employment hinders the job search and diminishes the likelihood of escaping unemployment (Kain 1968). Unemployed and less-educated young people residing farther from employment centres will likely encounter prolonged and expensive job searches, hence the increase in NEET numbers.

In conjunction with these insights, various scholars have also linked the prevalence of NEET among youth to the presence of economic deprivation, a situation where individuals struggle to fulfil their basic needs and perceive this lack as a denial of what is rightfully theirs (Ripamonti & Barberis 2021; Rahmani & Groot 2023; Su, Wong & To 2020). Within this context, economically deprived youth often find themselves in the category of NEET because of limited access to education, training and employment opportunities, hindering their path to economic independence. Consequently, in the face of formidable challenges posed by high unemployment rates, there is an increased risk that these young individuals may confront escalating financial hardships (Aassve, Cottini & Vitali 2013). Individuals who lack education, training and employment are more likely to experience poverty, leading to insufficient access to necessities such as food, clothing and shelter (Janlert & Hammarström 2009). Opposing these supply side assertions, the demand side explanations on the prevalence of NEETs have primarily looked at the quality of economic growth and how it influences youth economic

opportunities, particularly in employment. Economic growth that is not employment friendly poses a substantial negative impact on youth, contributing to higher rates of unemployment and those classified as NEET. Notably, youth who have dropped out of school tend to fare worse in the labour market. During challenging economic periods, young people are usually laid off first, which impedes their capability to build skills and experiences, consequently inducing long-term scarring effects.

The last perspective is linked to the job search theory. The decision to embark on a job search is not solely an individual one, as structural and labour market issues often obscure this process, particularly for young people who find themselves in a vulnerable position compared to other demographic groups. They are frequently relegated to temporary employment, possess limited or no experience crucial for competitive job markets and face heightened challenges in the job search (Ylistö 2018). Often, young individuals lack adequate knowledge in their pursuit of employment because of unclear employment plans and a lack of understanding regarding careers. Insufficient work experience, coupled with a dearth of social capital and necessary skills, places them at a considerable disadvantage regarding employment prospects (Moore 2019). This group is prone to additional challenges, including negative perceptions from employers, a scarcity of entry-level positions and ineffective information channels. The significance of personal networks in the labour market is multifaceted, as contacts can facilitate job searches and contribute to various processes of social reproduction (Vacchiano and Spini 2021; Ylistö 2018). Young people's access to social capital and their ability to navigate interactions with uneven resources are closely linked to individual tactics and social factors, with social background playing a significant role (De Jongh 2019). Social networks emerge as a primary source of extraordinary inequality where young people's access or lack thereof frequently grants or denies them entry into qualified sectors, offering the potential for satisfying jobs (Vacchiano, Yepes-Cayuela & Martí 2021).

Understanding the not in employment, education or training and their challenges

Young people are a great source of economic and social potential in any country (Rollnik-Sadowska 2016). However, the challenges that the youth encounter in the labour market are a tremendous threat to any potential gains that may be made from their participation in the economy. Unemployment rates among young people are high globally, exacerbating poverty and inequality (ILO 2022). First-time job seekers face challenges in securing employment and accessing the labour market (Leibbrandt et al. 2010). Although many countries have made significant strides to improve employment and economic growth, such improvements have not been able to keep up with the continually expanding labour market supply of young people (Mncayi & Meyer 2022). For example, according to the 2020 Global Youth Employment Trends Report, between 1999 and 2019, the number of young people's participation in the workforce worldwide decreased from 568 to 497 billion, despite an increase in the number of young people from 1 to 1.3 billion (ILO 2020, 2022).

The prevailing global pattern indicates significant difficulties for young individuals in securing satisfactory employment, let alone any form of employment (Mncayi & Meyer 2022). As the onset of the global financial crisis, the employment rate for young people has decreased by over 15%, contrasting with the consistent rise in the employment rate for adults (United Nations 2019). While the diminishing participation of young people in the labour force may be largely attributed to an increased percentage attending school, another significant factor could be their inclusion in the NEET category (Canon, Debbaut & Kudlyak 2013; Wickremeratne & Dunusinghe 2018). The disproportionate representation of young individuals in NEET statistics is worrisome, posing a threat to social dissatisfaction and stability, as highlighted by Escudero and Mourelo (2013).

Generally, the labour force framework categorises people as employed, unemployed or inactive. One is considered employed if they are in paid work or self-employed, while those who are unemployed are actively looking for employment (Assirelli 2013). Those considered inactive are without work and not looking for any. The NEET, on the other hand, refers to those unemployed and inactive, whether by choice or not and remains an important research question (Carcillo et al. 2015; Chen 2011). The concept of NEET was first coined in the late 1980s in the United Kingdom, later gaining recognition in the mid-1990s (Holmes, Murphy & Mayhew 2021; Holte et al. 2019). At that time, it described young people in the 16–18-year-old age category who were not in employment or education. The importance of NEET lies in the fact that it not only speaks about the labour market but also education and training, essentially zooming in on school-to-work transitions. The exact reasons behind the NEET position are diverse and are connected to several and often entwined individual, household and economic-related aspects. As argued by De Lannoy and Muridizi (2019), most personal and household factors can arise because of an individual being NEET, at the same time also cause an individual to be NEET. The proportion of women in NEET statistics is even worse, especially since a large share of them are confronted with childcare and family responsibilities (Maguire 2018), including marriage, which prevents them from the labour market to engage in income-earning activities.

The NEET measure encompasses a broad categorisation of young individuals for whom finding employment is either not feasible or not deemed worthwhile (Mncayi & Meyer 2022). However, it specifically focuses on young people engaged in unproductive or peripheral jobs, as highlighted by Assaad and Levison (2013) and Meyer and Mncayi (2021). The increasing prevalence of informal employment among the youth has led to heightened concerns about well-being issues, particularly in the current scenario where securing stable employment is progressively challenging. Nevertheless, the number of young people in

the NEET category remains very high and continues to rise. This implies that the youth's full potential can be permanently impaired as they are not acquiring any working experience in the labour market, which further limits any chance they may have of finding employment (Kumo, Chulu & Minsat 2016) or getting any income from work or improving their learning (ILO 2020).

At a macroeconomic level, the NEETs are extremely problematic in the sense that the prolonged period of NEET hinders productivity and competitiveness, thereby being a major impediment to the realisation of economic growth (Schmillen & Umkehrer 2017). This consequently results in lost output and government revenue with increased government spending (Ebell & O'Higgins 2015). On the other hand, according to Dickens and Marx (2020), being NEET has a sturdy bearing on physical, emotional and psychosocial well-being. For most young people, being part of NEET in the early stages of their working life can bring about major economic and social consequences in the long term (Holmes et al. 2021), in the process trapping them in the vicious cycle of poverty and causing them to be socially excluded (Gutiérrez-García et al. 2017; Ralston et al. 2016). The latter can be even more pronounced among young males who commonly find themselves at the borders of society and are more susceptible to perilous and violent behaviour Allen (2016).

Another significant challenge brought by NEET is the decline in human capital that arises in that idle state, which can pose more challenges, especially for low-educated young people with no work experience. Education attained at some point in the past, without being complemented by practical work experience or on-the-job training, can result in the depletion of human capital or skills, akin to the depreciation of physical capital when left unused (Amadeo 2018). This situation can have enduring repercussions on career advancement, earning potential and the accumulation of retirement income, as highlighted by Li, Duncan and Miranti (2015). Furthermore, the ramifications of the NEET phenomenon are underscored by crime statistics revealing that a significant proportion of house burglaries, particularly in countries like South Africa, involve individuals aged 19–25 years (Meyer & Mncayi 2021). Approximately 90% of those apprehended in connection with these crimes either did not complete grade 12 or are unemployed, as indicated by research conducted by Cloete and Butler-Adam (2012). Many of them discontinued their education because of various factors, including familial responsibilities, financial constraints and other challenges (Mncayi 2020). The subsequent section provides a summary of the findings relating to previous studies on NEETs.

Previous empirical research

The NEET measure is not widely accessible for the majority of developing nations, as indicated by Assaad and Levison (2013) and Mncayi (2020). Regardless, a growing body of literature has been emerging, investigating different aspects relating to NEETs. Using information from two British birth cohorts, Bynner and Parsons (2002) found several risk indicators for being NEET in the United Kingdom. According to their research, the socioeconomic position of the family, the education of the parents as well as their level of involvement in the child's schooling, residential area and children's educational attainment are all reliable indicators of NEET status in the later years of their lives. A study by Chen (2011), which examined 15–20-year-old Taiwanese youth who were not employed, in education or in vocational training found economic reasons to largely explain the participants' NEET status, suggesting that most of the respondents did not become NEETs by choice.

In a study by Bardak, Maseda and Rosso (2015) on young people who are NEET in the 29 partner countries of the European Training Foundation, it was discovered that family and individual characteristics such as gender, education level, age and socioeconomic background play a significant role in determining how well young people transition from school to work and are therefore some of the main causes of young people becoming NEETs. However, there are also significant differences between the country samples, which can be attributed to the various social or cultural norms, the various structures and the efficacy of their educational and vocational education and training (VET) systems, as well as the operation of regional labour markets and economies in general.

Using a longitudinal survey of Australian youths between the ages of 15 years and 24 years, Stanwick, Forrest and Skujins (2017) discovered that prolonged NEET states are largely determined by not finishing grade 12, having children and coming from a lower socioeconomic background. The study also discovered that having a period of persistent NEET status between the ages of 15 and 19 years is linked to a higher likelihood of persistent NEET status between the ages of 20 years and 24 years as well as a lower likelihood of beginning or finishing a higher-level qualification by the age of 24 years. These young individuals appear to have also been affected by the global financial crisis.

Using the Poverty Monitoring Survey in Senegal, Cabral (2018) found that young people's NEET status is determined by the existence of physical and mental disabilities, as well as the age and gender of the respondent. In addition, the gender, education status, employment, marital status of the head of household and household income were other significant variables explaining the NEET status of the sample. In a study that looked at the youth NEET in Sri Lanka, Wickremeratne and Dunusinghe (2018) discovered that age, gender, education, residential sector and marital status were the key drivers of youth NEET in Sri Lanka. Quintano, Mazzocchi and Rocca (2018) found that the portion of NEETs in Italy is more pronounced for women and immigrants regardless of their level of education or field of study.

In their review of factors associated with being NEET among black youths in South Africa, De Lannoy and Mudirizi (2019) found that age, gender, health and education fuelled the likelihood of being NEET among this group. Further results from De Lannoy and Mudirizi's study showed that living in high-income households with an employed person significantly lessens the chances of being NEET in the sample, regardless of gender. O'Higgins (2019) observed that individuals with higher levels of education and those residing in rural areas are more susceptible to NEET status. However, in terms of numerical representation, there is a higher count of NEETs in urban areas than in rural ones.

According to a study on NEET in Morocco by Alfani et al. (2020), young men and women with less education are likelier to become NEET. This is especially true for married and/or parenting women. Compared to large cities or rural farming communities, medium-sized towns are likewise more inclined to have a greater prevalence of NEETs. In general, better economic situations and more educated parents tend to reduce the likelihood that young members of the household may become NEETs. In a qualitative study examining the existing literature on young people in NEET in sub-Saharan Africa, Cieslik et al. (2022) discovered that NEET rates tend to be more persistent for young women compared to young men. The study also underscores the challenges associated with the scarcity of data in this region. The empirical procedures used in the study will be explained in more detail in the next section.

Research design

Sample

The focal purpose of the study was to determine the factors that influence the likelihood of young working-aged individuals being classified as NEETs. In doing so, the study employed a quantitative approach using secondary data from Stats South Africa. The data were obtained from the fourth Quarterly Labour Force Survey (QLFS) of 2021. The QLFS is a household-based sample survey that aims to collect data on the national labour market activity on individuals of working age (15 years and older). To achieve the primary objective, a cross-sectional research design was used with the sample consisting of young working-age individuals between the ages of 15 and 34 years residing in all nine provinces of the country. Based on this criterion, the sample consisted of a total of 14338 individuals. The study comprised both qualitative and quantitative elements. The former included a literature review, while the latter included the use of various techniques in which the collected data were analysed.

Analysis of the data and model specifications

The analysis of the data was carried out using the Statistical Package for Social Sciences (SPSS) software version 27. The process included various techniques and was divided into three distinct steps. The first step comprised a descriptive analysis with the use of frequency and percentage tables to provide a demographic and geographic overview of the sample's composition. In the second step, more inferential techniques were employed, including the use of cross-tabulations, chi-square tests and Cramer's V-test statistics to identify possible associations and strengths in the relationships between the categorical variables that were used. Finally, to identify the possible predictors of NEET status for youths in South Africa, the study employed a binary logistic regression model. Possible predictors were identified using the literature review. These are shown in Table 1 together with the coding criteria that were included in the modelling process.

In line with determining the influence of the predictor variables discussed earlier on the NEET status of the working-aged youth, the dependent variable (NEET status) was coded dichotomously. In this instance, 1 indicates young people not being employed, in education or any form of training, while 0 shows that these individuals were employed, currently attending some form of educational institution, or participated in training courses. Considering this, the study estimated the binary logistic regression as follows:

$$NEET_i = \theta_0 + \theta_1 AGE_i + \theta_2 GEN_i + \theta_3 MAS_i + \theta_4 RACE_i + \theta_5 LOE_i + \theta_6 GEO_i + \theta_7 MET_i + \varepsilon_t \quad \text{[Eqn 1]}$$

Here, $NEET_i$ represents the dependent variable, the NEET status of the participants, θ_0 shows the constant while $\theta_1, \theta_2, \theta_3 \ldots \theta_7$ shows the coefficients of each of the included explanatory variables in the model. Finally, to account for the statistical noise, the error term is included, denoted in Equation 1 as ε_t. To ensure the reliability of the results, the modelling included the use of various diagnostic tests in order to ascertain whether the data were a good fit for the model used as well as to ensure that no

TABLE 1: Predictor description and coding criteria.

Variable	Denotation	Description and coding criteria
Age	AGE_i	Shows the age group of the individuals. Variable coded categorically. Three dummy variables were created where 1 = 15–19 years and 0 = otherwise; 1 = 20–24 years and 0 otherwise; 1 = 25–29 years and 0 = otherwise. Those aged between 30 and 34 years were used as the reference group.
Gender	GEN_i	Represents the gender of the individuals. Categorical and dichotomous variables. Coding instructed with 1 = female and 0 = male.
Marital status	MAS_i	Shows the marital status of the individual. Dichotomously coded with 1 = married or living together and 0 = not married or living alone.
Race	$RACE_i$	Indicates the race of the participant. This was categorically coded where two dummy variables were created. 1 = African and 0 = otherwise; 1 = other racial groups and 0 = otherwise. In this instance, being white was used as the reference group.
Level of education	LOE_i	Indicates the level of education of the participant. Again, this variable was categorically coded with the use of dummy variables. Here 1 = lower than primary education and 0 = otherwise; 1 = primary level of education and 0 = otherwise; 1 = secondary level and 0 = otherwise; 1 = post-secondary education and 0 = otherwise. Tertiary level was used as the reference group.
Geographic location	GEO_i	Variable indicates the geographic location of participant's residence. Categorical variable, dichotomously coded; 1 = urban and 0 = rural.
Metropolitan residence	MET_i	Portrays the location of residence of the participant. Categorical variable, dichotomously coded; 1 = metropolitan municipal area and 0 = non-metropolitan municipal area.

serious form of multicollinearity was present between the explanatory and dependent variables. These tests included the use of the omnibus test of model coefficients, and the Hosmer and Lemeshow (2000) test, while both variance inflator factors and tolerance values were employed, respectively. In addition to this, both the Nagelkerke R-square (Nagelkerke 1991) and Cox and Snell R-square (Cox & Snell 1989) statistics were used to estimate the percentage of variation in the dependent variable as explained by the model.

Ethical considerations

Ethical clearance to conduct this study was obtained from the North-West University Economic and Management Sciences Research Ethics Committee (EMS-REC) (No. NWU-01820-23-A4).

Results

Demographic and socioeconomic background of the sample

The purpose of reporting on the demographic and socioeconomic composition of the sample is twofold. Firstly, when showcasing the responses to the survey, it assists in determining that the collected information on the population parameters is accurate (Groves 2006). More importantly, though, is that it provides additional context, which assists in better comprehending the inherent dynamics of the study topic. As such, Table 2 indicates the results pertaining to the demographic composition of the sample. As shown, the sample consisted of an even distribution between males (47.8%) and females (52.2%). Considering the population group representation, more than four out of the five (89.5%) samples were African or black people, followed by 6.0% who indicated that they were mixed race. Only a small portion of the sample indicated they were white people (3.1%), with Asians or Indian people accounting for only 1.4% of the total 14 338 participants. Given the national scope of the QLFS survey, this distribution does reflect the composition of the population of South Africa (Stats SA 2022b).

Given the focus on young working-aged individuals, the study made use of the national definition of youth, which sees young people between the ages of 15 years and 34 years (Khuluvhe & Negogogo 2021). As can be seen from Table 2, within this age category, the sample was approximately evenly spread between younger groupings, 15–19 years (29.8%), 20–24 years (24.3%) and those in the older groups, that is 25–29 years (23.2%) and 30–34 years (22.7%) of the cohort.

Upon review of marital status, the distribution seems to reflect the life stage of the sample. A much lower percentage of the participants (11.6%) indicated they were indeed married or living with someone, while the majority (88.4%) indicated otherwise. This also points to the fact that with continued struggles in the labour market, many young working-age individuals delay family or couple formation or cohabitation (De Jongh 2019). In addition, participants

TABLE 2: Demographic composition of the sample.

Aspect	Subcategory	*f*	%
Gender	Male	6850	47.8
	Female	7488	52.2
Race	African	12 836	89.5
	Mixed race	854	6.0
	Indian and Asian people	201	1.4
	White people	447	3.1
Marital status	Married or living together	1666	11.6
	Not married or living alone	12 672	88.4
Geographic location	Urban	8607	60.0
	Rural	5731	40.0
Age (years)	15–19	4271	29.8
	20–24	3482	24.3
	25–29	3328	23.2
	30–34	3257	22.7
NEET	Yes	6075	42.4
	No	8263	57.6
Level of education	Lower than primary education	361	2.5
	Primary education	440	3.1
	Secondary education	12 138	84.7
	Post-secondary education	998	6.9
	Tertiary education	401	2.8
Province	Western Cape	1114	7.8
	Eastern Cape	1597	11.1
	Northern Cape	427	3.0
	Free State	814	5.7
	KwaZulu-Natal	3117	21.7
	North-West	738	5.1
	Gauteng	3259	22.7
	Mpumalanga	1412	9.8
	Limpopo	1860	13.0
Municipal area	Metropolitan	5638	39.3
	Non-metro	8700	60.7

NEET, not in employment, education or training.

indicated the province and geographic location of their residence. Results from Table 2 show that participants from all nine provinces in South Africa were included, with Gauteng (22.7%), KwaZulu-Natal (21.7%) and Limpopo (13.0%) accounting for most of the young working-aged individuals. Moreover, from a geographical perspective, 60% resided in urban regions. However, the participants were not all situated within metropolitan municipal areas (non-metro = 60.7%; metro = 39.3%). In fact, upon further review (as shown in Appendix 1, Table 1-A1), females, mixed race youth and African youth were more likely to be situated in non-metropolitan areas.

Given the importance of education in labour market outcomes, it was critical to identify the present level of education within the sample. Responses in Table 2 indicated that most of the participants attributed some form of secondary education (84.7%), while only 9.7% (6.9% + 2.8%) indicated that they have acquired a qualification higher than this. Finally, Table 2 likewise shows the current level of young NEETs in the South African labour market. Of the 14 338 sampled participants, 42.4% of young people of working age indicated that they were not in any form of employment, education or training. Compared to similar countries such as India (30.7%), Malaysia (12.6%) and Brazil (23.5%), even according to the international definition of

youth (15–24 years), South Africa attributes relatively higher NEET rates (ILO 2021).

Cross-tabulation analysis

After providing some insight into the demographic and socioeconomic background of the participants, the analysis ensued with the use of cross-tabulations, chi-square tests and effect size estimators. This was done with the purpose of identifying the influence of the possible predictors on the NEET status of young working-aged individuals. Table 3 reports the results for these techniques, which showed that all possible predictors identified in the literature review attributed statistically significant different distributions (at a 1% significance level) with varying degrees of strength of association with the likelihood of being classified as NEET. From these results, statistics showed that younger ages, especially within the 15–19-year age categories, attributed the lowest distributions of NEETs (12.2%). The highest distributions were recorded for those aged 25–29 years, which contributed a 61.3% NEET rate. In addition to this, from a gender perspective, females (46%) attributed more young NEETs when compared to males (38.4%).

In relation to their marital status, being married or living with someone, results showed that 47.1% were classified as NEET compared to a 41.8% NEET rate for those who were not married or living on their own. Similar results were also reported by De Lannoy and Mudiriza (2019), which suggests that these might point to gendered aspects and cultural norms of marriage, especially relating to young females. Given the socioeconomic and historical significance of race within the country, it was important to determine the influence of this characteristic on the NEET status of young working-aged individuals. Results in Table 3 in this regard seem to suggest that the highest NEET rates were reported for black people (43.8%). This was followed by the mixed-race cohort (38.5%) and Indian or Asian people (29.4%), while the white people cohort attributed the lowest NEET rates, at 15.9%, respectively. These findings are in line with those reported by Holte et al. (2019).

In conjunction with the aforementioned results, Table 3 also shows the distributions according to the different levels of education among the participants and the prevalence of being classified as NEET. The distributions suggest that higher levels of education seem to offset the probability of not being employed, in education or in some form of training. Another important consideration for the study was to determine whether the location of working-age individuals contributed an influence on their ability to gain employment or to actively improve their skill sets. From this point of view, residing in either urban (40.2%) or metropolitan municipal areas (39.7%) contributed lower NEET rates compared to those situated in rural (45.6%) or non-metropolitan areas (44.1%), respectively.

Given the nature of specific household dynamics in which members participated in the production of non-market goods (i.e. subsistence farming, collection of water, general household work), it was important to determine the influence of this allocation of time on young working-aged individuals' NEET status. Results show that actively allocating time to these activities did, in fact, contribute to higher NEET rates

TABLE 3: Cross-tabulation results between the independent and dependent variables.

Aspect	Subcategory	NEET		χ^2 (Sig.)	Cramer's V
		Yes (%)	No (%)		
Age (years)	15–19	12.2	87.8	2346.293	0.405
	20–24	53.4	46.6	(0.000*)	
	25–29	61.3	38.7		
	30–34	50.8	49.2		
Gender	Male	38.4	61.6	85.533	0.077
	Female	46.0	54.0	(0.000*)	
Marital status	Married or living together	47.1	52.9	16.973	0.034
	Not married or living alone	41.8	58.2	(0.000*)	
Race	African	43.8	56.2	157.582	0.105
	Mixed race	38.5	61.5	(0.000*)	
	Indian or Asian people	29.4	70.6		
	White people	15.9	84.1		
Level of education	Lower than primary education	57.1	42.9	71.738	0.071
	Primary education	45.0	55.0	(0.000*)	
	Secondary education	42.2	57.8		
	Post-secondary education	35.3	64.7		
	Tertiary education	28.6	71.4		
Geographic location	Urban	40.2	59.8	41.976	0.054
	Rural	45.6	54.4	(0.000*)	
Municipal area	Metropolitan	39.7	60.3	27.956	0.044
	Non-metro	44.1	55.9	(0.000*)	
Involvement in non-market activities	Yes	48.6	51.4	51.731	0.060
	No	41.0	59.0	(0.000*)	

Note: () denotes significance values; *significance at a 1% significance level.
NEET, not in employment, education or training.

(yes = 48.6%; no = 41.0%). Finally, using Cramer's V effect size estimator, the study determined the strength of association between each of the predictors and the NEET status of the participants. Based on the estimates shown in Table 3, gender (V = 0.077), marital status (V = 0.034), level of education (V = 0.071), geographic location (V = 0.054), municipal area (V = 0.044) and involvement in non-market activities (NMAs) (V = 0.060) all contributed weak associations. However, race (V = 0.105) and age (V = 0.405) contributed moderate and strong associations, respectively.

Binary logistic regression results

Following the cross-tabulation analysis, the study proceeded with the logistic regression analysis. This was done with the purpose of identifying the determinants of the sample's NEET status. The results for the analysis are reported in Table 4. Upon review of the results associated with age, it seems that the younger groupings (15–19 years) were less likely to be NEET compared to the reference category (30–34 years). In fact, the odds ratio of 0.103 suggests that individuals within this specific age category were 89.7% (0.103–1) less likely to be classified as NEET compared to their older counterparts. Contrariwise, older age groupings, particularly those between the ages of 25 and 29 years, contributed a 47.6% (1.476–1) higher likelihood of being NEETs. These findings are in line with those reported by Bardak et al. (2015).

For South Africa, its legacy of the apartheid era and its racially discriminative legislature have had enduring effects on various aspects of its labour market (Beukes et al. 2017). In this regard, it was important to include race as a possible predictor of young working-aged individuals' NEET status. In doing so, being classified as a white person was used as the reference category. Results from Table 3 for this aspect show that all included categories of race contributed positive and statistically significant (at 1% level of significance) coefficients. From this, it can be concluded that a notable determinant of NEET status for young South Africans relates back to their racial characteristics.

In line with the importance of education within the NEET framework, the study included five different levels of education within the regression model. Attributing a tertiary education within this aspect was used as the reference category. Results show that all levels of education, apart from the post-secondary level, had statistically significant (sig. = 0.000) positive coefficients. As expected with higher levels of education, the likelihood of being classified as NEET does seem to diminish. When compared to those who had obtained a tertiary education, those with no completed primary education contributed the highest likelihood of being classified as NEET (253.4%), which was followed by those with a completed primary education (101.4%) and those with a secondary education (51.0%).

In addition to these variables, the model included two predictor variables that served as proxies towards the measurement of location and distance and their influence on the NEET status of young working-aged South Africans. In this regard, results show that the coefficients for both geographic types (non-urban = reference category; sig. = 0.004) and the municipal area of residence (non-metro = reference category; sig. = 0.001) were negative and statistically significant. The odds ratios of 0.868 and 0.850 show that being situated in urban and metropolitan areas reduces the likelihood of being classified as a young NEET by 13.2% and 15.0%, respectively. These findings correspond to those shown by Stanwick et al.

TABLE 4: Binary logistic regression results.

Aspect	B	SE	Wald	*df*	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
30–34 years (reference group)	-	-	2053.224	3	0.000*	-	-	-
15–19 years	-2.278	0.063	1296.589	1	0.000*	0.103	0.091	0.116
20–24 years	-0.028	0.053	0.293	1	0.588	0.972	0.877	1.077
25–29 years	0.390	0.052	56.167	1	0.000*	1.476	1.333	1.635
Gender (male)	-0.363	0.038	90.177	1	0.000*	0.696	0.646	0.750
White people (reference group)	-	-	102.792	3	0.000*	-	-	-
African or Black people	1.317	0.138	91.455	1	0.000*	3.733	2.850	4.889
Mixed race	1.231	0.156	62.441	1	0.000*	3.425	2.524	4.648
Indian or Asian people	0.704	0.211	11.100	1	0.001*	2.022	1.336	3.059
Marital status (not married or living alone)	-0.280	0.059	22.265	1	0.000*	0.756	0.673	0.849
Tertiary education (reference group)	-	-	105.762	4	0.000*	-	-	-
Not completed primary	1.262	0.165	58.196	1	0.000*	3.534	2.555	4.887
Primary education	0.700	0.159	19.365	1	0.000*	2.014	1.475	2.752
Secondary education	0.412	0.106	15.106	1	0.000*	1.510	1.227	1.859
Post-secondary education	0.039	0.123	0.102	1	0.749	0.962	0.756	1.223
Geography type (urban)	-0.142	0.049	8.206	1	0.004*	0.868	0.788	0.956
Metropolitan area (metro)	-0.162	0.047	11.827	1	0.001*	0.850	0.775	0.933
Involvement in non-market activity (yes)	0.280	0.053	27.576	1	0.000*	1.324	1.192	1.470
Constant	-1.143	0.170	50.831	1	0.000*	0.319	-	-

Note: * significance at a 1% significance level; Omnibus test of model coefficients results: chi-square = 3126.378; sig. value = 0.000; Hosmer and Lemeshow test: chi-square = 11.784; sig. value = 0.161; Nagelkerke R-square = 0.263; Cox and Snell R-square = 0.196; – 2 log likelihood = 16415.110; VIF values were between 1.0 and 1.6; tolerance values were above 0.6 for all explanatory variables.

(2017) and Alfani et al. (2020). Finally, upon understanding the dynamics of involvement in non-market activities that come to characterise various developing regions, this characteristic was included in the model. Results from Table 3 indicate that allocation of time towards these activities does in fact seem to increase the likelihood (odds ratio = 1.324; sig. = 0.000) of not being employed, nor being registered for any form of education or training.

After the estimation of the model, various diagnostic tests were employed to ascertain the reliability of the results. All VIF and tolerance values from this perspective were within the required ranges, signifying that there was no presence of multicollinearity between the predictor variables. Furthermore, both the Hosmer and Lemeshow (sig. = 0.161) and the Omnibus test of model coefficients (sig. = 0.000) confirmed good model fit.

Discussion

The findings of the analysis revealed several pertinent areas for consideration. Based on the determinants investigated, the identified antecedents point to both social and economic factors that are considered somewhat unique to the cohort, affecting their ability to access either employment or education opportunities. Among these, based on the results showcased in the previous subsections, the influence of specific gender and age considerations was evident. While not unique to South Africa, in this respect, the study showed that young females bear the brunt of these difficulties, signifying the ongoing challenges for the former in labour market outcomes within the country (Department of Women, Youth and Persons with Disabilities 2020). Similarly, when different categories for age were considered, the study showed just how complex this situation is. The results point to the fact that younger-aged individuals, especially in their teens, are still predominantly focusing on completing secondary education, while older groupings most likely disengage when schooling is complete (Ulziisuren 2017). Considering that older age groupings, especially within the youth cohort, are associated with higher NEET rates, this is somewhat concerning. Their struggles most probably are based on facing difficult school-to-work transitions. What makes this a serious matter for consideration is the fact that the literature has shown that the longer these durations of exclusion last, the greater the scarring effects can be on future possibilities of employment and wage accumulation (Ralston et al. 2021).

In addition to these features, the results likewise pointed to specific features that were endemic to the South African context. This firstly pertained to specific racial barriers with the study showcasing the comparatively higher difficulties facing young black people in either being involved in some form of education or employment. The continuous struggles of these racial groups within labour market processes have been attributed to very poor schooling and an unaccommodating post-school system that has failed to overcome historical systemic challenges (Holte et al. 2019) (also shown in the results reported in Table 2-A1). Education in fact, within the discourse on NEETs in South Africa, has pointed to the inefficiencies in the country's schooling system. Studies in this regard have cited severe inequalities to access quality education (Amnesty International 2020; Spaull 2015), while others have suggested that the system, particularly at the secondary level, fails to equip the needed skills that are demanded in the labour market (Asmal et al. 2020; Hall 2015). Considering that higher levels of education, specifically more post-secondary levels, showed notable improvements in lowering NEET rates, the findings signalled the importance of higher human capital levels towards successfully obtaining employment (Ripamonti & Barberis 2021).

Finally, given the focus of the analysis on specific geographic attributes and young people's involvement in non-market activities, several important implications came to light. The first in this regard pertained the importance of ensuring that proximity attributes are adequately accounted for. Arguably, compared to older cohorts (those above 35 years), aspects such as job search-related efforts and costs affect younger cohorts (between 15 and 34 years) more severely given their inexperience in labour market processes as well as lower availability of both social and monetary capital (Kavese & Mbali 2021). Alfani et al. (2020) explain that being located in rural areas and distant locations severely limits access to productive opportunities. Here, a lack of access to information, lacking technology as well as mobility deprivation play significant roles in the social exclusion of young people. Additionally, while given the significant influence of this cohort's involvement in non-market activities, the results are indicative of the importance of time allocation for younger individuals especially within developing contexts, requiring assistance in specific family responsibilities (Fox & Ghandi 2021). Cieslik et al. (2021) especially signify the gendered aspects in this regard, referring to the inability of young females to access education, resources and the world of work given their relatively high-time allocation towards activities such as care work, for example.

Conclusion

In conclusion, this analysis has demonstrated that a wide range of young people might be NEET for a variety of reasons and that identifying the significance of these reasons is essential for focusing policy responses. The findings of the study show the important role that higher education institutions can play in facilitating the transition from education to employment for many young people. Higher skill sets and better capabilities in this regard were shown to drastically decrease the chances of being classified as NEETs, especially for post-secondary qualifications.

Moreover, there is a need to consider spatiality as a considerable factor in this regard, especially within the context of South Africa, where the black majority are situated

in the periphery, away from where the opportunities are. This has an impact on their access to employment and education opportunities. This access is further impacted by the lack of financial capital because of poverty. In numerous cultural backgrounds, employment is an imperative step in the transition to adulthood, and as a result, a lack of employment and, in some instances, periods out of education have proven to have devastating and scarring effects where the youth are concerned. Being in NEET and remaining in this situation for extended periods may perpetuate crime, force these young people into perilous employment, weaken mental and physical health and push them to social exclusion, substance abuse and discouragement. The study had its limitations. Firstly, this was only a cross-sectional study; thus, future studies could focus more on time-series analysis of data collected over time to give a better picture of the NEET situation in South Africa. Secondly, future studies could disaggregate the analysis by having a provincial focus to compare these determinants of NEETs to see whether specific geographic attributes do play a role. Future studies could also benefit from alternative comparative analyses, with comparisons across countries that can provide best-case insights and inform strategies to successfully address youth disengagement. Finally, an intriguing perspective could be gained by exploring the extent of NEET status among foreign nationals residing in South Africa. This is an area that future studies could delve into for a more comprehensive understanding.

Acknowledgements

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

J.J.J.d.J., and P. Mncayi-Makhanya, were responsible for conceptualisation, P. Mdluli-Maziya contributed methodology, software and validation; J.J.J.d.J. produced the formal analysis; J.J.J.d.J., P. Mncayi-Makhanya and P. Mdluli-Maziya did the discussion section: J.J.J.d.J., P. Mncayi-Makhanya and P. Mdluli-Maziya; wrote and prepared the original draft J.J.J.d.J., P. Mncayi-Makhanya and P. Mdluli-Maziya; were responsible for writing, reviewing, editing and visualisation: P. Mncayi-Makhanya and P. Mdluli-Maziya; did the project administration. J.J.J.d.J., P. Mncayi-Makhanya and P. Mdluli-Maziya, read and approved the article for publication.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability

The data that support the findings of this study are available from the corresponding author, P.M.-M., upon reasonable request.

Disclaimer

The views and opinions expressed in this article are those of the author(s) and are the product of professional research. It does not necessarily reflect the official policy or position of any affiliated institution, funder, agency, or that of the publisher. The author(s) are responsible for this article's results, findings, and content.

References

Aassve, A., Cottini, E. & Vitali, A., 2013, 'Youth prospects in a time of economic recession', *Demographic Research* 29, 949–962. https://doi.org/10.4054/DemRes.2013.29.36

African Development Bank, 2015, *African development report: 2015. Africa's youth in the labour market*, viewed 09 April 2022, from https://www.afdb.org/file admin/uploads/afdb/Documents/Publications/ADR15_chapter_5.pdf.

Alfani, F., Clementi, F., Fabiani, M., Molini, V. & Valentini, E., 2020, *Once NEET, always NEET? A synthetic panel approach to analyze the Moroccan labor market*, World Bank Policy Research Working Paper No. 9238, World Bank, Washington, DC.

Allen, M., 2016, Young adult offenders in Canada, 2014, *Juristat: Canadian Centre for Justice Statistics*, Canada.

Amadeo, K., 2018, *The best way to solve high unemployment according to research*, viewed 05 May 2022, from https://www.thebalance.com/unemploymentsolutions-3306211.

Amnesty International, 2020, *South Africa: Broken and unequal – The state of education in South Africa*, viewed 02 May 2022, from https://www.amnesty.org/en/documents/afr53/1705/2020/en/.

Asmal, Z., Bhorat, H., Culligan, S., Hofmeyr, H., Monnakgotla, J., Oosthuizen, M. et al., 2020, *Skills supply and demand in South Africa*, Development Policy Research Unit, University of Cape Town, viewed 26 May 2023, from https://www.dhet.gov.za/SiteAssets/The%20Report% 20on%20Skills%20Supply%20and%20Demand%20In%20South%20Africa%20-%202020.pdf.

Assaad, R. & Levison, D., 2013, *Employment for youth: A growing challenge for the global community*, MPC Working Paper No. 2013-07, Minnesota Population Center, University of Minnesota, Minneapolis, MN.

Assirelli, G., 2013, *The NEET phenomenon: A comparative analysis*, University of Trento, viewed 06 April 2023, from http://hdl.voced.edu.au/10707/369254.

Bardak, U., Maseda, M. & Rosso, F., 2015, *Young people not in employment, education or training (NEET): An overview in ETF partner countries*, viewed 02 April 2022, from https://www.etf.europa.eu/sites/default/files/m/BFEEBA10DD412271C1257EED0035457E_NEETs.pdf.

Becker, G.S., 1964, *Human capital: A theoretical and empirical analysis with special reference to education*, Columbia University Press, New York, NY.

Beukes, R., Fransman, T., Murozvi, S. & Yu, D., 2017, 'Underemployment in South Africa', *Development Southern Africa* 34(1), 33–55. https://doi.org/10.1080/0376835X.2016.1269634

Bunel, M., L'Horty, Y. & Petit, P., 2016, 'Discrimination based on place of residence and access to employment', *Urban Studies* 53(2), 267–286. https://doi.org/10.1177/0042098014563470

Bynner, J. & Parsons, S., 2002, 'Social exclusion and the transition from school to work: The case of young people not in education, employment, or training (NEET)', *Journal of Vocational Behavior* 60(2), 289–309. https://doi.org/10.1006/jvbe.2001.1868

Cabral, J., 2018, 'Key drivers of NEET phenomenon among youth people in Senegal', *Economics Bulletin* 38(1), 248–261, viewed 11 December 2022, from http://www.accessecon.com/Pubs/EB/2018/Volume38/EB-18-V38-I1-P25.pdf.

Canon, M., Debbaut, P. & Kudlyak, M., 2013, *A closer look at the decline in the labor force participation rate*, The Regional Economist, viewed 04 April 2023, from https://www. stlouisfed.org/-/media/project/frbstl/stlouisfed/Files/PDFs/publications/pub_assets/pdf/re/2013/d/labor_force.pdf.

Carcillo, S, Fernández, R., Königs, S. & Minea, A., 2015, *NEET youth in the aftermath of the crisis: Challenges and policies*, OECD social, employment and migration Working Paper No. 164, Organisation for Economic Cooperation and Development, Paris.

Chen, Y., 2011, 'Once a NEET always a NEET? Experiences of employment and unemployment among youth in a job training programme in Taiwan', *International Journal of Social Welfare* 20(1), 33–42. https://doi.org/10.1111/j.1468-2397.2009.00711.x

Cieslik, K., Barfordb, A. & Virad, B., 2021, 'Young people not in employment, education or training (NEET) in sub-Saharan Africa: Sustainable development target 8.6 missed and reset', *Journal of Youth Studies* 25(8), 1126–1147. https://doi.org/10.1080/13676261.2021.1939287

Cloete, N. & Butler-Adam, J., 2012, 'Match policy with reality and young people stand a chance', *Mail and Guardian*, viewed 28 May 2022, from https://mg.co.za/article/2012-08-10-match-policy-with-reality-and-young-people-stand-a-chance/.

Cox, D.R. & Snell, E.J., 1989, *The analysis of binary data*, Chapman and Hall, London.

De Jongh, J.J., 2019, 'Understanding the drivers of long-term youth unemployment: Micro-level evidence from South Africa', in *Proceedings of International Academic Conferences (No. 9912297), International Institute of Social and Economic Sciences*, Barcelona, Spain, 23 September 2019, pp. 85–100.

De Lannoy, A. & Mudiriza, G., 2019, *A profile of young NEETs: Unpacking the heterogeneous nature of young people not in employment, education or training in South Africa*, SALDRU Working Paper No. 249, SALDRU, University of Cape Town, Cape Town.

Department of Women, Youth and Persons with Disabilities, 2020, *National youth policy: 2020 – 2030. A decade to accelerate positive youth development outcomes*, Government Printer, Pretoria.

Dickens, L. & Marx, P., 2020, 'NEET as an outcome for care leavers in South Africa: The case of girls and boys town', *Emerging Adulthood* 8(1), 64–72. https://doi.org/10.1177/2167696818805891

Ebell, M. & O'Higgins, N., 2015, *Fiscal policy and the youth labour market*, ILO employment Working Paper No. 200, International Labour Organisation, Geneva.

Escudero, V. & Mourelo, E., 2013, *Understanding the drivers of the youth labour market in Kenya*, ILO Working Paper No.8, International Labour Organisation, Geneva.

Fleischhauer, K.J., 2007, *A review of human capital theory: Microeconomics*, University of St. Gallen, Department of Economics Discussion Paper 2007-01, University of St. Gallen, St. Gallen.

Fox, L. & Ghandi, D., 2021, *Youth employment in sub-Saharan Africa: Progress and prospects*, AGI Working Paper No. 28, African Growth Initiative, Brookings Institute, Cape Town.

Gobillon, L. & Selod, H., 2021, *Spatial mismatch, poverty, and vulnerable populations, handbook of regional science*, Springer-Verlag GmbH, Berlin.

Groves, R.M., 2006, 'Nonresponse rates and nonresponse bias in household surveys', *Public Opinion Quarterly* 70(5), 646–675. https://doi.org/10.1093/poq/nfl033

Gutiérrez-García, R.A., Benjet, C., Borges, G., Méndez Ríos, E. & Medina-Mora, M.E., 2017, 'NEET adolescents grown up: Eight-year longitudinal follow-up of education, employment and mental health from adolescence to early adulthood in Mexico City', *European Child and Adolescent Psychiatry* 26(12), 1–11. https://doi.org/10.1007/s00787-017-1004-0

Hall, K., 2015, 'Children's access to education', in A. De Lannoy, S. Swartz, L. Lake & C. Smith (eds.), *South African child gauge*, pp. 119–126, Children's Institute, University of Cape Town, Cape Town.

Holmes, C., Murphy, E. & Mayhew, K., 2021, 'What accounts for changes in the chances of being NEET in the UK?', *Journal of Education and Work* 34(4), 389–413. https://doi.org/10.1080/13639080.2021.1943330

Holte, B.H., Swart, I. & Hiilamo, H., 2019, 'The NEET concept in comparative youth research: The Nordic countries and South Africa', *Journal of Youth Studies* 22(2), 256–272. https://doi.org/10.1080/13676261.2018.1496406

Hosmer, D.W. & Lemeshow, S., 2000, *Applied Logistic Regression, John Wiley & Sons*, Incorporated, New Jersey.

International Labour Organisation (ILO), 2019, *Young people not in employment, education or training*, Technical brief no. 3, viewed 29 May 2022, from https://www.ilo.org/wcmsp5/groups/public/ ed_emp/ documents/publication/wcms _735164.pdf.

International Labour Organisation (ILO), 2020, *Global employment trends for youth 2020: Technology and the future of jobs*, viewed 29 May 2022, from https://www.ilo.org/ wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_737648.pdf.

International Labour Organisation (ILO), 2021, *Youth labour statistics*, viewed 29 May 2022, from https://ilostat.ilo.org /topics/youth/.

International Labour Organisation (ILO), 2022, *Global employment trends for youth 2022: Investing in transforming futures for young people*, viewed 29 May 2022, from https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_853321.pdf.

Janlert, U. & Hammarström, A., 2009, 'Which theory is best? Explanatory models of the relationship between unemployment and health', *BMC Public Health* 9, 1–9. https://doi.org/10.1186/1471-2458-9-235

Kain, J.F., 1968, 'Housing segregation, negro unemployment, and metropolitan decentralization', *Quarterly Journal of Economics* 82, 175–197.

Kavese, K. & Mabli, A., 2021, *Exploring the composition and characteristics of young people not in employment, education or training in the eastern Cape labour market*, ECSECC report, Eastern Cape Socio-economic Consultative Council, East London.

Khuluvhe, M. & Negogogo, V., 2021, *Fact sheet on "NEETs" (persons who are not in employment, education or training)*, Department of Higher Education and Training, Pretoria.

Kumo, W.L., Chulu, O. & Minsat, A., 2016, *African economic outlook: South Africa, 2016*, United Nations Development Programme, New York.

Leibbrandt, M., Woolard, I., McEwen, H. & Koep, C., 2010, *Employment and inequality outcomes in South Africa*, SALDRU, University of Cape Town, Cape Town.

Li, J., Duncan, A. & Miranti, R., 2015, 'Underemployment among mature-age workers in Australia', *Economic Record* 91(295), 438–462. https://doi.org/10.1111/1475-4932.12219

Maguire, S., 2018, 'Who cares? Exploring economic inactivity among young women in the NEET group across England', *Journal of Education and Work* 31(7–8), 660–675. https://doi.org/10.1080/13639080.2019.1572107

Meyer, D.F. & Mncayi, P., 2021, 'An analysis of underemployment among young graduates: The case of a higher education institution in South Africa', *Economies* 9(4), 196. https://doi.org/10.3390/economies9040196

Mncayi, N.P., 2020, 'An analysis of underemployment amongst young people in South Africa: The case of university graduates', PhD thesis, Faculty of Economic and Management Sciences, North-West University – South Africa.

Mncayi, P. & Meyer, D.F., 2022, 'Evaluating the determinants of the perceptions of underemployment among young university graduates: A South African university case', *Cogent Social Sciences* 8(1), 2054126. https://doi.org/10.1080/23311886.2022.2054126

Moore, K., 2019, 'The quest for sustainable employment: Challenges faced by young people during the job-search process', *Australian Journal of Social Issues* 54(1), 91–108. https://doi.org/10.1002/ajs4.60

Nagelkerke, N., 1991, 'A note on a general definition of the coefficient of determination', *Biometrika* 78(3), 691–692. https://doi.org/10.2307/2337038

O'Higgins, N., 2019, *Young people not in employment, education or training*, Technical brief No 3, ILO/SIDA Partnership for Employment, viewed 11 December 2023, from https://www.ilo.org/emppolicy/projects/sida/18-19/WCMS_735164/lang--en/index.htm.

Pitan, O.S. & Adedeji, S.O., 2012, *Skills mismatch among university graduates in the Nigeria Labor market*, Online Submission.

Quintano, C., Mazzocchi, P. & Rocca, A., 2018, 'The determinants of Italian NEETs and the effects of the economic crisis', *Genus* 74, 5. https://doi.org/10.1186/s41118-018-0031-0

Ralston, K., Everington, D., Feng, Z. & Dibben, C., 2021, 'Economic inactivity, not in employment, education or training (NEET) and scarring: The importance of NEET as a marker of long-term disadvantage', *Work, Employment and Society* 1(1), 1–21. https://doi.org/10.1177/0950017020973882

Ralston, K., Feng, Z., Everington, D. & Dibben, C., 2016, 'Do young people not in education, employment, or training experience long-term occupational scarring? A longitudinal analysis over 20 years of follow-up', *Contemporary Social Science* 11(2–3), 203–221. https://doi.org/10.1080/21582041.2016.1194452

Rahmani, H. & Groot, W., 2023, 'Risk factors of being a youth not in education, employment or training (NEET): A scoping review', *International Journal of Educational Research* 120, 1–16. https://doi.org/10.1016/j.ijer.2023.102198

Restrepo, P., 2015, 'Skill mismatch and structural unemployment', *Massachusetts Institute of Technology Job Market Paper* 13(9), 66–94.

Ripamonti, E. & Barberis, S., 2021, 'The association of economic and cultural capital with the NEET rate: Differential geographical and temporal patterns', *Journal for Labour Market Research* 55(1), 1–17. https://doi.org/10.1186/s12651-021-00296-y

Rollnik-Sadowska, E., 2016, 'Young people in the European Union labour market', *Latgale National Economy Research* 8(1), 80–92. https://doi.org/10.17770/lner2016vol1.8.1482

Sala, G., 2011, 'Approaches to skills mismatch in the labour market: A literature review', *Papers: revista de sociologia* 96(4), 1025–1045.

Schirmer, S., Nkomana, S., Visser, R. & Odayar, L., 2021, *South Africa's NEET crisis: Why we are failing to connect young people to work*, viewed 05 April 2022, from https://www.cde.org.za/wp-content/uploads/2021/09/Neets-report-2021.pdf.

Schmillen, A. & Umkehrer, M., 2017, 'The scars of youth: Effects of early-career unemployment on future unemployment experience', *International Labour Review* 156(3–4), 465–494. https://doi.org/10.1111/ilr.12079

Spaull, N., 2015, 'Schooling in South Africa: How low-quality education becomes a poverty trap', in A. De Lannoy, S. Swartz, L. Lake & C. Smith (eds.), *South African child gauge*, pp. 34–41, Children's Institute, University of Cape Town, Cape Town.

Stanwick, J., Forrest, C. & Skujins, P., 2017, *Who are the persistently NEET young people?* National Centre for Vocational Education Research, viewed 02 May 2022, from https://www.ncver.edu.au/research-and-statistics/publications/all-publications/who-are-the-persistently-neet-young-people#:~:text=Persistent%20NEET%20status%20at%20ages,probability%20of%20being%20persistent%20NEET.

Statistics South Africa (Stats SA), 2022a, *Quarterly labour force survey: Q3*, viewed 26 May 2023, from https://www.statssa.gov.za/publications/P0211/P02113rdQuarter2022.pdf.

Statistics South Africa (Stats SA), 2022b, *Post enumeration survey 2022, Mbalo brief: the missing piece of the puzzle*, viewed 11 December 2023, from https://www.statssa.gov.za/wp-content/uploads/2022/08/MbalobriefAug2022.pdf.

Su, X., Wong, V. & To, S.M., 2020, 'Amotivation, career engagement, and the moderating role of career adaptability of youth not in education, employment, or training', *Asia Pacific Career Development Journal* 3(2), 1–18.

Ulziisuren, E., 2017, *Predictors for youth NEET in Mongolia: Evidence from the labor force survey – 2016*, London School of Economics and Political Science, London.

United Nations, 2019, *World economic situation and prospects 2019*, viewed 05 June 2022, from https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-2019/#:~:text=Global%20growth%20is%20expected%20to,Economic%20Situation%20and%20Prospects%202019.

Vacchiano, M. & Spini, D., 2021, 'Networked lives', *Journal for the Theory of Social Behaviour* 51(1), 87–103.

Vacchiano, M., Yepes-Cayuela, L. & Martí, J., 2021, 'The family as (one-or two-step) social capital: Mechanisms of support during labor market transitions', *Community, Work & Family* 24(4), 471–487. https://doi.org/10.1080/13668803.2019.1687425

Wickremeratne, N. & Dunusinghe, P., 2018, 'Youth not in education, employment and training (NEET) in Sri Lanka', *Advances in Economics and Business* 6(5), 339–352. https://doi.org/10.13189/aeb.2018.060508

Ylistö, S., 2018, 'Why do young people give up their job search?', *Nordic Journal of Working Life Studies* 8(3), 27–45. https://doi.org/10.18291/njwls.v8i3.109539

Appendix starts on the next page →

Appendix 1

TABLE 1-A1: Cross-tabulation for different social characteristics and geographical area.

Variable	Subcategory	Geographical area		χ^2 (*Sig.*)	*Cramer's V*
		Non-metro (%)	Metro (%)		
Gender	Male	47.2	48.7	2.863 (0.091***)	0.014
	Female	52.8	51.3		
Population group	African	63.4	36.6	421.026 (0.000*)	0.171
	Mixed race	44.6	55.4		
	Indian or Asian people	22.9	77.1		
	White	30.6	69.4		

*, significance is at 1% significance level; ***, significance is at 10% significance level.

TABLE 2-A1: Cross-tabulation for levels of education and population group.

Level of education	Population group				χ^2 (*Sig.*)	*Cramer's V*
	African (%)	Mixed race (%)	Indian or Asian people (%)	White people (%)		
Lower than primary education	2.5	2.2	1.5	0.4	369.013 (0.000*)	0.093
Primary education	3.0	3.3	1.5	0.7		
Secondary education	85.1	84.7	83.6	69.1		
Post-secondary education	6.7	6.1	7.0	11.9		
Tertiary education	2.6	3.7	6.5	17.9		

*, significance is at 1% significance level.