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Exploring the transitions and well-being of young people who leave school before completing secondary education in South Africa

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1. Introduction

In South Africa, young people who have not completed their matric year, or the equivalent thereof, are more likely to struggle to find work, and remain unemployed for longer periods of time, or, if they do find work, are less likely to access stable, higher income jobs (Ingle and Mlatsheni, 2017; Mlatsheni and Ranchhod, 2017; Branson and Kahn, 2016; Salisbury, 2016; Van der Berg and Van Broekhuizen, 2012).

Internationally, a growing body of research indicates additional negative outcomes for youth who do not complete secondary education, ranging from higher levels of poverty, to ill health (including mental health), substance abuse, delinquency, incarceration, and prolonged dependence on social assistance (Bjerk, 2012; De Witte et al. 2013; Kimberly and Knight 2011; Lund, et al., 2018). These outcomes create an obvious concern for the loss of human potential for the individual. They also lead to questions about countries' high rates of investment in educational systems and the effectiveness of those systems, and are at the basis of concerns about the larger societal and economic costs of incomplete education. In the United States, for instance, researchers have estimated that "each high school dropout" accrues a cost to the national economy of "at least $250 000 over his or her lifetime […] because of greater reliance on welfare and Medicaid, more criminal activity, poorer health, and lower tax contributions" (Lansford, et al., 2016: 652).

A more nuanced understanding of the longer-term effects of incomplete high school education remains limited in the South African context. Using data collected over five waves of the National Income Dynamics Study (NIDS), a panel survey spanning 2008-2017, this paper aims to contribute to this literature, and presents a first exploration of the trajectories and well-being of young people who leave school without completing matric or a matric equivalent. We ask the research question "What are the long-term, socio-economic effects of incomplete secondary schooling for the individual and society at large?" We examine the implication of incomplete education for labour market stability and find that those who have not completed secondary schooling are less connected to the labour market and remain unemployed for longer periods of time. This then becomes our lens to examine further individual and societal outcomes. Our results indicate that this group of youth without a matric follow different pathways in terms of movement into and out of employment – over a ten-year period, two thirds of our sample experience some degree of churn in the labour market, while smaller proportions remain persistently either in or out of employment and the education system. These different trajectories are in large part determined by differences in socio-economic background. Thus, the consequences of incomplete education vary across individuals and, depending on their connectivity to the labour market, they experience different long-term outcomes. In particular, those who come from poorer households and attended more disadvantaged schools are more likely to remain persistently unemployed which, in the longer term, translates into negative outcomes in terms of mental health, subjective wellbeing, and reliance on government grants.

In the following sections, the paper first briefly sketches the landscape on 'drop out research' in South Africa and introduces the notion of 'incomplete secondary education'. It then presents the data and our method of analysis, before moving on to the findings.

2. The scale and nature of incomplete education in South Africa

Compulsory education in South Africa extends from grade R until grade 9, or until the age of 15, whichever occurs first (South African Schools Act, 1996). After grade 9, learners can decide to continue to progress in the educational system, following the Higher Education and Training (HET) or the Further Education and Training (FET) streams. Those higher grades (grade 10 to 12 or equivalent, and above) are expected to provide training in so-called scarce and critical skills, needed for human resources development in general and for "the growth of modern economies" (Kraak, 2012). From this stage onwards, returns to education in South Africa increase, but the highest returns only really accrue from the completion of matric and higher education onwards (Branson and Kahn, 2016;

Salisbury, 2016; Ingle and Mlatsheni, 2017; Mlatsheni and Ranchhod, 2017). It is, however, also exactly in those years that large numbers of young people begin to leave the educational system.

While enrolment in the earliest years of schooling is high in the country, only about 50% of a cohort of learners who start school in grade 1 will eventually make it to grade 12 (Spaull, 2015). The rest of the learners leave the schooling system, mainly in grades 10 or 11, that is, after the end of the compulsory schooling stage, but before the completion of upper secondary education. Eventually, only about 40% of the original cohort of children graduates from grade 12. In other words, 60% of South Africa's youth have either left school before grade 12, or have failed their matric exam, and are left without any kind of recognised educational qualification (Spaull, 2015). While the technical and vocational education and training system (TVET) should provide these young people with opportunities to continue their schooling, very few youth access this part of the educational system (Branson and Kahn, 2016).

Thus, what is mostly referred to as 'drop-out' in the country's literature is, in fact, leaving school between the end of the compulsory stage of the 'general education band' (grades 1 to 9) and before completing the upper secondary education years, i.e. grade 12 or a matriculation equivalent.

There is a body of research into the reasons behind school-leaving before completing secondary education. Analyses of survey data point to the impact of various interrelated socio-economic factors. National household surveys also ask their participants what their main reasons for leaving school. The four most prominent reasons given by young people are: A lack of finances, seeking employment, failing a grade, and, for girls, teenage pregnancy (Gustafsson 2011; Spaull, 2015). Timaeus and Moultrie (2015) and Marteleto, et al. (2008) find that progress through school, innate ability, school quality, and socioeconomic background all have significant effects on teen pregnancy, which in turn is a major cause of school dropout among girls. Using data collected by the National Income Dynamics Study (NIDS), Branson, et al. (2014) find that "not keeping pace at school is a fundamental determinant of who drops out"; the authors further point out that falling behind at school is strongly correlated with socioeconomic status and school quality in South Africa. Leaving school before completing the upper secondary years is therefore considered a cumulative process rather than a single event. This is important, as this understanding has consequences for the exploration of the effects of incomplete secondary education later on in life.

Recent analyses of pooled General Household Survey Data for the period 2010 to 2016 shows that the group of learners who leave school before completing matric constitute some of the most vulnerable in the country: 65% of households that contain youth in this group are defined as poor using a poverty line of R1042 per capita per month in 2011 Rands (Branson, 2017). In addition to being more vulnerable to poverty, 67% of this group were NEET (Not in any kind of Education, Employment, or Training) in 2011 (ibid.). This implies that young people who leave school before completing matric not only find it difficult to connect to the labour market, but also to (re)connect to a part of the education system that could help them progress. In the following sections, the paper first provides more detail on what is known about the effects of incomplete education, before focusing briefly on youth who are 'NEETs'.

2.1. The effects of incomplete education

A range of studies have investigated the consequences of incomplete schooling in terms of labour market outcomes. Firstly, research has shown that there is a strong relationship between completing matric and labour force attachment. Failure to complete secondary school is associated with a decreased probability of finding stable employment as well as prolonged periods of unemployment (Ingle and Mlatsheni, 2016). Mlatsheni and Ranchhod (2017) find that, for youth transitioning from school into the labour market, those with a matric are approximately 9% more likely to become employed within a two year period compared to those who drop out before completing matric. Long-term unemployment as well as prolonged and unsuccesful job search may, in turn, lead to discouragement and depression (Lund, et al., 2018; Mlatsheni, 2012; Mlatsheni and Ranchhod, 2017). While robust evidence on the link between employment status and mental health exists in the international literature (Lund, et al., 2018), this relationship is not well understood in South Africa (Mlatsheni, 2012). Some qualitative evidence in the country does indicate the severe strain that unemployment and unsuccessful job search place on young people, but such studies do not measure levels of depression in comparable manners (Newman and De Lannoy, 2014; Patel, et al., 2016).

Secondly, studies such as Finn, et al. (2016) and Piraino (2014) find that there is a high degree of intergenerational transfer of economic wellbeing in South Africa and that a large part of earnings inequality is explained by educational attainment being passed on from parents to their children. Thirdly, Ardington, et al. (2013) look at the relationship between incomplete schooling, migration, and grant reliance and find that compared to those without a matric, those who have a matric are more likely to remain a migrant or become a migrant after a pension loss or gain in the household respectively.

Finally, there has been some investigation into the interactions between mental health and socioeconomic status. Ardington and Case (2010) find that socioeconomic status and educational attainment are negatively associated with depression. Their findings also suggest that education is protective of physical health and socioeconomic status, which are in turn protective of mental wellbeing.

Thus, there is a fair amount of knowledge surrounding the relationship between educational attainment and labour force outcomes, and there are some indications of a relationship between levels of education and grant reliance, and depression. This paper aims to extend this knowledge by developing a more holistic understanding of how these factors fit together. Specifically, it focuses on the long term effects of school completion on subjective and mental wellbeing as well as grant reliance, with transitions into and out of the labour market or the education system acting as a channel through which these effects play out.

2.2. Young people who are NEET

A focus of the analysis is young people who were NEET in the first wave of NIDS, that is, not in education, employment or training. We distinguish between those who were NEET with at least a matric, and those who were NEET without a matric. South African policy documents display 'grave concern' over the situation of young NEETs, and consider them 'to be disengaged from both work and education' (Department of Higher Education and Training, 2017: 2). However, the policy environment makes little distinction between different 'types' of NEET (Holte, et al. 2018), and shows little engagement with questions concerning transitions into and out of the NEET state – aspects that could nevertheless determine policy responses to support these young people.

Internationally, a multidisciplinary body of evidence indicates that being NEET, and especially remaining NEET for an extended period of time, is associated with deteriorating physical and mental health, substance abuse, precarious job prospects, discouragement in terms of participating in the labour market or education sector, social exclusion, and increased risk behaviour (Mann et. al., 2014; O'Higgins, 2015; Henderson, et al., 2017; Bălan, 2014; Franzen & Kassman 2005; Chen, 2011; Graham, 2002; Bäckman & Nilsson, 2016). There is also evidence of reinforcing relationships between some of these outcomes and being NEET (Baggio, 2015; Harambat, et al., 2013). At the societal level, the economic consequences include lost output, lost government revenue, and increased public spending, for example on the justice and policing system (O'Higgins, 2015). Similar analyses are not as readily available for South Africa.

Thus, this paper aims to contribute to the literature on the consequences of incomplete secondary education by investigating the transitions of a cohort of young South Africans who leave school before completing matric, and who may or may not remain NEET, over an extended period of time. It also contributes by examining mental health outcomes specific to youth. Examining the life trajectories of these young people, and gaining a better understanding of their emotional well-being, is important for the design of interventions that could support those who have left school to return to the education system or to transition to the labour force, and thus, to prevent an array of socio-economic 'costs' later on in life.

3. Data, sample and methods

The research question "what are the long-term socio-economic effects of incomplete secondary schooling for the individual and society at large" naturally lends itself to data that follow the same individual over time i.e. longitudinal data. At a minimum, we require data that allow us to investigate the progression of youth (i.e. 15 to 25 (35)[1] year olds) for a number of years as they transition from school to post-school education, the labour market and/or parenting or other adult trajectories. Of particular interest is an investigation of the differences in life trajectories between those who did not complete secondary school versus those who do complete secondary school.

The National Income Dynamics Study (NIDS) is well-designed to tackle this research question. NIDS is South Africa's national longitudinal survey and has been providing empirical data on the changing lives of South Africans since 2008. The study is an initiative of the Department of Planning, Monitoring and Evaluation (DPME) and is implemented by the Southern Africa Labour and Development Research Unit (SALDRU) at the University of Cape Town (UCT). Five waves of data from 2008, 2010/2011, 2012, 2014/2015 and 2017 are now publicly available. The initial sample included about 7300 households. Each 2008 household member became part of the panel and has been tracked since. The survey covers a wide range of topics including individual and household education, labour market engagement, income, health, wealth, and well-being. With the release of wave 5, these data provide a panel of youth followed for ten years with rich biennial information on their trajectories in multiple aspects of their lives.

The analysis uses all five waves of the NIDS data. In each wave, all adults (aged 15 years and above) who are currently residing in the household are administered an adult questionnaire, and a child

[1] South Africa's National Youth Commission Act, 1996, defines youth as those between the ages of 14 to 35 years. The International Labour Organisation uses 15-24 as the group defined as youth.

questionnaire is administered to the main caregiver(s) of all resident children. The adult questionnaire collects information on a wide range of topics at the individual level. The analysis will use a fair portion of these data including data on demographics, labour market participation, income, education, parental education, and health. When an adult is not available, a proxy interview is administered to another household member on their behalf. In addition, in each wave of the survey, a household level questionnaire is administered to the household head. Data at the household level which will be used in the analysis includes household income, employment, grants, and geographic location. The NIDS data has also been linked to external administrative datasets including the Ordinary School's Master List published by the South African Department of Basic Education. Some of this school level data, including school quintile, pupil-teacher ratio, and the ex-department of education for the respondents' last school attended, will be used in the analysis.

Our sample of interest is youth aged 15-35 years in wave 1. The aim of our analysis is to track the progression of this group into and out of the labour market and/or education system over the following four waves, according to whether or not they have a matric. As such, we restrict our analysis sample further to those individuals who have a complete interview in all waves so that we have a balanced panel of youth with information over the entire ten years of the survey. We use both adult and proxy data in order to maximize our sample size. The disadvantage of using the proxy data is that because the proxy questionnaire is not as extensive as the adult questionnaire, some information (such as that on mental health and subjective wellbeing) will be missing for respondents in the waves in which they had a proxy interview administered on their behalf. To account for attrition bias, we construct balanced panel weights for the sample of interest (see Appendix A for details).

The analysis starts with a descriptive summary of our sample, comparing those who had a matric in wave 1 to those who did not have a matric in terms of labour force status. We then focus exclusively on our sample of non-matriculants who were not enrolled in wave 1 and track their transitions into and out of the NEET state across the following four waves to identify the different labour market and educational trajectories they may take. We present the results in the form of transition matrices and transition trees. Finally, we use our full analysis sample to compare the outcomes between those who have and have not completed matric, as well as three different pathways through the NEET state across the 10-year period, in a multivariate analysis. We first present mean characteristics across the different groups followed by a series of pooled and fixed effects regressions.

4. Descriptive statistics

We start by examining the labour force and enrolment status of youth in 2008 by whether they have complete or incomplete secondary school qualifications. Table 1 presents a breakdown of the balanced panel of youth by employment and enrolment status in wave 1, for those without and with matric respectively. The sample includes all 15-35 year olds in Wave 1 who had successful interviews in all five waves, totalling 4,749 respondents. From the first panel we see that, out of these respondents, a large share (3,449 respondents) have not completed secondary education. While this group includes those still enrolled in school, panel 2 shows that 58% of youth who have incomplete secondary education are not enrolled in any kind of education. Indeed, youth who have not completed secondary education and are not enrolled account for 41%[2] of all youth and will be the focus of our analysis going forward.

The third panel shows comparative information for youth with matric. We see that the majority (992 or 77%), were not enrolled in education. Only 291 respondents were continuing in some form of post-secondary education.[3]

[2] A comparative estimate from the QLFS 2017 q3 is 37%.

[3] Note that the sum of the totals in the second and third panels (4640) falls short of the sum of totals in the first panel (4749) due to missing wave 1 enrolment status for 109 respondents.

Table 1: Summary of employment and enrolment for the balanced panel of youth in wave 1, by completion of matric

	Balanced panel of youth				No matric				Matric			
	No matric		Matric		Not enrolled		Enrolled		Not enrolled		Enrolled	
					58%		42%		77%		23%	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
Age (Years)	23	3449	25	1300	28	1944	17	1413	27	992	19	291
Male	39%	3449	35%	1300	29%	1944	51%	1413	31%	992	48%	291
Female	61%	3449	65%	1300	71%	1944	49%	1413	69%	992	52%	291
Employed - full time	9%	3449	22%	1300	17%	1944	0%	1413	28%	992	3%	291
Employed - part time	8%	3449	11%	1300	12%	1944	4%	1413	13%	992	6%	291
Unemployed - strict	16%	3449	24%	1300	27%	1944	2%	1413	28%	992	12%	291
Unemployed - disc	7%	3449	5%	1300	12%	1944	1%	1413	6%	992	3%	291
NEA	52%	3449	28%	1300	23%	1944	88%	1413	15%	992	69%	291
% Neet					61%				49%			

Notes to Table 1: Sample includes all 15-35 year olds in wave 1 who had successful interviews in all five waves. Unemployed - disc is unemployed respondents who are discouraged i.e. have not actively sought work in the last 4 weeks. NEA is not economically active and NEET is not in employment, education or training. Mean values are weighted using weights constructed to account for attrition in the panel.

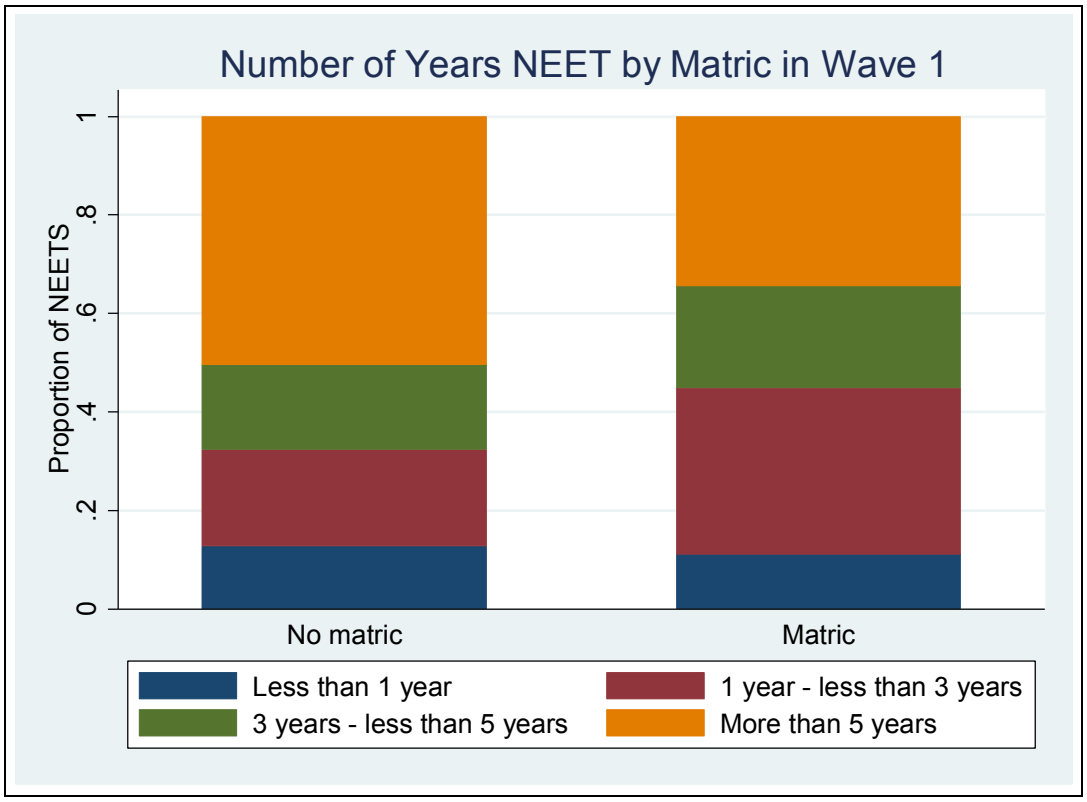
Our group of interest – those with incomplete secondary education who are not enrolled – look more vulnerable in terms of labour force participation than those who have completed matric. A higher proportion of matriculants were employed in 2008 compared to those without matric. Focusing only on those who are not enrolled, we see that 28% of matriculants were employed full time compared to only 17% of non-matriculants, reflecting the pay-off to having a matric in the labour market. While we find that the proportion of respondents who were strictly unemployed is similar between those without and with matric, at 27% and 28% respectively, those with incomplete secondary education are more likely to be discouraged or not economically active (NEA) than those with matric. 12% of youth without matric (double the share within the matric group) want to work, but have not sought work in the last 4 weeks, suggesting high costs and low rewards to seeking work for this group. A further 23% of youth without matric who are not enrolled are NEA, indicating that they are no longer seeking or available to work. Of this group, 81% are female and when asked to give their main reasons for being unavailable for work, the majority (52%) indicated that domestic and child responsibilities (including pregnancy) were the primary reasons. The other two most common reasons provided included sickness/disability and the high costs of looking for work. The remaining reasons provided included "I do not like the available jobs and would rather not work", "I do not like working", "The wages are too low, it is not worth my time working", and "Still looking for work". For males, the most common reasons provided were "I am sick/disabled", "I do not like working", "It costs too much to look for work" and "Still looking for work". Similarly, in terms of education, 21% of NEA females in our sample of interest provided pregnancy or having a baby as the main reasons for not being enrolled. Thus, the vulnerability of females within this group of NEETs, and without a matric, is evident. The other main reasons for not being enrolled, amongst both males and females, included wanting to look for employment and not being able to afford the costs of schooling.

As a consequence, the proportion of youth in our group of interest who are NEET – not in employment, education and training - is high, close to two out of every three youth. Youth who have matriculated are also vulnerable to being NEET (49% are NEET) but the table shows that they have a stronger connection to the labour market, with 41% employed and 28% actively seeking work.

The wave 1 data provides a snapshot of the circumstances of youth in 2008. The consequences of being NEET will however accumulate as the time in this state increases. In Figure 1 we therefore examine the duration of being NEET prior to wave 1 separately for those who were NEET in wave 1 (61% of the incomplete secondary group, 49% of the matric group) for non-matriculants and matriculants. We see that those without a matric had been in the NEET state for longer on average

than those who had a matric. In fact, half of the youth who had not completed secondary education had been NEET for more than 5 years when we saw them in 2008. The graph also highlights that having a matric does not however guarantee security in the labour market in that almost 60% of matriculants found to be NEET in wave 1 had been in this state for 3 years or more.

Figure 1: Number of years NEET in wave 1 by matric attainment



We now turn our focus exclusively to our balanced panel of youth who did not complete secondary education and were not enrolled in any kind of education in wave 1. Table 2 presents the number of times (waves) youth were observed as NEET, employed and enrolled from waves 1-5, not necessarily consecutively. We see that 12% were not NEET in all five waves, while 19% were NEET in all waves, representing being NEET for 10 consecutive years. A similar share is observed NEET three times, four times and five times, with the share observed NEET once or twice over the period slightly smaller. From the last two columns it is evident that few in our sample re-enter the education system, as only 3% of the panel were enrolled in one or two waves across waves 1-5. This is important to bear in mind in what follows where we look at transitions into and out of the NEET state.

Table 2: Number of waves observed as NEET, employed, and enrolled for non-matriculants:

# Times	NEET	Employed	Enrolled
0	12%	20%	97%
1	14%	20%	2%
2	16%	19%	1%
3	19%	16%	0%
4	20%	13%	0%
5	19%	12%	0%

Notes to Table 2: Sample includes all 15-35 year olds who did not have matric and were not enrolled in wave 1 and who had successful interviews in all five waves. NEET is not in employment, education or training. Shares weighted using weights constructed to account for attrition in the panel.

In Table 3a we present transition matrices into and out of the NEET state over time for our sub-sample of non-matriculants who were not enrolled in wave 1. As per Table 1, this includes 1,944 respondents of which 61% are NEET in wave 1. The five panels of the table show transitions from wave 1 to 2, 2 to 3, 3 to 4, 4 to 5, and 1 to 5 respectively, with each row in a panel summing to 100%. Referring to the last panel, we see that by wave 5 46% of the sample of those who were NEET in wave 1 had transitioned out of the NEET state. However, one third of those who were not NEET in wave 1 fell into the NEET state by wave 5. Panels 2-4 show that, on average, one third of those who were NEET in the previous wave manage to transition out of the NEET state by the next wave. Similar to the overall trend (on average), though, 28% of those who were not NEET in the previous wave fall into a NEET state by the next wave. Thus, we see movement both into and out of the NEET state across waves. That being said, most youth in this panel of non-matriculants tended to remain in their state as either NEET or not NEET across waves. More importantly, the probability of these youth remaining in the NEET state from one wave to the next was much higher (by approximately 40 percentage points) than the probability of moving out of the NEET state and into a non-NEET state. As the NEET state is determined primarily by employment, or rather a lack thereof (as seen in Tables 2 and 1), these results suggest that it is easier for the employed to remain in employment than for the unemployed to find employment.

Table 3a: Transitions into and out of the NEET state across waves for non-matriculants – row percentages

		Wave 2	
		NEET	Not NEET
Wave 1	NEET	74%	26%
	Not NEET	48%	52%

		Wave 3	
		NEET	Not NEET
Wave 2	NEET	72%	28%
	Not NEET	32%	68%

		Wave 4	
		NEET	Not NEET
Wave 3	NEET	64%	36%
	Not NEET	23%	77%

		Wave 5	
		NEET	Not NEET
Wave 4	NEET	67%	33%
	Not NEET	28%	72%

		Wave 5	
		NEET	Not NEET
Wave 1	NEET	54%	46%
	Not NEET	33%	67%

In Table 3b the cells in each panel sum to 100% (as opposed to the rows in Table 3a) thereby showing the proportion of the entire balanced sample in each transition state. The first 4 panels indicate that sample members were more likely to remain in either a NEET or non-NEET state across waves than to transition into or out of the NEET state. In addition, the 4 panels show that the proportion of the sample remaining as not NEET is higher than the proportion transitioning from NEET to not NEET from one wave to the next, once again highlighting the relative difficulty of moving into employment (for the unemployed) compared to staying in employment (for the employed). On the other hand, the final panel indicates that, overall, from wave 1 to 5 a higher proportion of respondents moved out of the NEET state compared to the proportion remaining as not NEET. The panel also shows that, over the 10-year period, those who are NEET in both waves 1 and 5 constitute the highest share of the sample (over one third); however, some of them will have moved between states during the period.

Table 3b: Transitions into and out of NEET state across waves for non-matriculants – cell percentages

		Wave 2	
		NEET	Not NEET
Wave 1	NEET	47%	17%
	Not NEET	18%	19%

		Wave 3	
		NEET	Not NEET
Wave 2	NEET	46%	18%
	Not NEET	12%	25%

		Wave 4	
		NEET	Not NEET
Wave 3	NEET	37%	21%
	Not NEET	10%	33%

		Wave 5	
		NEET	Not NEET
Wave 4	NEET	31%	15%
	Not NEET	15%	39%

		Wave 5	
		NEET	Not NEET
Wave 1	NEET	35%	29%
	Not NEET	12%	24%

We now look at all the possible transition paths across the NEET state for our sample of interest across the waves. There are 32 possible pathways, which have been presented in the form of two transition trees (Figure 2a and b). Figure 2a presents the different paths for those starting out as NEET in wave 1, while Figure 2b presents the different paths for those starting out as not NEET in wave 1. The trees for these two groups (NEET and not NEET) in wave 1 have only been presented separately for greater visual ease.

In the top row of Figure 2a we start with our sample of NEETs in wave 1, which includes 64% of our sample of interest. Note that this is less than the 61% we saw in Table 1 as we now only include respondents whose NEET status is known in every wave. In wave 2 the NEET sample branches off into either a NEET (N) or non-NEET (NN) state and this continues until wave 5 such that we end up with 16 unique paths through the different states (for those starting out as NEET). At each node in each tree, the percentage of the entire balanced panel is displayed. For example, in Figure 2a, wave 2, 17% of the sample members are in a non-NEET state and 47% are in the NEET state, having started out as NEET in wave 1. Moving down to wave 3 on the right-hand-side, we see that 11% of the panel is now not NEET and 36% are still NEET (having been NEET in waves 1 and 2).

The terminal nodes of the trees in wave 5 show the percentages of the panel that took each of the 32 different paths down the trees. The highest percentage, or the most common pathway over the 10-year period, can be found on the far right of the tree in Figure 2a where we see that 19% of the panel were in the NEET state in all five waves. Note that this corresponds with Table 2. The second most common combination of states can be found on the far left of the tree in Figure 2b where we see that 12% of the panel were not NEET in all five waves (again corresponding to Table 2). Thus, in total, 31% (or almost one third) of the panel found themselves persistently in either the NEET or non-NEET state, while the remaining 69% found themselves transitioning into and out of a NEET state in different combinations across the waves. As we saw in Tables 3a and 3b, a common pattern found throughout the trees is that those in the NEET state in one wave were more likely to remain in the NEET state in the following wave rather than transitioning out and, similarly, those in a non-NEET state in one wave are more likely to remain non-NEET in the following wave rather than falling into a NEET state.

Figure 2a: Transition tree for wave 1 NEETs

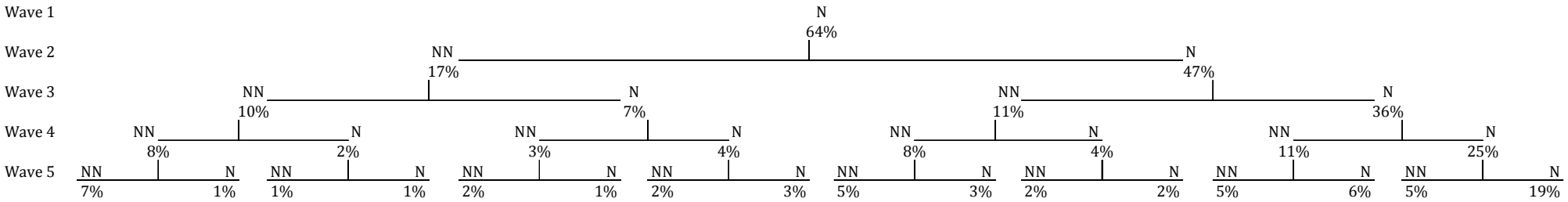
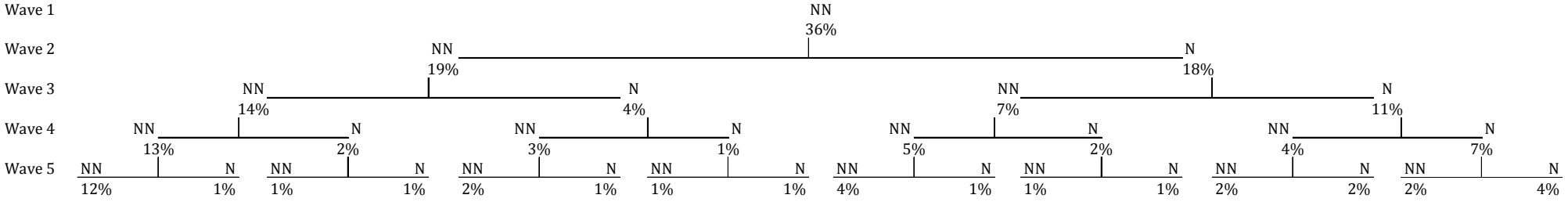


Figure 2b: Transition tree for wave 1 non-NEETs



Therefore, our panel of non-matrics can be thought of in terms of three groups: Those who are persistently in a NEET state (19%) 'always NEET', those who remain out of the NEET state (12%) 'never NEET', and those who move into and out of the NEET state (69%) 'sometimes NEET' across waves 1-5. In the analysis that follows, we will compare characteristics and outcomes of individuals according to these three groups.

Appendix B shows comparable trees for the matriculant group who were not enrolled in wave 1. We see that the pathways of matriculants over the ten year period are quite different from those who do not complete matric: 8% are persistently NEET, 25% are never NEET and 67% are sometimes NEET. In addition, while the 'sometimes NEET' group is a similar size between the matric and non-matric groups (67% and 69%), most (63%) of the matriculants in this group spend one or two periods as NEET, while the majority (58%) of the non-matriculants a spend 3 or 4 periods as NEET. A larger share of matriculants (13% compared to only 3% in the non-matriculant group) also spend time enrolled over the period.

Before our regression analysis, we summarise the means of various characteristics at wave 1 and between wave 1 and wave 5 and discuss our outcome variables. In Table 4 we compare individual and school background variables at wave 1 across the three NEET groups defined for those with and without matric. At the individual level we see that, overall, the majority of our sample are female. Furthermore, the 'always NEET' group has the highest proportion of females at 86% and 91% for those without and with matric respectively, while the 'never NEET group' has the lowest proportion of females at 60% (61%). As discussed earlier, these results highlight the vulnerability of females compared to males, in both the labour market and school system. In terms of population group, Africans make up a higher proportion of the 'always NEET' and 'sometimes NEET' groups compared to the 'never NEET' group; in other words, they are slightly more vulnerable to being NEET than their Coloured and Asian counterparts. There are only White respondents within the 'never NEET' sample with matric.

Notably, we observe that the average years of parental education is extremely low for both mothers and fathers, at around three years across all three groups within the sample of youth without matric. This is due to the high proportion of parents within our sample of non-matrics with no schooling at all – specifically, 45% of mothers and 56% of fathers. Average years of parental education are higher at 6 years in the 'never' and 'sometimes' NEET groups for those who have completed a matric. These numbers reflect the high level of intergenerational transfer of education (Finn and Leibbrandt, 2016)

in the country in that incomplete secondary schooling among youth is associated with lower levels of parental education.

The school-level variables pertain to the last school the respondent attended and are intended to reflect general school quality. It is evident that those in the 'always NEET' and 'sometimes NEET' groups are more likely to have attended schools in poorer communities (quintiles 1-3), in the former homelands, and with higher pupil teacher ratios. In other words, those who are in a NEET state (always or sometimes) are likely to have attended poorer schools than those who are never NEET. This applies for both those who have completed matric and those who have not completed matric.

Table 4: Background (Wave 1) characteristics by NEET group

	No matric			Matric		
	Always NEET	Never NEET	Sometimes NEET	Always NEET	Never NEET	Sometimes NEET
N	**287**	**211**	**1087**	**62**	**212**	**579**
%	19%	12%	69%	7%	25%	68%
Personal						
Female	86%	60%	74%	92%	65%	71%
African	96%	90%	95%	95%	93%	97%
Coloured	3%	9%	5%	0%	5%	3%
Asian	0%	1%	0%	5%	1%	0%
White	0%	0%	0%	0%	0%	0%
Age (years)	28	29	28	27	29	26
Years of education	9	10	9	12	13	12
Number of years repeated a grade	0,8	0,5	0,8	0,4	0,3	0,7
Parental education						
Mother's education (years)	3	4	3	4	6	5
Mother's education missing	1%	4%	3%	0%	2%	2%
Father's education (years)	3	3	3	4	6	5
Father's education missing	7%	18%	12%	4%	9%	11%
School characteristics						
Quintile 1	27%	24%	25%	34%	25%	27%
Quintile 2	23%	15%	22%	9%	15%	17%
Quintile 3	34%	30%	34%	45%	40%	38%
Quintile 4	15%	22%	15%	10%	14%	15%
Quintile 5	2%	9%	4%	1%	6%	4%
Independent Homelands	13%	16%	17%	7%	27%	14%
Self-governing territories	37%	30%	41%	51%	23%	44%
DET	38%	38%	31%	11%	31%	29%
HOA	0%	0%	1%	0%	2%	1%
HOR	2%	10%	5%	0%	5%	2%
WCED, TED, CED, FED	0%	2%	0%	0%	1%	0%
New	10%	2%	6%	31%	9%	8%
Independent	0	0	0	0%	0%	0%

In Table 5 we compare certain time-variant characteristics at wave 1 and 5, again according to our three NEET groups and for those with and without matric. The group with matric are more socioeconomically advantaged across all dimensions.

Within the 'always NEET' and 'sometimes NEET' groups, respondents are more likely to be NEA or strictly unemployed compared to discouraged in the labour market. Comparing the with and without matric group in wave 1, we see that while the composition across employment state is similar for the never and sometimes NEET groups, youth who are always NEET without matric are more likely to be NEA (41%) than those with matric (24%). Those with matric also have a higher share of youth defined as strictly unemployed (63%).

Within the 'always NEET group' we see a fall in the proportion of unemployed, while the proportion that is NEA rises by 18 percentage points for those without matric and by 29 percentage points for those with matric by wave 5. This suggests that those who are persistently NEET may start off as wanting to work but eventually fall out of the labour market altogether. This may be due to increasing levels of despondency over time in terms of employment prospects (Chen, 2011), or an increase in child and domestic responsibilities in the case of females.

For both those with and without matric, we see that the 'always NEET' and 'sometimes NEET' groups are more likely to come from poorer households which are characterised by lower levels of income and higher dependency ratios (number of non-working age to working age household members), and are more likely to be located in rural areas.

Table 5: Comparison of time-variant characteristics between wave 1 and 5 by NEET group

	No Matric							
	All		Always NEET		Never NEET		Sometimes NEET	
	Wave 1	Wave 5	Wave 1	Wave 5	Wave 1	Wave 5	Wave 1	Wave 5
Not economically active	22%	27%	41%	59%	0%	0%	21%	22%
Unemployed - discouraged	12%	3%	19%	6%	0%	0%	12%	2%
Unemployed - strict	30%	17%	41%	35%	0%	0%	31%	15%
Employed	36%	54%	0%	0%	100%	100%	35%	60%
PC household income	593	1605	474	1032	937	2475	560	1625
Dependency ratio	0,95	0,78	1,10	1,00	0,80	0,80	1,00	0,80
Urban	44%	48%	40%	41%	58%	62%	43%	47%
Traditional	50%	46%	57%	56%	28%	29%	52%	47%
Farms	6%	6%	3%	3%	13%	9%	5%	6%
	Matric							
	All		Always NEET		Never NEET		Sometimes NEET	
	Wave 1	Wave 5	Wave 1	Wave 5	Wave 1	Wave 5	Wave 1	Wave 5
Not economically active	17%	17%	24%	53%	0%	0%	21%	19%
Unemployed - discouraged	6%	1%	12%	6%	0%	0%	7%	1%
Unemployed - strict	30%	14%	63%	41%	0%	0%	37%	16%
Employed	47%	68%	0%	0%	100%	100%	34%	64%
PC household income	1111	3933	687	1574	2096	5879	822	3455
Dependency ratio	0,72	0,68	0,70	0,78	0,65	0,58	0,75	0,71
Urban	46%	53%	26%	26%	63%	61%	43%	52%
Traditional	51%	44%	68%	73%	35%	34%	55%	45%
Farms	3%	3%	6%	1%	2%	4%	3%	3%

As we are interested in gaining a more comprehensive understanding of the effects of incomplete education, we will run a regression analysis with outcome variables related to mental health, subjective wellbeing, and the share of household income derived from grants. Table 6 summarises changes in these outcome variables by NEET group and over time.

The first outcome variable is the respondent's depression score, which is a continuous measure with a range of 1-30 whereby a higher score indicates a higher likelihood of depression. It has been calculated based on the 10-item Centre for Epidemiological Studies Depression Scale (CES-D-10), which is a depression screening tool and constitutes the mental health module in the NIDS adult questionnaire. The second outcome variable is a depression dummy where a value of 1 indicates depressed (or a depression score higher than 12) and 0 otherwise[4]. The third outcome variable is a 'happiness' indicator which takes on a value of 1 if the respondent reports that they are less happy than they were 10 years ago, and a value of 0 if they reports that they had the same level of happiness or are happier than they were 10 years ago. The fourth outcome variable is the share of household income that is constituted by social grants. For the well-being measures, higher values indicate lower well-being. It is clear that across all outcome measures and NEET groupings, the matric group have higher levels of well-being and live in households with lower grant reliance.

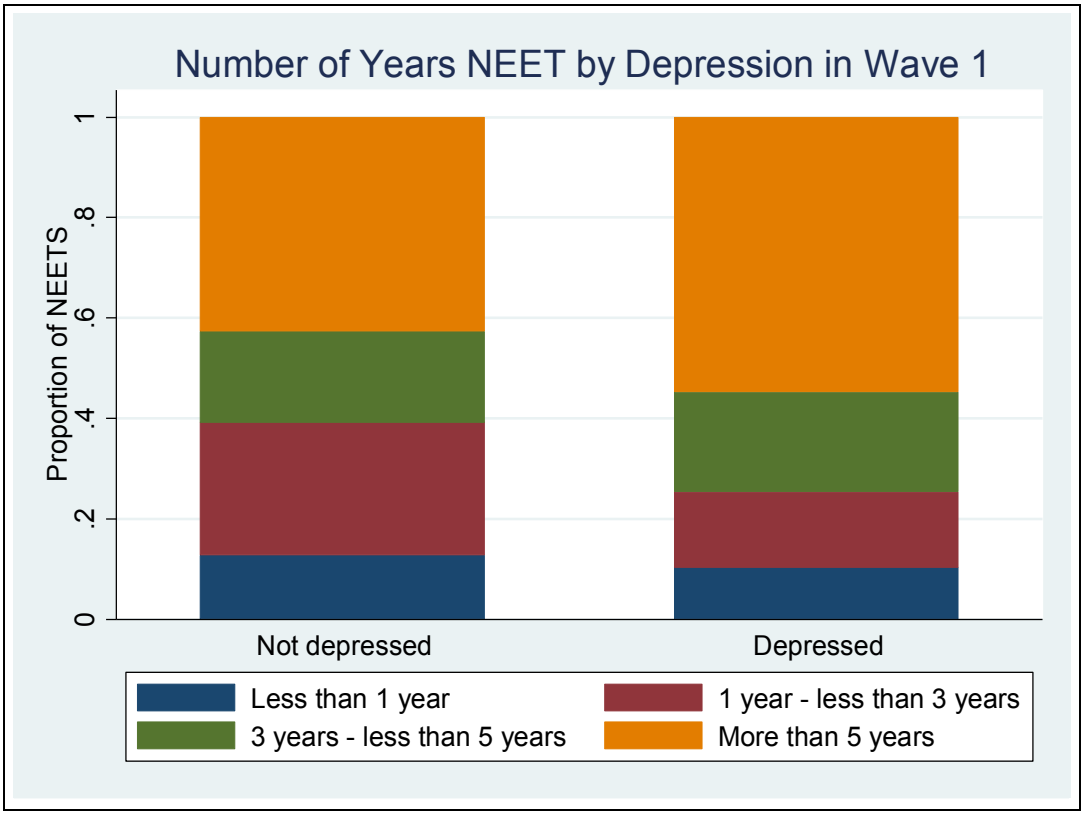
Interestingly, the depression scores and rates of depression decrease quite notably from wave 1 to 5. In fact, the incidence of depression declines the most for the 'always NEET' group such that in wave 5 it is lower than the 'sometimes NEET' group for both the matric and no matric respondents. When looking at the wave 1 and 3 NIDS data cross-sectionally, Ardington and Case (2010) and Eyal, et al. (2018) find that rates of depression rise with age. Utilising the panel, our findings indicate a decrease in depression rates as the cohort ages, suggesting that the results of these cross-sectional studies are due to a birth-cohort-effect rather than an age-effect. These trends in depression levels with respect to age do warrant further investigation, but fall outside of the scope of the current paper.

While the trends in depression between wave 1 and 5 seem to be counterintuitive when comparing across NEET groups, Figure 3 reveals a slightly different story. The graph compares the depressed and non-depressed groups in wave 1 according to how long they had been in a NEET state prior to wave 1. We see that the proportion that had been NEET for more than five years is higher for those who

[4] Baron, et al. (2017) recommend that a cut-off score of 12 is most appropriate in terms of indicating high risk of depression in the South African context.

were depressed compared to those who were not categorised as depressed, suggesting that there may indeed be a positive relationship between being in a NEET state and depression.

Figure 3: Number of years in a NEET state by depression in Wave 1 for those without matric



The less happy indicator shows that the 'always NEET' group has the highest proportion who reported that they were less happy than 10 years ago in wave 1. However, it is the 'sometimes NEET' group that has the highest share of respondents moving from indicating they were happy or the same as 10 years previously to reporting that they were less happy in wave 5. Those always NEET are most likely to be living in a household that has a higher share of income coming from grants in wave 5, yet the 'sometimes NEET' group has the highest incidence of depression. It is not entirely clear what causes these differences in the emotional well-being outcomes but it is likely that the 'sometimes NEET' group captures a group of young people who aspire to, and therefore continue to search for, entry into the labour market or (re)connection to the education system. Repeated failure to fulfil the desire to access better or long-term employment options may be at the basis of the higher levels of depression. This connection has been refered to in the international literature (Lund, et al., 2018). In South Africa, indications of such a relationship were found in long-term qualitative studies with African young people looking for work or for opportunities to continue studying (Newman and De Lannoy, 2014; Swartz, et al., 2012).

While on some of the measures the matric group shows a higher share of individuals worsening their status, the mean values remain lower on all accounts at wave 5 compared to the group without matric. The multivariate analysis which follows will shed more light on the depression and subjective wellbeing trends across the three NEET groups.

Table 6: Outcome variables by NEET group

	No Matric					Matric				
	Wave 1	Wave 5	Wave 5-Wave 1			Wave 1	Wave 5	Wave 5-Wave 1		
	Mean	Mean	Increase	Descrease	Same	Mean	Mean	Increase	Descrease	Same
	Always NEET					Always NEET				
Depression score (out of 30)	8,81	7,11	35%	57%	7%	7,85	6,80	43%	49%	7%
Depressed (depression score > 12)	22%	10%	6%	18%	76%	11%	3%	2%	11%	87%
Less happiy compared to 10 years ag	36%	21%	8%	24%	69%	32%	13%	7%	29%	64%
Grants - share of HH income	0,45	0,39	43%	52%	5%	0,35	0,25	28%	66%	6%
	Never NEET					Never NEET				
Depression score (out of 30)	8,32	6,59	33%	59%	8%	7,06	6,13	37%	60%	3%
Depressed (depression score > 12)	15%	8%	6%	13%	81%	8%	9%	5%	7%	88%
Less happiy compared to 10 years ag	27%	11%	4%	20%	75%	12%	12%	10%	10%	80%
Grants - share of HH income	0,13	0,12	43%	37%	20%	0,09	0,06	20%	38%	42%
	Sometimes NEET					Sometimes NEET				
Depression score (out of 30)	8,94	7,41	36%	57%	7%	7,57	7,14	44%	49%	7%
Depressed (depression score > 12)	20%	13%	10%	18%	72%	10%	14%	11%	8%	81%
Less happiy compared to 10 years ag	31%	18%	12%	25%	63%	27%	16%	11%	21%	68%
Grants - share of HH income	0,37	0,24	34%	57%	10%	0,25	0,16	32%	51%	17%

5. Regression analysis

We wish to address the research question “what are the long-term socio-economic effects of incomplete secondary schooling for the individual and society at large”. When examining differences in life trajectories between those who do not complete secondary school versus those who do complete secondary school, there is an empirical challenge of how to disentangle whether the observed outcome is a result of the youth leaving school before completing matric, or a consequence of other social and economic disadvantages that may have existed prior to their dropping out of school. From our descriptive analysis we know that youth who do not complete matric come from lower socioeconomic households and families. We observe some background characteristics (reported in Table 4) that may have impacted the decision to leave school before completing matric. However, there are other factors, for example household income during school, parental support, motivation, and alternative, out-of-school options, that are not observed. In order to answer the research question of whether the youth would have fared better on the measured well-being outcomes if they had completed their schooling, we need to account for these factors.

In Table 7 we present a series of regressions for our four outcome variables. One of the key findings from the transition trees is that youth who do not complete school are far more likely to experience sustained or intermittent periods in the NEET state. We are therefore interested both in differences in well-being among those who complete matric versus those who do not, and the different experience of being either persistently or sometimes NEET versus always employed or enrolled i.e. 'never NEET'. The variables of interest are therefore, firstly, a NEET dummy where a value of 1 indicates 'always NEET' and a value of 0 indicates 'never NEET' or 'sometimes NEET'. Secondly, we need a 'NEET sometimes' dummy so that we can differentiate between the 'never NEET' and 'sometimes NEET' groups. Note that we are interested in 'long term' changes in NEET, therefore, while the NEET value at wave 1 is equal to the original wave 1 NEET status variable, in wave 5 it is created according to the NEET group, as described above. Third, an indicator for being part of the matric group is required, i.e. Matric is 1 and 0 for those who do not complete matric. Four, we have interaction terms between the 'always NEET' and 'sometimes NEET' indicators and the matric indicator, to allow those who have completed matric to have a different relationship between well-being and the experience of being NEET.

Two specifications are used. We first run pooled regressions, whereby each respondent has two observations in the data (one at wave 1 and one at wave 5), and this is accounted for by clustering at the individual level. These regressions are presented for comparison purposes and each subsequent regression adds further controls, first individual and then household level. The main regressions of interest are the fixed effects regressions. Once again, we use wave 1 and wave 5 data such that each individual has two observations over time. Using fixed effects, we can control for unobserved time invariant individual and household characteristics that may impact on our outcomes of interest and also have impacted the decision of the respondent to leave school when they did. Only explanatory variables that vary over time are included in the regressions, hence the omission of the indicator for completing matric.

Table 7: Regressions analysis

	Depressed				Depession Score			
		POLS		FE		POLS		FE
Ref: (Never NEET)								
NEET always	0.05**	0.03	0.03	0.06*	0.87***	0.45	0.27	0.84**
	(0.02)	(0.03)	(0.03)	(0.03)	(0.28)	(0.30)	(0.31)	(0.41)
NEET sometime w2-w5	-0.01	-0.02	-0.01	0.04	-0.43	-0.62**	-0.43	0.58
	(0.02)	(0.02)	(0.02)	(0.03)	(0.27)	(0.28)	(0.28)	(0.39)
NEET always X matric	-0.03	-0.03	-0.04	0.01	0.24	0.31	0.01	0.43
	(0.03)	(0.03)	(0.03)	(0.05)	(0.43)	(0.43)	(0.43)	(0.65)
NEET sometimes X matric	0.07**	0.07**	0.06*	0.11***	0.93**	0.94**	0.81*	1.58***
	(0.03)	(0.03)	(0.03)	(0.04)	(0.45)	(0.44)	(0.44)	(0.53)
Matric	-0.06**	-0.02	0.00		-1.19***	-0.64*	-0.31	
	(0.02)	(0.03)	(0.03)		(0.31)	(0.33)	(0.34)	
Individual controls		X	X	X		X	X	X
Household controls			X	X			X	X
Observations	5,256	5,238	5,237	5,237	5,256	5,238	5,237	5,237
Number of PIDs	2,855	2,854	2,854	2,854	2,855	2,854	2,854	2,854

	Less Happpy				Share of household income from Grants			
		POLS		FE		POLS		FE
Ref: (Never NEET)								
NEET always	0.08***	0.06*	0.04	0.08**	0.19***	0.12***	0.12***	0.06***
	(0.03)	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
NEET sometime w2-w5	-0.05*	-0.05*	-0.03	0.04	0.02	-0.01	0.00	-0.03
	(0.03)	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
NEET always X matric	0.06	0.05	0.02	-0.04	-0.00	0.01	-0.01	0.03
	(0.05)	(0.04)	(0.04)	(0.06)	(0.03)	(0.03)	(0.03)	(0.03)
NEET sometimes X matric	0.06	0.06	0.04	0.02	0.03	0.03	0.02	0.05**
	(0.04)	(0.04)	(0.04)	(0.05)	(0.02)	(0.02)	(0.02)	(0.03)
Matric	-0.08***	-0.02	0.01		-0.11***	-0.05***	-0.03	
	(0.03)	(0.03)	(0.03)		(0.02)	(0.02)	(0.02)	
Individual controls		X	X	X		X	X	X
Household controls			X	X			X	X
Observations	5,228	5,21	5,209	5,209	5,734	5,434	5,434	5,434
Number of PIDs	2,854	2,853	2,853	2,853	2,908	2,893	2,893	2,893

Table 7 presents only the coefficients on our key variables of interest. Focusing on the results from the first column of the POLS regression for each outcome, three things stand out. First, the matric coefficient is negative and significant for each outcome, indicating that those who have completed matric have lower depression scores, are less likely to be depressed, are less likely to rate their current happiness lower than 10 years previously, and live in households less reliant on social grants as a share of their income. Second, the 'always NEET' coefficient is positive and significant in each specification, indicating lower well-being levels within this group. Finally, on the depression measures, the 'sometimes NEET x matric' coefficient is positive and significant, again signalling lower well-being levels.

When individual and household characteristics are controlled for in the subsequent columns of the POLS regression, these coefficients reduce in size and become insignificant (with the exception of the 'sometimes NEET x matric' which persists in size and significance).

The fourth column for each outcome shows the FE regressions. Interestingly, the depression and self-reported well-being regressions, which account for time invariant unobserved characteristics in addition to the individual and household controls included in the POLS regression, have 'always NEET' coefficients very similar to or larger in size and significance than the first POLS estimation which did not include controls. The regressions show a strong relationship between sustained NEEThood and lower levels of well-being. Being persistently in the NEET state over the 10-year period is associated with higher levels of depression (a 6 percentage point increase in the likelihood of being depressed) and lower levels of self-reported happiness (an 8 percentage point increase in the likelihood of reporting a lower level of happiness compared to 10 years ago).

While the 'NEET sometimes' coefficient is positive in the three well-being regressions, it is smaller in size than the 'always NEET' coefficient, and not significant. The 'sometimes NEET x matric' coefficient remains large and significant in the FE depression regressions, with individuals in this group being 11 percentage points more likely to be depressed. Again, the 'sometimes NEET' state reflects a degree of 'churning' between employment, employment search and education states and may thus imply a certain aspiration to find access to more stable work or to re-gain entry into the educational system. For those with a matric, it can be expected that that aspiration is higher than among those without a matric. Prolonged periods of churning in and out of the labour market or the education system could lead to a diminished sense of self-efficacy and lead to higher levels of disappointment or depression in this group (Lund, et al., 2018), but these connections warrant further investigation.

The final panel investigates the relationship between the three groups of NEET states and completion of matric on social welfare reliance. The results indicate that being in the NEET state persistently is associated with a larger share of grant income within total household income by 6 percentage points compared to those who are never or sometimes NEET. In addition, those who are sometimes NEET in the matric group have a greater share of grant income compared to those who are never NEET and have matric.

6. Summary and conclusion

The wave 1 NIDS data indicates that 41% of all youth had not completed secondary schooling and were not enrolled in 2008. We have seen that these youth look different from those who have completed matric in that they tend to come from poorer households and have attended lower quality schools. In addition, they are more likely to be unemployed or not economically active. Almost two out of three non-matriculants were NEET in 2008 compared to just under half of the matric group, indicating that those who have not completed secondary schooling are less connected to the labour market. Furthermore, a very small percentage of these youth return to some form of education over the following 10 years.

Within our sample of youth without matric and who are not enrolled, there is evidence of a fair amount of movement both into and out of the NEET state over the 10-year period from wave 1 to wave 5. However, there is a greater tendency to remain in the NEET state from one wave to the next compared to moving out of the NEET state, highlighting the difficulty of moving into employment amongst the unemployed. We identified three main pathways of NEET state over the 10-year period: over two thirds of the sample of interest moved into and out of a NEET state across the 10 years, one fifth were persistently in the NEET state, and the smallest proportion were never NEET. These groups differ in terms of their characteristics at the individual and household level. Most notably, the vast majority of the 'always NEET' group are female, and many are NEA due to child and domestic responsibilities. The 'always NEET' and 'sometimes NEET' groups are also more likely to come from poorer households which are characterised by lower incomes and higher dependency ratios, and are more likely to be located in rural areas.

We also find that non-matriculants are more likely to be in the NEET state for longer periods of time compared to those who completed secondary school. Almost a fifth (19%) of non-matriculants are in the NEET state persistently over the ten-year period, compared to only 7% of matriculants. Our descriptive statistics reveal that those who are persistently NEET are more likely to be female, have

lower parental education levels, and have attended lower quality schools compared to those who are sometimes or never NEET.

Our multivariate analysis further shows that being in a NEET state has consequences at the individual and societal level. Taking unobservable time invariant individual characteristics into account, the fixed effects regression analysis showed that being in a NEET state persistently is associated with higher rates of depression, lower levels of self-reported happiness relative to 10 years previously, and greater reliance on grant income compared to other sources of income in the household.

Thus, our analysis has shown that our sample of youth who have not completed secondary schooling constitute the most vulnerable in the country. Not only do non-matriculants look different in terms of their characteristics but they also follow quite different trajectories in the labour market compared to matriculants. Specifically, they tend to remain in the NEET state for long periods of time. In turn, there are significant negative consequences of being NEET in terms of mental health and subjective well-being as well as increased reliance on social assistance, indicating substantial social and economic costs of incomplete secondary schooling to the country. In terms of the design of policy interventions, it is important to consider these different paths through NEET states due to the variation in their characteristics as well as their associated individual and societal consequences. Those who do not complete matric are in fact a heterogenous group in terms of their labour market trajectories and it is imperative that interventions to support them be designed with this in mind. In particular, non-matriculant females who come from poorer socio-economic backgrounds are the most vulnerable in terms of their tendency to remain NEET for longer periods of time and are therefore more likely to suffer the consequences in terms of well-being.

Further research into the job market differences between the NEET groups may be beneficial, specifically, to discover the types of jobs and sectors that are associated with remaining out of the NEET state for significant periods of time. This may help guide policy-makers in terms of skills development for those who have not completed secondary education.

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Appendix A: Constructing weights that account for attrition within the sample of interest

Table A1 summarizes mean characteristics at wave 1 for those youth who did not respond at each point between wave 1 and 5 (and therefore were excluded from the sample of interest), Attritors, compared to those who were interviewed in all five waves (and therefore were included as part of the balanced panel), Non attritors. We see some variation in characteristics between the two groups. Thus, these variables were used in the construction of the balanced panel weights to account for possible attrition bias. This was done by running response probits with these variables as predictor variables. The NIDS design weights were then adjusted by these probabilities of response and rescaled to population estimates in 2017.

Table A1: Comparison of wave 1 characteristics for attritors versus non-attritors

	Attritors	Non attritors
	n= 4124	n= 4757
Male	49%	43%
Female	51%	57%
African	77%	86%
Coloured	15%	12%
Asian	2%	1%
White	6%	1%
Age	24	23
Married	21%	16%
Years of education	9,7	9,7
Urban	54%	43%
Traditional	36%	49%
Farms	10%	8%
Household size	5	6
WC	15%	9%
EC	12%	11%
NC	8%	7%
FS	5%	7%
KZN	26%	31%
NW	7%	7%
GP	13%	10%
MP	7%	8%
LP	7%	11%

Note: Sample is those respondents who were 15 to 35 in Wave 1.
Attritors include any respondents that did not answer questionnaires in all five surveys.

Appendix B: Transition trees for the matriculant group

Figure B1: Transition tree for wave 1 NEETs

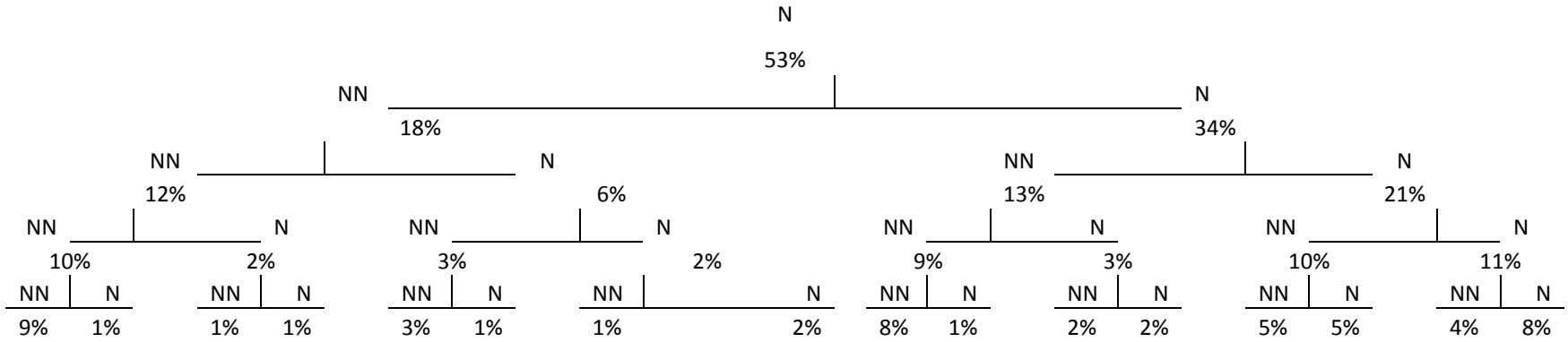
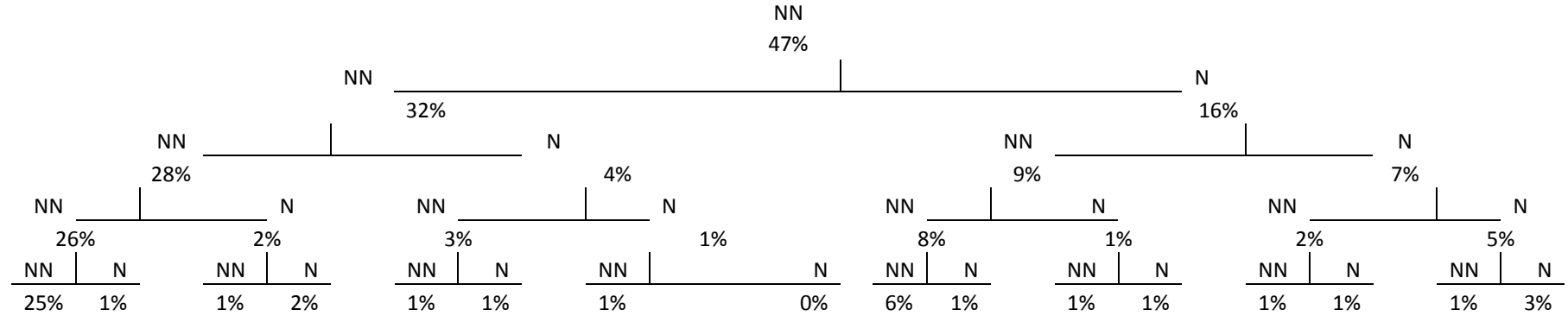


Figure B2: Transition tree for wave 1 non-NEETs



SALDRU

Southern Africa Labour and
Development Research Unit

The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.

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