

Exploring Youth Transitions:

Five Years of the South African Youth Panel Survey

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ABBREVIATIONS AND ACRONYMS

DBE	Department of Basic Education
DHET	Department for Higher Education and Training
GHS	General Household Survey
HSRC	Human Sciences Research Council
IPW	Inverse Probability Weights
LMIP	Labour Market Intelligence Partnership
NATED	National Accredited Technical Education Diploma
NEET	Not in Employment, Education or Training
NSC	National Senior Certificate
OECD	Organisation for Economic Co-operation and Development
SAYPS	South African Youth Panel Study
StatsSA	Statistics South Africa
TIMSS	Trends in International Mathematics and Science Study
UIS	UNESCO Institute for Statistics

PREFACE

The 2009 South African government administration, informed by a results-focused philosophy, identified 12 priority outcomes for the country. Outcome 5 refers to ‘a skilled and capable workforce to support an inclusive growth path’, and the delivery of this outcome is led by the Minister of Higher Education and Training. Delivery Agreement 5 consists of three parts, with Output 5.1 committing the Department of Higher Education and Training (DHET) to establish a credible mechanism for skills planning, in collaboration with 20 national and provincial ministries. The DHET commissioned the Human Sciences Research Council (HSRC) to support the DHET in establishing a credible institutional mechanism for skills planning (Memorandum of Agreement between the DHET and the HSRC, February 2012). Thus the Labour Market Intelligence Partnership (LMIP) project, with six themes of research, was established.

The objective of one of the research themes (5) is to obtain a better understanding of the pathways and transitions undertaken by young people through the education and training system and into the workplace. The key question underpinning this work is: What are the dynamics of access, progression, graduation and labour market destinations along various education, training and labour market trajectories, and how can this knowledge inform skills planning in South Africa? The research therefore collected and analysed data which then provides crucial information on the following:

- Understanding the extent to which access is conditioned by socio-economic factors, the quality of primary and secondary schooling, as well as spatial and demographic characteristics. In particular, it is important to know which barriers affect young people who successfully finish their schooling.
- Pathways or trajectories through the secondary school and post-school sector refer to the choices that students make in terms of institutions, subjects, degrees and specialisations.
- Transitions from and through education and training into the labour market are the final step in the progression sequence. Given the large investments (at both the household and government levels) made in training and higher education, the successful matching of available skills to the demands of the labour market is of significant interest in South Africa.

The post-school education and training landscape in South Africa consists of a diverse range of sectors and institutions. These include: Adult Basic Education and Training (ABET) centres; Technical and Vocational Education and Training (TVET) colleges; workplace training programmes (learnerships and apprenticeships); as well as traditional, comprehensive and universities of technology. All of these components of the post-schooling system are of vital importance to the supply of skills to the labour market and the broader South African economy, and understanding the issues of access, pathways and transitions will provide valuable information for skills planning.

A number of research studies were conducted within this theme of research. The key questions that each of the studies attempted to answer is reflected in the following topics:

1. What is the progression, graduation and destination of secondary school students?

2. How matric results influence university access, field of study and progression through to university.
3. What are the school-to-work transitions in the National Income Dynamic Study?
4. What are the university graduate destination outcomes: The Eastern Cape study on transitions to the labour market
5. Assessing the usability of graduate destination surveys for the analysis of labour market outcomes.
6. Scoping for a tracer study of the education and training and labour market outcomes of workplace training programmes.
7. What are the pathways of TVET college learners through the TVET colleges and beyond?
8. Who accesses adult education programmes and where do they progress to: An exploratory tracer study on community education and training centres

EXECUTIVE SUMMARY

Enrolment rates at primary school and the compulsory phase of secondary school in South Africa are high and comparable with other countries (Reddy et al., 2016), but the throughput into tertiary education falls well below international levels (UIS, 2017). Poor educational throughput has a number of undesirable developmental knock-on effects. First, the schooling system is contributing to rising numbers of unemployed youth with an incomplete secondary education and a lack of skills sufficient to guarantee employment (Bhorat and Kimani, 2017). Second, the school sector is generating insufficient numbers of matriculants who are adequately prepared for enrolment in post-school education (StatsSA, 2015). Understanding the barriers to, and bottlenecks in, successful educational transitions is, therefore, one of the most salient current social policy challenges facing South Africa.

This report examines educational transitions for a national cohort of young people over a five-year period and in doing so attempts to understand who is and is not progressing, when the major bottlenecks appear, and where potential barriers to entering the post-school system are. Our aim is to provide a detailed examination of educational pathways and show a more complete picture of various transitions through the post-compulsory schooling phase (Grade 10 to 12), leading to a more accurate reflection of grade repetition and the sticking points throughout this phase.

The report uses data from the South African Youth Panel Study (SAYPS), a longitudinal panel study of South African learners that started in 2011 to explore educational transitions through and beyond school. The data is unique in having tracked learners originally in Grade 9 for five consecutive years, enabling a detailed look at individual pathways through the post-compulsory phase and offering an insight into early adult transitions. The strength of SAYPS lies in its rich, annually-collected data, its weakness, however, is that there are high levels of attrition: by wave 5 just 20% of the initial sample remain part of the study. Missing data analysis shows that the sample by the fifth and final wave is biased towards females, those from more advantaged homes and who attend better resourced schools, as well as those who perform better in Grade 9 assessments of mathematics and science.

The main story that emerges is that pathways through this phase are complex and deviate from prescribed routes: there is considerable heterogeneity in learner transitions, with some youth progressing through the school system and on into post-school education with ease, while others are getting irrevocably stuck within the education pipeline. We find that individual achievement remains the key driver of successful academic transitions and show that while it is possible for learners to overcome the odds against them, getting the foundations of literacy and numeracy right in earliest grades for all learners is the key to improving the throughput across the system.

We show that while there are different pathways in terms of both successful (various post-school settings) and unsuccessful (becoming NEET) destinations, alongside evidence of flexibility in learner journeys across the system, more than four in ten learners experience considerable grade repetition leading to interrupted pathways throughout their school careers. Together, the results indicate that staggered pathways are becoming the new “norm” for learners in South Africa, with each interruption decreasing the likelihood of reaching and passing Grade 12. The challenge, it seems, is rather than focus on the numbers of students passing their Grade 12 matriculation exam,

efforts should first focus on increasing the proportion of students who experience a smooth pathway to Grade 9, across all school types. If learners can reach Grade 9 without difficulty, the throughput of successful learners to Grade 12 and beyond will increase.

Our findings further demonstrate that social advantage – operating particularly through school-level characteristics – also remains a key predictor of learner transitions. Yet despite this, there are socially disadvantaged learners who defy the odds, successfully completing Grade 12 school and moving smoothly into post-school settings, giving cause to be optimistic that change, albeit slow, is permeating the system.

Key findings:

Learners in post-school education

- A quarter of the SAYPS cohort in 2015 have successfully transitioned into post-school settings:
 - This group are typically – though not entirely – made up of the most academically able, and socially and economically advantaged youth;
 - A third of learners in post-school institutions come from no-fee, public schools.
- However, less than 60% of learners eligible to continue into post-school education are enrolled one year later:
 - The primary reason given being financial barriers to further study.

Learners still in school

- Learners who remain in school five years after first being observed in Grade 9 represent over forty per cent of the SAYPS cohort:
 - There is some evidence of progression across all grades, as well as obvious flexibility in the system which allows young people to return to the schooling they had previously left.
- However, Grades 9 and 11 appears to be a particular hurdle to overcome in terms of grade progression:
 - There is very limited progression for those who have only made it to Grade 11 by wave 4 of SAYPS, with just 6% of those in Grade 11 in 2014 progressing to Grade 12 in 2015.
- Staggered pathways appear to be the new “norm” for South African youth, starting early in the grade system and continuing on into tertiary education.

Youth not studying or in work

- Nearly a third of learners with a smooth, uninterrupted progression path over waves 1 to 4 of SAYPS are NEET in wave 5;
- Worryingly, learners with previously smooth, uninterrupted educational pathways through school constitute two-thirds of the total wave 5 NEET (Not in Employment, Education, or Training) group
 - The size of this group partly reflects the upward bias in our sample as many of the learners who exited the school system earlier and are now themselves NEET cannot be included here.

Policy implications

Improved basic education

- The importance of a quality basic education cannot be over-emphasised:
 - Success at Grade 9 a key predictor of future educational pathways
- The current system focuses on learners passing the Grade 12 exam and is the widely used measure of the health of the system:
 - The more difficult challenge, however, is to increase the number of learners who experience a smooth pathway post Grade 9, across all school types;
 - focus should then shift to making Grade 9 performance as the main high profile goal and achieving high performance at the end of the compulsory phase.

Grade repetition

- Grade repetition is not working for the majority of learners and despite clear policies to encourage progression, deviation from prescribed routes is very much part of the system.
 - Where being held back is appropriate, for repetition to be effective, learners falling behind, need proper remediation and teaching strategies sufficiently adapted to ensure sufficient remedial action is met and the difficulties overcome
- The analyses also show clear evidence of limited progression for learners in Grade 11 at wave 4
 - Real support for those struggling at Grade 11 is necessary if such a push is likely to actually affect throughput into post-school education.

Multiple post-Grade 9 and second-chance opportunities

- The educational pathways post-Grade 9 are complex
- For learners who do not manage to progress smoothly through school and into post-school education at the first time of trying, the likelihood of achieving a Grade 12 qualification - let alone a post-school one - diminishes every year and leaves these youth extremely vulnerable to unemployment.
- If staggered progression is indeed the new norm, then multiple 'second-chance' opportunities are likely to be required for learners at risk of exiting the education system altogether.
- Post-Grade 9 learners choose the academic school route and have high aspirations to enter university. The multiple post-school educational routes (technical courses in schools, TVET colleges, community colleges, skills and trade programmes) must be marketed extensively as viable.
- Part of a policy response here thus also needs to be how best to make young people aware of the full range of educational and training options available to them.

Throughput into tertiary education

- The number of youth eligible for tertiary education in the SAYPS sample is far lower than the proportion who actually move into post-school settings
- The main barrier to further learning for the SAYPS cohort appears to be a financial one with credit constraints clearly limiting learner throughput. Funding opportunities, particularly for middle income groups, are currently insufficient and limit enrolment and need to be addressed if target numbers are to be met.

Rethinking the NEET group

- Our analyses suggest that pathways into becoming NEET are not uniform or straightforward and thus there is a need to rethink not only traditional view of this group but also what policies are required to address their varying needs.
- This group likely reflects both a lack of opportunities and knowledge of the available options to young people, alongside a lack of finances, and a mismatch of skills and the jobs available in the labour market, rather than merely a feckless group of unmotivated youth.

1. INTRODUCTION

The important role that education plays in early adult transitions is well documented. According to a recent report from the Labour Market Intelligence Partnership (LMIP, 2016), 60% of unemployed South Africans were without a Grade 12 certificate and the majority of people left out of the employment pool were from the youth group. This reflects, in part, the low throughput rate of learners from Grade 1 to 12 and poor numbers actually achieving a secondary school certificate (Branson, Hofmeyr and Lam, 2014; Isdale, Reddy, Winnaar, and Zuze, 2016; LMIP, 2016), alongside low levels of participation in higher education (Cloete, 2009).

Poor educational throughput has a number of undesirable developmental knock-on effects. First, the education system is contributing to rising numbers of unemployed youth with an incomplete secondary education and a lack of skills sufficient to guarantee employment (Bhorat and Kimani, 2017). Second, the sector is generating insufficient numbers of matriculants who are adequately prepared for enrolment in higher education (StatsSA, 2015). Understanding the barriers to, and bottlenecks in, successful educational transitions is, therefore, one of the most salient current social policy challenges facing South Africa.

This report uses data from the South African Youth Panel Study (SAYPS), a longitudinal panel study of South African Grade 9 learners that started in 2011 to explore educational transitions through and beyond school. The data is unique in having tracked learners originally in Grade 9 for five consecutive years, enabling a detailed look at individual pathways through the post-compulsory schooling phase and providing an insight into youth transitions. One of the unique contributions of this report thus lies not only in our ability to track learners through school, but also to observe those who exit the education system.

We begin by reporting the main activity statuses of the SAYPS cohort at wave 5 and examine how learners made it to this point, noting unusual patterns which might indicate possible blockages in the education pipeline. We then describe in detail the three main activity states at wave 5, namely learners in post-school educational institutions, those still in school, and those who are not engaged in any form of employment, education or training, the so-called NEET group, in order to try and better understand what the blockages are, how they might arise and, consequently, how they could be overcome.

The main story that emerges is in line with the findings from previous analysis of the earlier waves of SAYPS data (Isdale, et al., 2016) in that transitions are complex: there is considerable heterogeneity in learner transitions, with some youth progressing through the school system and on into post-school education with ease, while others are getting irrevocably stuck in the education pipeline. We find that individual achievement remains the key driver of successful academic transitions and show that while it is possible for learners to overcome the odds against them, getting the foundations of literacy and numeracy right in earliest grades for all learners is the key to improving the throughput across the system.

We show that while there are different pathways in terms of both successful (various post-school settings) and poor (becoming NEET) destinations, alongside evidence of flexibility in learner journeys across the system, the majority of learners experience grade repetition and interrupted

pathways throughout their school careers. Together, the results suggest that staggered pathways appear to be becoming the new “norm” for learner progression in South Africa. Our findings also demonstrate that social advantage – operating particularly through school-level characteristics – remains a key predictor of learner transitions. Yet despite this, there are learners who defy the odds, successfully matriculating school and moving smoothly into post-school settings.

The remainder of the report is structured as follows: we begin with a brief overview of the current context for youth transitions in South Africa; and then outline the SAYPS data, describing the main activity states of learners at wave 5. Our analysis starts by describing youth transitions over the five years of SAYPS and moves on to a comparison of the main pathways taken by the cohort, followed by the results of a regression analysis examining the characteristics associated with learners on different pathways. The analysis ends with a look at individuals beating the odds and evidence of learners able to buck the trend of advantage begetting advantage. In the final section, we draw the results together with concluding comments and a brief policy discussion.

2. EARLY ADULT TRANSITIONS: THE SOUTH AFRICAN CONTEXT

Overall enrolment rates at primary and secondary schools in South Africa are fairly high and comparable with industrialised countries (Reddy et al., 2016); uptake at the primary level is almost universal and remains high into the teenage years (StatsSA, 2016). Yet progression through school at the “desired” rate is relatively rare – around 36% (Branson, Hofmeyr, and Lam, 2013) and the proportion of learners reaching Grade 12, successfully matriculating from high school and moving into post-school education is troublingly low (van Broekhuizen, van der Berg and Hofmeyr, 2017). Combined with a pattern of economic growth that is increasingly demanding higher levels of skills (Bhorat and Kimani, 2017), today’s cohort of young people face tough labour market conditions and, compared to older generations, they are likely to earn less in real terms and find it harder to secure jobs (Hofmeyr, Branson and Leibbrandt, 2013).

Progression through school

Repetition rates in South Africa are often as high as 20% per grade, rising considerably after Grade 9 (Branson, et al., 2014), and exacerbate already low average levels of achievement and high schooling inequalities (Branson and Lam, 2010; Branson and Zuze, 2012). Keeping pace in the grade system is a fundamental determinant of who drops out, both of which are associated with socioeconomic status and school quality (Branson, et al., 2013).

Previous analysis of the SAYPS cohort (Isdale, et al., 2016) identified four distinct educational pathways followed by learners in the post-compulsory phase:

- **Smooth:** Neat, uninterrupted year-on-year grade progression;
- **Staggered:** Learners in school with at least one episode of grade repetition; or who return to school following a period either working or not in employment, education or training;
- **Stuck:** Learners who remain in school, but get stuck in Grade 9 or 10 for three or more years;
- **Stopped:** Individuals who drop out of the school system and do not return.

Across the first four waves of SAYPS data, less than half of the SAYPS sample (47%) has a smooth, “desired rate of progress” pathway, with 39% of learners following a more staggered route. Our analyses show evidence of sustained dropout from Grade 9 onwards¹ (7%) and also highlight the high levels of grade repetition evident in the South African school system shown by others (for example, see Branson, et al., 2014). There is clear evidence of the increasingly interrupted nature of progression as learners approach Grade 12, with Grade 11 in particular seeming to be a particular hurdle for learners to overcome.

¹ The SAYPS sample size in the fourth wave is less than a third of its original size, with analysis of the attrition indicating that those missing from the later waves are more likely to be male, come from more disadvantaged backgrounds, attend more poorly resourced schools, and have lower achievement. These learners are also more likely to have been classified as “stuck” (7%) or “stopped” (7%) and so our estimates of the size of these groups is lower than would be expected if the data were nationally representative.

The data further show that around 7% of learners get stuck in the system, spending three or more waves in Grade 9 or 10 and struggling to move beyond this level despite policies designed to prevent such grade stagnation. This is particularly worrying as our estimate of the size of this group likely under-represents the proportion for whom this applies nationally. Interestingly, however despite the greater levels of social advantage in our sample, the results also show clear evidence of the social grading in learner pathways with those following smooth transitions more likely to come from households with higher average parental education and attend higher-quintile ranked, i.e. more resourced, schools and those on other pathways more likely to come from no-fee public schools with fewer resources and greater numbers of disadvantaged learners (see also Lam, Ardington, Branson and Leibbrandt, 2014).

Using four years of consecutive data across four different Grade 9 cohorts based in the Western Cape, van Wyk, Gondwe and de Villiers (2017) similarly find evidence of consistently high dropout rates from Grade 9 onwards, as well as considerable deviations from the prescribed repetition policy. Their analyses show that roughly 20% of those in Grade 9 repeat the same grade the following year, with around 16% of the cohort dropping out of school altogether at the end of Grade 9. Three years after they were first observed in Grade 9, just 62% of the original cohort remains in the school system, of which only 38% were in the appropriate “smooth” grade (Grade 12) and a small, but significant, 1% were stuck in Grade 9 meaning they had been stuck there for four consecutive years. The authors go on to show that only a small percentage of learners who repeated in Grade 9 did not go on to drop out or fall further behind and argue that repetition in Grade 9 is the precursor to almost inevitable dropping out of school without completing Grade 12.

In turn, low numbers of learners progressing through school and achieving a secondary school certificate is a key contributor to the shortage of university graduates in South Africa (van Broekhuizen et al. 2017; LMIP, 2016). Very few of those starting primary school will make it to the final year of secondary school and go on to write the National Senior Certificate (NSC) school-leaving examination (van Broekhuizen et al. 2017; van Wyk, 2015). Moreover, as the upward swing in the demand for workers with higher levels of skills and more suitable education credentials continues, particularly in the services sector (Banerjee, Galiani, Levinsohn, McLaren, and Woolard, 2009; World Bank, 2017), youth without the necessary qualifications face low wages, harsh labour market conditions and the potential pitfalls of long-term unemployment.

Post-school participation rates and enrolment in post-school institutions

The completion of any post-schooling education substantially improves labour market prospects (Branson and Kahn, 2016) and is reflected in policies designed to expand the capacity of the post-school sector in order to address low levels of enrolment, attainment, and associated inequalities (DHET, 2013). However, despite this, recent data on the throughput of learners into post-school education shows that very few of those starting primary school actually make it into the final year of secondary school and go on to write the NSC school-leaving examination: just 12% cent of those starting primary school go on to access university within six years of matriculating² and only 4% will complete a degree qualification (van Broekhuizen, et al., 2017).

² For context, the number of students enrolled in public universities in 2015 was 985 212 (see [Table 1](#) in DHET, 2017).

Current tertiary participation rates in South Africa are below 20% (UIS, 2017). Less than one in ten young people between the ages of 18 and 35 have completed some form of post-school education and just 4% hold university degrees (van Broekhuizen, et al., 2017).

Equally concerning is the fact that many learners eligible for the tertiary sector are not enrolled: according to UNESCO, for example, South Africa ranks 35th among 39 upper middle income countries in terms of the tertiary participation rate (UIS 2017). In addition, despite significant transformation and expansion in the post-school sector, differences in the quality of schooling which exert themselves during the primary and secondary phases, carry over into the tertiary sector where choices for further education and training are often limited by low levels of achievement and socioeconomic status (Branson, Leibbrandt and Zuze, 2009; Rogan and Reynolds, 2015). Participation rates also still differ substantially between race groups, ranging from above 50% of whites and Indians/Asians to just 15% for Black Africans and Coloureds (van Broekhuizen, et al., 2017), but there is clear evidence of a large female advantage in the education system with more females than males qualifying for, enrolling in and completing university qualifications (van Broekhuizen and Spaull, 2017). Gender stereotypes do emerge, however, within the SET subjects with male enrolments and graduations higher in the fields of Architecture and the Built Environment; Computer and Information Sciences; Engineering, Mathematics and Statistics, for example, and female's higher in Communication and Journalism; Education and Health; Life Sciences, Psychology and the Social Sciences (Reddy, et al., 2016).

Returns to education

Compared to the group with less than a matric, achieving a Grade 12 certificate increases the chances of being both formally (Bhorat and Kimani, 2017) and stably (Ranchod, 2013) employed. For example, youth who have successfully matriculated are between 30% and 60% more likely to be formally employed than individuals with less than matric. Furthermore, some level of tertiary qualification nearly doubles the likelihood of finding employment compared to a Grade 12 certificate

The literature on the returns to education is also clear in this regard with those in possession of a post-matric qualification and university degree earning significantly more on average than those with a Grade 12 certificate only (Branson, et al., 2013). Note, however, that Hofmeyr and colleagues (2013) also argue that while the value of post-matric qualifications has steadily increased over time, the premium for those in possession of the matriculation certificate also remains positive, with matriculants having a higher probability of employment and greater earnings than those who finish only Grade 10 or 11.

Youth not in employment, education, or training (NEET's)

South Africa has a high and growing level of unemployment, with the narrow definition estimating 5.1 million people unemployed in 2014 (Reddy, et al., 2016). Youth unemployment is of particular concern with over half (51.3%) of young people between the ages of 15 and 24 years old classified as unemployed (OECD, 2017): the rate is higher among female youth (55.3%) than among males (48%).

The share of those classified as NEET, that is not in employment, education or training³, amongst the 15-29 age group was around 36% in 2015, compared to an OECD average of just 14.6% (OECD, 2016). When just those aged between 22 and 24 years are considered, this proportion rises to 50%, with women 5.4 percentage points more likely than men to be classified as NEET in this age group.

As with the evidence on returns to education, there is a dramatic reduction in the proportion of individuals who are classified NEET as the level of education improves (Bhorat and Kimani, 2017). For example, the NEET rate among youth with only lower secondary education is around 60.7%, compared to 50.9% among those with unfinished upper secondary education (OECD, 2017).

International literature here also points to the long-term scarring effects of early unemployment, whereby a spell of unemployment increases the risk of further spells of unemployment (see, for example, Bell and Blanchflower, 2010). The incidence of long-term unemployment is much higher in South Africa than the OECD average: in 2015, 56% of the South African unemployed had been so for 12 months or more, compared to an OECD average of 33.8% (OECD, 2017). We should then be particularly concerned about a generation of young people facing deteriorating labour market conditions being scarred by long initial periods of unemployment.

Taken together research on learner pathways suggests that, academically speaking, the most damaging things that can happen to a learner is:

- not have a high quality Grade 9 pass
- to drop out of school between Grades 10–12; and
- to get to Grade 12 but not passing their matriculation exam.

With very low returns to all education below completed secondary schooling and the potentially long-term damage associated with early periods of unemployment, a better understanding of learner transitions in the last years of schooling and understanding the potential barriers to reaching Grade 12 and matriculating is a crucial concern for both policy makers as well as young South Africans.

³ NEET figures are lower than the broader definition of unemployed as they exclude individuals who are not actively seeking work, such as full-time parents and carers.

3. METHODOLOGY

Data

This report uses the South African Youth Panel Study (SAYPS), a longitudinal panel study that started in 2011 and now contains five waves of annually collected data. The SAYPS sampled learners from Grade 9 who took part in the Trends in International Mathematics and Science Study (TIMSS) in 2011 (see Mullis, Martin, Foy and Arora, 2012, for further details). In doing so, our baseline sample was drawn from a nationally representative sample of schools and learners and contains achievement data in mathematics and science from internationally validated instruments.

Following the baseline data collection wave and matching with TIMSS, four further annual waves have been conducted between 2012 and 2015, resulting in five years of data tracking learners from Grade 9, roughly 15 years of age, onwards. The data provides a wealth of information on individual characteristics and family background, alongside the detailed achievement scores, family and school demographics contained within TIMSS.

The year 1 SAYPS survey successfully interviewed 11,895 learners in Grade 9. Thirty per cent opted out of further follow-ups after this baseline, and study dropout in the first follow-up (captured in 2013, and retrospectively collecting data for 2012) brought the overall sample down to just below half of the original cohort. In the most recent sweep of data collection, the sample size has fallen to 18.7% of the original group of learners (see Table 1).

Table 1: Sample size by wave and year

Wave	1	2	3	4	5
Year	2011	2012	2013	2014	2015
Sample N	11,895	5,946	5,872	3,613	2,224
% of Wave 1 sample		50.0	49.4	30.4	18.7

Data source: SAYPS Waves 1 - 5 (2011 - 2015)

Missing data

The strength of SAYPS lies in its rich, annually-collected data, its weakness, however, is that the high levels of attrition. Missing data analysis from our previous research on SAYPS show that the longitudinal panel over represents females, those from more socially advantaged households and higher quintile and independent schools, as well as those who performed better on the TIMSS 2011 assessments (see Isdale, et al., 2016, for further detail). Moreover, the majority of the attrition in the sample across the early waves comes from those who are most likely to have exited the education system prematurely and so be in the group of youth not working or studying. As such, we apply inverse probability weights (IPW) to our estimates to attempt to correct for missing data in the wave 5 sample. IPW is a commonly used statistical technique to adjust for unequal sampling fractions in survey data (see Appendix II for further detail on missing data, IPW; and Seaman and White, 2013, for a review).

Measures

The central aim of this report is to examine the educational activities and transitions of young people over time, hence our key outcome of interest measures an individual's main activity in wave 5 and the previous main activities that led there. Table 2 provides an overview of the main activities of youth in the two most recent waves of SAYPS. In line with data reviewed above (refs/cross ref), the SAYPS sample is characterised by high enrolment until late secondary school: 92% of individuals are still in school at wave 4 (2014), with the majority of those dropping out of school reported not studying or working.

A year later in wave 5, nearly a quarter of the cohort (24.6%) has successfully moved into some form of post-school institution. A further 43.5% remain in school, while a very small proportion of the cohort, 1.2% is engaged in Learnerships or Apprenticeship training. The drop in the overall proportion of youth in education is marked by a corresponding increase in the number of individuals in work (0.9% up to 7.2%), but is particularly apparent amongst those not studying or working (23.4%), representing an almost fourfold increase.

Table 2: Main activity at wave 5

<i>Main activity:</i>	W4:2014	W5:2015
Post-school institution	-	24.6
Still at school	92.3	43.5
Moved to public/private FET college	0.9	-
Learnership etc.	-	1.2
Working	0.9	7.2
Not studying and not working	5.9	23.4

Data source: SAYPS Wave 5 (2015)

Notes: Inverse probability weights are used to account for wave attrition.

In addition, to this central measure of interest, our analysis takes into account other factors known to correlate with, and influence, educational pathways, including:

- Individual characteristics (gender, age in Grade 9, race)
- Family socioeconomic background and household resources
 - Highest household education
 - Number of books in the home
- School characteristics
 - Public school quintile ranking (no-fee paying and fee-paying); whether the school is independent
 - Socioeconomic background of learners
- Learner educational expectations, academic attitudes and measures of school climate
- Academic achievement

Summary statistics on these variables, including descriptions of how they were constructed and coded, and the handling of missing data are provided in Appendix Table AI and Appendices I and II.

Analytic strategy

The key contribution of this report is in the ability to track learners through the post-compulsory phase of secondary school, observing the detail of their progression pathways and influences on their various wave 5 destinations. We develop the transition analyses set out in our previous work on SAYPS and explore the continuing complexity in young people's educational transitions as they move into post-school institutions, focussing in particular on what happens to the previously identified *smooth* group of learners, those remaining in school and the increasing number of youth identified as not studying or working. We also look again at those learners who appear to have beaten the odds and achieved despite disadvantage.

Our analysis uses transition matrices to explore pathways over time and logistic regressions to examine key characteristics that differentiate salient groups identified. Acknowledging the limitations of the reduced sample at wave 5, our methodological approach is to use the richest data available in tracking learners over time. We reweight the data to better account for learners who are missing, but our results are still likely to underestimate associations for males, and those from more disadvantaged households and in less well resourced, no-fee schools.

4. THE STORY SO FAR: TRANSITIONS TO WAVE 5

So what were these young people doing before? How do they transition into their main activity at wave 5? Table 3 uses the four key transition groups identified in earlier work using the SAYPS sample (Isdale, et al., 2016) detailing the year-on-year pathways of learners over the first four waves to show how young people move into their main activity at wave 5.

For learners who follow a “smooth” pathway over the first four waves, that is, those who progress neatly from Grade 9 to Grade 12 without repetition or interruption, the majority continue on this trajectory and move successfully into post-school education (47%). The vast majority of those on previously “staggered” (86.0%) and “stuck” (83.2%) educational routes from Grade 9 remain in secondary school at wave 5, continuing on much the same⁴ transition as in previous waves. Half of those who exited the school system prematurely, and so have a “stopped” pathway, remain not studying or working at wave 5, indicating early entrenchment in this category.

Table 3: Wave 1 to Wave 4 Transition Groups, by Wave 5 Main Activity

<i>W1-W4 Transition Group:</i>	Wave 5 main Activity					<i>Total</i>
	Post-school institution	Still at school	Learnership etc.	Working	Not studying, not working	
Smooth	47.0	12.1	2.0	8.0	30.8	100
Staggered	3.4	86.0	0.6	2.5	7.6	100
Stuck	1.4	83.2	0.0	3.5	11.9	100
Stopped	4.1	20.0	2.8	22.8	50.3	100
<i>Total % @ Wave 5</i>	<i>24.6</i>	<i>43.5</i>	<i>1.2</i>	<i>7.2</i>	<i>23.4</i>	<i>100</i>

Data Source: SAYPS 1-5 (2011-2015)

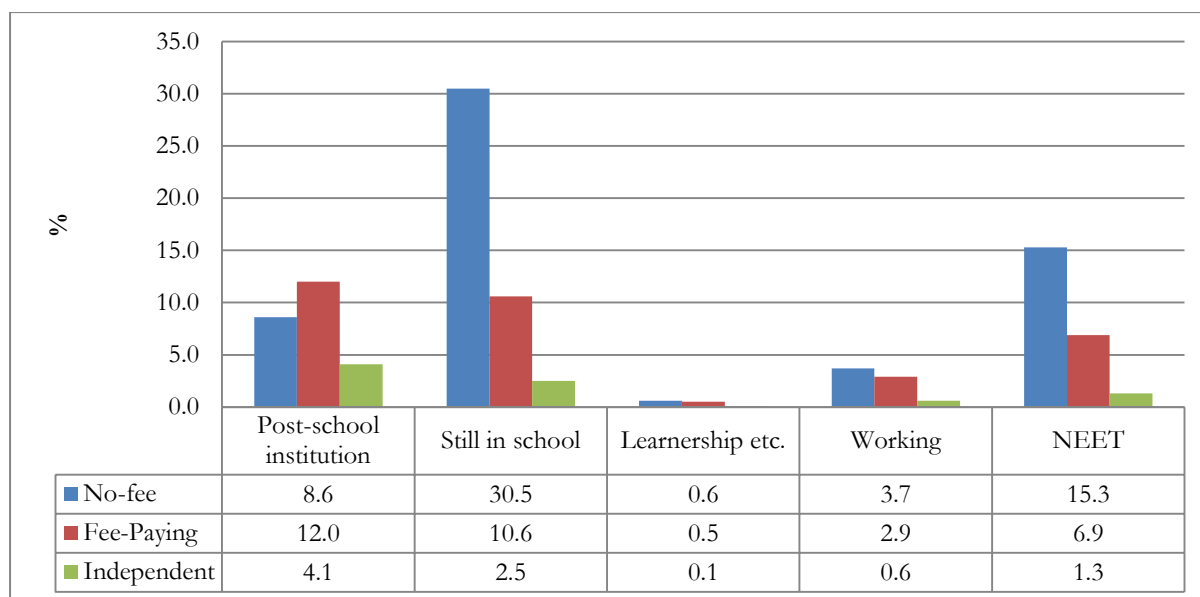
Notes: Inverse probability weights are used to account for wave attrition.

What is most concerning in Table 3, however, is that a nearly a third of those with previously smooth, uninterrupted pathways through school are not working or studying at wave 5. That so many, formerly such successful learners should become what is often termed “NEET” (not in employment, education or training) straight out of school indicates a real problem in throughput of the education system: tertiary participation is low, if those who can access it are not, how can the sector grow in order to meet the needs country’s skill shortages? It further suggests that the view of who is traditionally deemed “a NEET young person” may be highly unrepresentative in reality and that the group at risk is larger than previously thought.

Figure 1 shows the proportion of the full wave 5 cohort in each wave 5 main activity destinations by school type: that is, 8.6% of the SAYPS cohort at wave 5 are in post-school settings having previously attended a no-fee public school, compared with 12% from fee-paying schools, and a further 4.1% from independent ones.

⁴ Or similar – some young people classified as “staggered” may have moved to being “stuck”. Detail on the exact movements between these groups is available from the authors on request.

Figure 1: Wave 5 Main Activity, by school type



Data Source: SAYPS 5 (2015)

Notes: Proportion of entire wave 5 cohort, so all % in the table below sum to 100%. Inverse probability weights are used to account for wave attrition.

As in our previous analyses of the SAYPS data (Isdale, et al., 2016), there are predictable patterns echoing the schools learners attend: learners from no-fee public Q1-Q3 schools are more likely than those from fee-paying or independent schools to still be in school at wave 5, as well as to be NEET, while those learners from fee-paying and independent schools are more representative in post-school settings. Nevertheless, even after five years of following the SAYPS cohort we continue to see evidence of learners beating the odds with nearly 9% of the sample in a post-school setting from a no-fee public school background.

Taken together, these results paint a rather varied and complex picture of the state of youth transitions: across school type some learners continue to do well and progress smoothly through the education system; a few are returning to education and training after having previously stopped their schooling career and in doing so may escape the potential pitfalls of long-term NEET entrenchment. There are, however, a worryingly large proportion of youth that seem to be getting stuck at various points in the education pipeline, creating an array of potential problems for both their own success as well as South Africa's.

In order to better understand why some learners move unhindered through the system, others get caught up in it and some with all the seeming advantage stop entirely, our results describe in detail the three⁵ main activity states of youth at wave 5 of the SAYPS cohort and the pathways that led them there, namely:

- individuals in post-school education;

⁵ Young people who have left education and moved into the labour market or are undertaking training are not further described in this report.

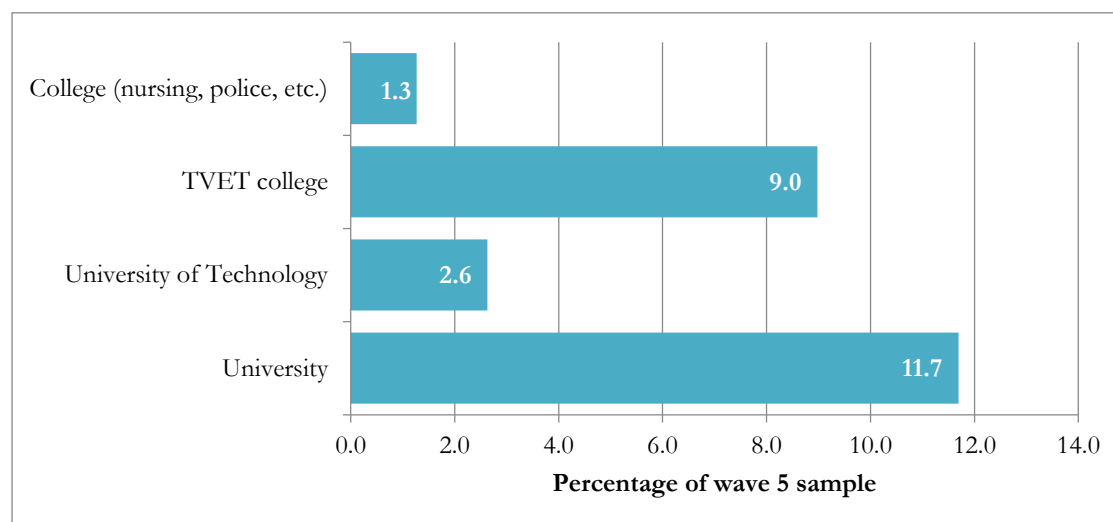
- those who remain in school and may be getting stuck in the system; and
- youth not studying or working, NEETs.

The next stage of our analysis describes what these different groups of young people are doing and how they came to be there, as well as summarising their key characteristics. We then go onto compare how these different characteristics predict which pathways young people follow. The primary aim of the report is to understand what and where some of the potential sticking points in the educational pipeline might be in order to help address the poor rates of school completion and educational success amongst South African youth. We start by looking at those who appear to have the least problematic transition thus far: those who continue in post-school educational settings.

5. LEARNERS IN POST-SCHOOL EDUCATION

One in four of the full SAYPS cohort is in post-school education at wave 5 (see Table 2). When broken down by type of institution, just over 14% of the wave 5 sample are enrolled in universities (11.7% in universities, with a further 2.6% in universities of technology), while 9% are undertaking courses at TVET colleges, and a small proportion are attending colleges for nursing, police training etc. (1.3%).

Figure 2: Type of post-school institution



Data Source: SAYPS 5 (2015)

Notes: Inverse probability weights are used to account for wave attrition.

Of those who report being in post-school education, the overwhelming majority (91%) report having matriculated, with all of those who state they have not being in TVET settings.⁶

Learners in post-school education are more likely to be female⁷ (66% of those in post-school settings who have matriculated and 60% of those yet to pass Grade 12; see Appendix Table AII), come from more educated homes, with correspondingly more books in the home, and are more likely to have attended a public fee-paying or independent school with fewer disadvantaged pupils. Unsurprisingly, those who move into post-school education are also more likely than their counterparts who remain in school at wave 5 or end up NEE'T, to have performed better in terms of their TIMSS achievement in mathematics and science assessed in Grade 9, have more positive attitudes towards these subjects, as well as higher educational expectations overall. Interestingly, in line with recent research using the TIMSS data, learners in this group, namely those doing well academically, also appear to experience less bullying and violence during their time at school (Juan,

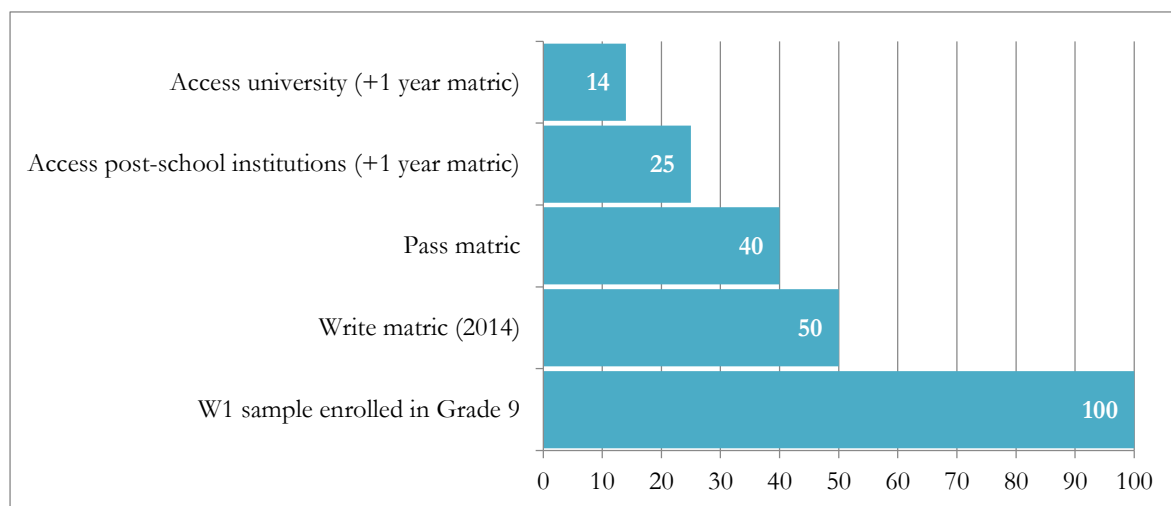
⁶ Since learners in a post-school institution without having passed Grade 12 are necessarily limited to taking only pre-Grade 12 level courses or vocational equivalents, they (N=52) are considered in a sub-section of the “in-school group” in section 6 below.

⁷ Attrition in the SAYPS data means that our sample at wave 5 over represents females. In wave 1, 49% of the sample was female, while at wave 5 this proportion has risen to 58%. As outlined in the Appendix, our analyses apply inverse probability weights and missing data strategies to attempt to correct for this bias. For further detail on the patterns of missing data see Isdale et al. (2016).

Zuze, Hannan, Govender and Reddy, under review; Reddy and TIMSS South Africa Authors, 2016).

Individuals who record year-on-year, incremental progress through secondary school and into post-school institutions represent the “gold standard” of any education system, yet the throughput rate of learners in South Africa is well-documented as being very low (Branson, et al., 2013; van Wyk, 2015). Indeed, van Broekhuizen and colleagues (2017) describe in detail how only around 4% of those starting school actually go on to obtain undergraduate degrees within six years of enrolling at university. In the SAYPS data, just under 40% of learners passed their Grade 12 exam, with one in four learners (24.6%) going on to access some form of post-school institution the year immediately after matric, with one in seven (14%) of the initial Grade 9 sample enrolling in a university course. Unfortunately, the information available in SAYPS does not detail the type of matriculation pass gained by learners and with data only available for the first year after school, we are not yet able to observe how many, and which, of them will complete their studies, but estimates in Figure 3 suggest a similar pattern of completion is likely to emerge.

Figure 3: Percentage of learners in SAYPS who access post-school education in the first year post-Grade 12



Data Source: SAYPS 1-5 (2011-2015)

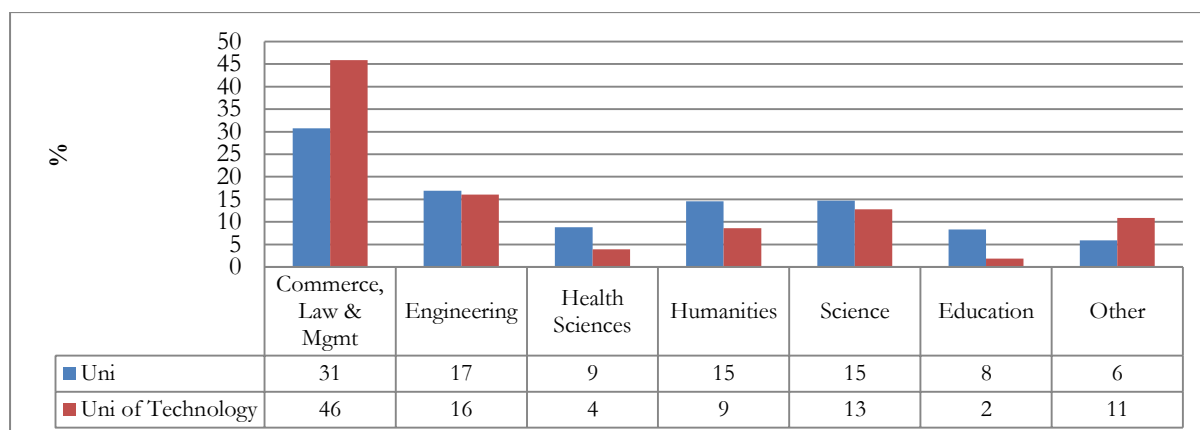
Notes: Inverse probability weights are used to account for wave attrition. Figure based on van Broekhuizen et al., 2017.

What are learners in university studying?

In terms of what these learners are studying at their various post-school institutions, we by the questions that were asked in the survey.

Figure 4 and Table 4 give an indication of subject choice and the qualification learners are engaged in post-school, in terms of what faculty university students are registered in and what qualifications those at TVET colleges are enrolled for, respectively. For those at university, the majority of learners are pursuing qualifications in Science, Engineering or Technology related subjects (combined proportion is 41%), with a further 31% enrolled in Commerce, Law and Management programmes, and 8% in Education. In universities of technology, 46% are studying towards Commerce, Law and Management qualifications, 33% in combined science programmes and just 2% in the field of Education.

Figure 4: Registered faculty for students in university



Data Source: SAYPS wave 5 (2015)

Notes: Inverse probability weights are used to account for wave attrition.

Our findings thus over represent the proportions of students enrolled in both science and business-related studies, and under represent those in education fields when compared to national figures from the Department for Higher Education and Training for the same year (DHET, 2017) which report that the majority of students in post-school institutions in 2015 were enrolled for Science, Engineering and Technology Studies (29.9%), followed closely by Business and Management studies (27.8%). Students enrolled in Education studies accounted for 17.3% of total enrolment. This disparity likely reflects the bias in our sample resulting from the high levels of attrition in the early waves which is biased towards more advantaged and academically able learners.

The results for what qualifications learners in TVET settings are enrolled for is more comparable with the national picture in 2015 (DHET, 2017). For example, the majority of the SAYPS sample (64%) is studying for NATED programmes⁸, while nationally just over 70% are enrolled on N1 to N6 NATED programmes. One in five learners in the wave 5 SAYPS data are enrolled on NCV courses compared with 22.4% nationally (DHET, 2017). Our data do, however, over-represent those enrolled on NSC programmes which make up just 0.1% in the national picture, but make up 7% of learners in SAYPS at wave 5, possibly reflecting the bias in our more socially advantaged sample (DHET, 2017).

⁸ Detail on the level of the course is not available

Table 4: Qualifications college students are enrolled for, column %

<i>Qualification learner is enrolled on:</i>	TVET College	College (Nursing, Police etc.)	Tota 1
	%	%	%
NATED Programmes (Levels 1 - 6)	63	65	64
NCV(2-4)	19	26	20
NSC (Gr10-Gr12)	7	9	7
Learnerships	2	0	2
Skills Programmes / Short programme	3	0	3
NICs (National Intermediate Certificate)	4	0	3
Other programmes	2	0	1
<i>N</i>	<i>158</i>	<i>34</i>	<i>192</i>
	%	100	100

Data Source: SAYPS wave 5 (2015)

Notes: Inverse probability weights are used to account for wave attrition.

6. LEARNERS STILL IN SCHOOL

As seen in the tables and figures above, blockages in the education pipeline begin long before young people make the transition into post-school education. One of the particular contributions of the SAYPS sample lies in the annually collected data, which makes it possible to explore individual transitions from Grade 9 on for five years and so cast light on any potential bottlenecks that may exist as learners make their way through the post-compulsory phase.

In 2015, just over four in ten learners in the SAYPS sample (43.5%) were still in school. Table 5 shows the grades they were in at wave 5: around one in six learners, 16.3% (and 7.1% of the wave 5 sample) lag one year behind the so-called “smooth” group in Grade 12. The vast majority (57.4%) of those in school, however, are in Grade 11 and thus two years out of step with those on a smooth trajectory. This group have taken five years to move from Grade 9 to Grade 11 and constitute a quarter of the entire wave 5 sample, and, in line with others, highlight that progression from Grade 11 is a real hurdle for learners to overcome (see also Branson, et al., 2013). The remainder of learners in school are even further behind, stuck in Grade 9 (2.3% of the in-school group, and 1% of the overall wave 5 sample) and Grade 10 (24.0%, or 10.5% of the wave 5 sample).

Table 5: Wave 5 grade for learners still in school

	<i>% of those still in school</i>	<i>% of the W5 sample still at school</i>
Grade 9	2.3	1.0
Grade 10	24.0	10.5
Grade 11	57.4	25.0
Grade 12	16.3	7.1

Data Source: SAYPS wave 5 (2015)

Notes: Inverse probability weights are used to account for wave attrition.

In line with our previous report using the SAYPS data (Isdale, et al., 2016) and other literature exploring secondary school transitions, Table 5 provides further evidence of the extent to which many learners are becoming stuck in the system as a result of high levels of grade repetition in the post-compulsory phase. This stems the flow of learners to Grade 12 and consequently throughput into post-school education.

The failure to progress beyond Grade 11 is even more palpable in Table 6 when we consider the data longitudinally rather than simply cross-sectionally: of learners in school, just 6.3% of those who were in Grade 11 at wave 4 manage to progress to Grade 12 in wave 5 with an alarmingly high 93.7% of Grade 11 learners being held back. For those lagging further behind in Grade 10, there is parallel stagnation in learner throughput, with progression becoming more staggered as earlier grade repetition increases.

Table 6: Wave 4 to Wave 5 grade transitions for those in school at wave 5, row %

	Wave 5 Grade				Row %
	Grade 9	Grade 10	Grade 11	Grade 12	
<i>W4 Grade:</i>					
Grade 9	81.8	18.2	0	0	100
Grade 10	0	86.1	13.9	0	100
Grade 11	0	0	93.7	6.3	100
Grade 12	0	0	0	100	100
n/a ⁹	17.2	31.0	44.8	6.9	100

Data Source: SAYPS waves 4 and 5 (2014 - 2015)

Notes: Inverse probability weights are used to account for wave attrition.

Thus it appears from these data at least, that the school system is not currently helping learners who fail. The Census 2011 report (Statistics South Africa, 2012: 28) notes that at Grade 11 ‘struggling learners may be held back so they do not write the external Grade 12 examination on which schools are ranked’. SAYPS figures, however, indicate that this number is far greater than simply ‘struggling’ learners but rather something far more pervasive.

Our findings suggest that (i) repeating a grade provides no value-add at this point in the system, since the returns to education are to Grade 12, not 11, and (ii) learners here are largely blocked in the system and are very unlikely to progress further. While, for those repeating Grade 11, the DBE has introduced a policy of ‘progressing’ some students to Grade 12 (DBE, 2015), the analyses presented here raise issues of the support being given in schools for slower learners and the signals given by examinations or assessments earlier on in their schooling career.

Remarkably, there are 14 learners still in Grade 9 at wave 5 - nine who have been there continuously - meaning they have not progressed at all over the five years of the SAYPS survey, five who have returned to school into Grade 9. Box 1 provides some detail on those 14 learners who appear so severely stuck.

⁹ A to the e indiv to sc

Box 1: Trapped in time?

The 14 learners stuck in Grade 9 at wave 5 are five males and nine females. They are all black African and come from homes where a number of languages are spoken and parents’ highest level of education ranges from having only completed Grade 9 to two individuals whose parents have at least a degree. While nine of these learners have been in Grade 9 for all five waves of the SAYPS survey, five are returning to education from having been NEET at wave 4.

A total of 29 people return to school in the wave 5 data, across the full range of grades, again showing evidence of flexibility in the education system: all but one of these individuals were NEET at wave 4, with the one working. Unfortunately, however, we are unable to determine the reasons underpinning this return to schooling.

We also note here that, despite the general rule that youth who fail their Grade 12 exam are not allowed to repeat the year in the same school, the SAYPS data suggest that only three in every five of those learners who fail to matriculate actually then move schools.

Table 7: Does Grade 12 repeater move schools between waves 4 and 5?

<i>Learner has moved schools in the last year:</i>	<i>%</i>
No	40.0
Yes	60.0
<i>N</i>	<i>134</i>

Data Source: SAYPS waves 4 and 5 (2014 - 2015)

Notes: Inverse probability weights are used to account for wave attrition.

Learners in post-school settings who have yet to matriculate

As noted above, there are 52 young people in post-school settings who have yet to matriculate. Half of this group (50.4%) were previously on a smooth trajectory through school, with just over a quarter (27.3%) experiencing a staggered pathway over wave 1 to 4, and one in six (17.2%) had dropped out. Table 8 shows that the majority of learners still studying, but yet to matriculate, are studying for NATED programmes (57.5%), with a quarter working towards NCV qualifications (24.2%).

Table 8: TVET courses for learners in post-school institutions yet to matriculate

Qualification	%
NATED Programmes (Levels 1 - 6*)	57.5
NCV(2-4)	24.2
NSC (Gr10-Gr12)	18.3
<i>N</i>	<i>52</i>

Data Source: SAYPS wave 5 (2015)

Notes: *We can assume that these NATED programmes are Level 1-3 as they are necessarily pre-Grade 12 courses, but the data in the survey do not specify this. Inverse probability weights are used to account for wave attrition.

The rest of this small group of learners are studying for the NSC. Lolwana (2018, forthcoming) reports that the majority of adult learners in their study data are second chancers similarly looking to complete their high school qualifications having previously dropped out of the school system. She notes that these students are predominantly from low-income households who left school because they could not cope with the academic rigour of high school.

7. YOUTH NOT STUDYING OR IN WORK

Just under a quarter of youth (23.4%) in our sample are classified as NEET at wave 5, that is they report not studying or working in any capacity (see Table 2), nearly four times the number of individuals reporting being NEET the year before.¹⁰ This group is made up of 59.2% women; 91.2% black African and 5.1% Coloured learners; and almost two-thirds (64.6%) of learners attended no-fee public paying (Q1-Q3) schools.

The majority of the NEET group at wave 5 (70.1%), however, is made up of learners who between waves 1 and 4 had experienced smooth, uninterrupted pathways through the post-compulsory phase of school, seemingly passing through Grades 9 to 12 without difficulty. Moreover, over three-quarters (78.6% of those who are NEET, and more than one in ten of the entire wave 5 sample, 12.9%) of those experiencing such ‘smooth to NEET’ transitions actually passed their Grade 12 matriculation exam: young people who are NEET are not simply unqualified dropouts who failed academically.

Table 9: Wave 5 NEET status, by wave 1 to 4 transition group and Grade 12 pass

<i>W1-W4 Transition Group:</i>	<i>% of those NEET</i>		<i>NEET % of the W5 sample</i>	
	<i>Passed Gr 12</i>	<i>Did not matriculate</i>	<i>Passed Gr 12</i>	<i>Did not matriculate</i>
Smooth	70.1	78.6	16.4	12.9
Staggered	11.9	-	2.8	-
Stuck	2.4	-	0.6	-
Stopped	15.6	-	3.6	-

Data Source: SAYPS waves 1-5 (2011-2015)

Notes: Inverse probability weights are used to account for wave attrition.

While this proportion likely underestimates those who left school prematurely and are unfortunately missing from our sample, that this many learners with all the apparent advantage of a repetition-free pathway through school appear to be facing such early transition difficulties is highly problematic and represents another major bottleneck in the overall throughput of learners. Unfortunately, as noted above, the SAYPS data do not contain information on the quality of learners’ Grade 12 passes or their subjects taken. As van Broekhuizen et al. (2017) demonstrate in their analysis of higher education transitions, the influence of matriculation results on university access and subsequent success is not a straightforward link, rather it is the participation in certain gateway subjects and performance in these subjects that is more indicative of university access and degree completion.

The remaining third of the NEET group (29.9%) at wave 5 have other transitions into this state: 11.9% had a staggered transition over the W1-W4 period; 2.4% were previously stuck in school;

¹⁰ This is an underestimate of what more nationally representative data would likely indicate. Missing data analysis from our previous research on SAYPS (Isdale, et al., 2016) show that the majority of the attrition in SAYPS across the early waves comes from those who are most likely to have exited the education system prematurely and so be in the group of youth not working or studying. Inverse probability weights are applied to our estimates to attempt to correct for missing data in our sample.

and the other 15.6% had left school, stopping their educational pathway shortly after Grade 9. None of those with “other” routes into being NEET at wave 5 will have been eligible to take the matriculation exams having failed to reach Grade 12. It is likely, then, that these two broad groups of youth not studying or working – that is, (i) smooth-NEET and (ii) other routes-NEET - both have quite different characteristics. For example, 65% of those with smooth-NEET transitions are female, while only 45% of those in with other trajectories into NEET are. Learners in the other-NEET group are also older, come from less educated households, attend lower ranked quintile schools, have lower educational aspirations and poorer achievement scores in TIMSS assessment of mathematics and science (see Appendix Table A2).

Tables 10 and 11 attempt to unpack some of the reasons why learners might be NEET at wave 5. Table 10, for example, shows that for those with smooth-NEET transitions, the main reason young people left school was simply because they completed Grade 12 (86.3% of the smooth-NEET group), while for those with other transition pathways into being NEET at wave 5, the reasons vary considerably: half of the other-NEET group report “other” reasons not listed in the survey, which cover financial problems, sickness, personal problems and being over age to stay on in school any longer. A far higher proportion of those with other-NEET rather than smooth-NEET transitions report falling pregnant (13.6%) and having to look after someone at home (3.5%; see also Branson, et al., 2013; Gustafsson, 2011). These differences point to subtle socioeconomic pressures facing the two different NEET groups, as well as by gender, which affect the decision, or capacity, to stay on in education.

Table 10: Main reasons for leaving school, by NEET group

<i>Main reason for leaving school:</i>	<i>Wave 5 NEET group</i>	
	Smooth-NEET	Other W5 NEET
I completed grade 12	86.3	13.1 ¹¹
I did not like people	0.0	0.0
I wanted to take a break	2.9	2.6
I was expelled from school	0.0	1.3
I had to look after someone at home	0.3	3.5
I fell pregnant	0.3	13.6
I was not performing well	4.5	17.0
Other	5.6	48.8
<i>N</i>	<i>333</i>	<i>155</i>

Data Source: SAYPS wave 5 (2015)

Notes: Inverse probability weights are used to account for wave attrition.

Table 11 reports that the main barrier to further learning given by young people who are NEET at wave 5 is overwhelmingly a financial one (see also Branson and Kahn, 2016; Lam, et al., 2014), regardless of which pathway the learner has become NEET by. “Other” reasons given by the

¹¹ 13.1% of young people with other-NEET transitions report their main reason for leaving school is because they “completed Grade 12”. As noted above however, given they had not reached Grade 12 by the end of wave 4 this cannot be true, but rather is more likely to reflect measurement error in the data with individuals more likely meaning they had completed all the schooling they intended/were able to (not necessarily Grade 12) rather than the other options listed.

smooth-NEET group include wanting to upgrade - or currently waiting for - results, and wanting to take a break, while, as in Table 10 above, for the other-NEET group barriers to study include sickness, being pregnant and having to care for others at home, again suggesting different kinds of pressures facing this group.

Table 11: Main barrier to further study, by NEET group

<i>If you would like to study, what has prevented you?</i>	<i>Wave 5 NEET group</i>	
	Smooth-NEET	Other W5 NEET
I cannot afford the fees and transport	54.8	43.5
I do not qualify	13.8	12.0
I cannot find space/opportunity at a college/institution	15.2	13.0
I don't know where the programme is offered	1.5	3.6
I am not ready right now	10.7	17.3
Other	4.0	10.6
<i>N</i>	<i>333</i>	<i>155</i>

Data Source: SAYPS waves 1-5 (2011-2015)

Notes: Inverse probability weights are used to account for wave attrition.

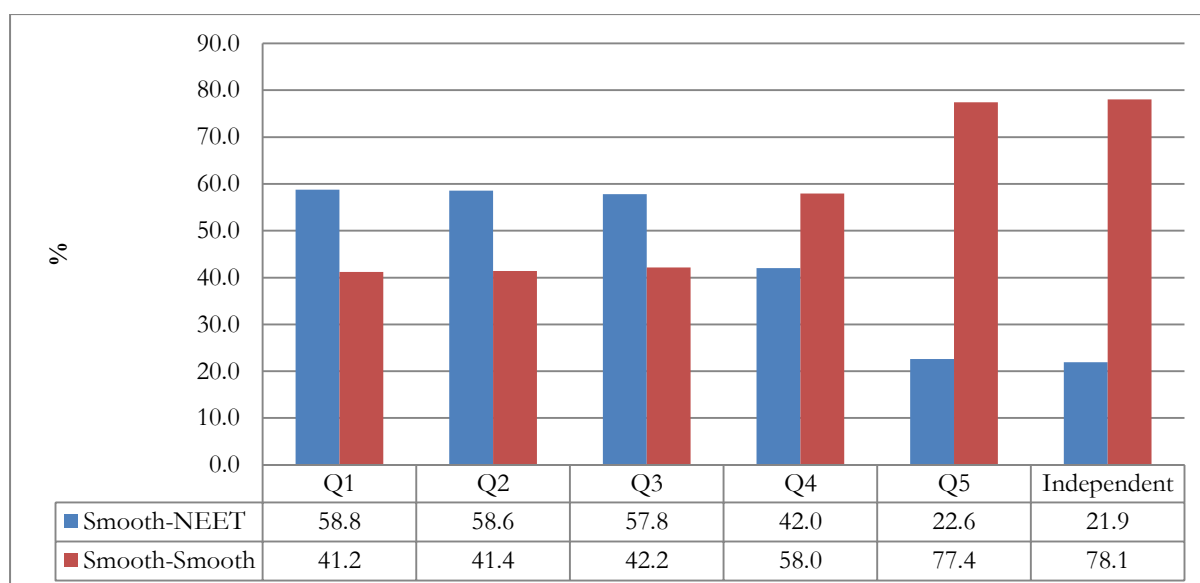
So what went wrong?

In order to try and understand why the smooth-NEET group end up in such a poor destination despite their highly promising start, we compare them with learners who have smooth-smooth trajectories, that is unhindered, Grade 9 - 12 progress over waves 1 to 4, followed by successful matriculation and enrolment in a post-school institution (see Section 5 above).

As noted in Table 9 above, 78.6% of those with smooth-NEET transitions did in fact pass their Grade 12 exam with only one in five (21.4%) failing; it is not the case that those who fall into the smooth-NEET group simply reflect a story of matriculation failure.

So if it's not Grade 12 failure that distinguishes the smooth-NEET group from the gold standard smooth-smooth group, what is it? Figure 5 reports the proportion of learners following smooth-NEET and smooth-smooth transitions respectively by public school quintile and independent schools and, in line with the literature reviewed above, shows evidence of socioeconomic advantage operating through educational institutions; more learners from no-fee public (Q1-Q3) schools are in the smooth-NEET group than in the smooth-smooth group and greater numbers from Q5 and independent schools in the smooth-smooth group. However, in line with findings from our previous report covering the first four waves of SAYPS (Isdale, et al. 2016), there is nevertheless evidence of youth from the poorest schools “beating the odds”, passing Grade 12 and progressing into post-school settings and so continuing their smooth educational pathway. Indeed, a third of those in the smooth-smooth group (33.1%) come from no-fee public schools.

Figure 5: Proportion in the smooth-NEET and smooth-smooth groups, by school type



Data Source: SAYPS waves 1-5 (2011-2015)

Notes: Inverse probability weights are used to account for wave attrition.

Note again that there is evidence of possible blockages in the educational pipeline – though operating in the opposite direction - in that learners who benefit from both smooth transitions across the W1-W4 period and attend the most advantaged schools, do not uniformly reach post-school settings and are not immune from becoming NEET.

Box 2: Smooth-NEET learners from Q5 and Independent schools

This group is made up of 41 young people from Q5 schools (73.2% female) and 23 from independent schools (65.2% female). Three-quarters of the learners are black African (76.6%), 11% are Coloured, and 12.5% are from white, Indian or Asian backgrounds. They are from highly educated background, with 90% coming from homes where parents have completed Grade 12 or higher and themselves all expect to finish Grade 12 as well, 80% expecting to go on and finish a degree or higher.

Learners in this group overwhelmingly report their main reason for leaving school was completing Grade 12 (86%), suggesting an end to schooling and no intention to go further. Interestingly, three young people explicitly state their reason for leaving as wanting to take a break from education, but a quarter of this group (23.4%) said they weren't ready right now when asked what was preventing them from further study. The majority, however - just over four in ten young people (40.6%) – claim their main barrier to further study is financial.

8. PREDICTING GROUP MEMBERSHIP: HOW DO THE MAIN TRANSITION GROUPS DIFFER?

The preceding sections of the report described learners in three main activities in the fifth wave of SAYPS: matriculants in post-school settings; those still in school (or in TVET settings but have not yet matriculated); and youth not studying or in work. But can individual, family or school characteristics differentially predict these activity states and help explain why some learners do so well and others fall short?

Table 12 presents the results of two multinomial regressions that highlight some of the ways in which young people following various transitions differ. The outcome (or dependent) variable is main activity at wave 5, with distinctions between those in post-school education who have and have not passed Grade 12, learners still in school, as well as those with smooth *v.s.* other transitions into being NEET. The reference category in both regressions are those learners in post-school institutions who have successfully matriculated, thus the coefficients indicate the relationship between a particular characteristic and the main activity groups compared to this “gold standard”. Given the particular importance of achievement in influencing educational pathways, we show the regression models with and without controls for academic performance. Thus, the first regression (model 1) includes measures of individual characteristics, household socioeconomic background, school characteristics, and learner’s own educational attitudes, expectations and experiences at school only. The second regression (model 2) then also adds in controls for prior achievement as measured by TIMSS assessments in mathematics and science, observed when learners were in Grade 9, the study’s baseline.

In the first regression, model 1, age – measured in wave 1, i.e. Grade 9, is positive and highly significant indicating that learners across all four groups are older than those in the reference group, post-school with matric, reflecting that they have had interrupted pathways through school earlier in the grade system. This is particularly noteworthy for the smooth-NEET group who are likely then have experienced episodes of grade repetition prior to Grade 9 which we are unable to observe and indicating detrimental effects of grade repetition even if it occurs early on. These relationships hold in model 2 when prior achievement is also included in the regression, highlighting the importance of doing well across all the grades and ensuring a firm foundation for later success.

In terms of race, the negative coefficient for ‘White, Indian/Asian and other’ learners indicates that these learners are less likely than Black Africans to be in post-school settings without passing Grade 12, still be in school at wave 5 or have smooth-NEET transitions. This association decreases but remains significant in model 2 when prior achievement is also controlled for, but only for those learners who remain in school and for those with smooth-NEET trajectories. In other words, once our measure of educational ability is taken into account, there appear to be no racial differences between learners who matriculate and move directly into post-school education and those in post-school settings who do not matriculate. This result is in line with van Broekhuizen et al. (2017) who show that once Grade 12 performance and school background have been taken into account, Black African learners from the 2008 NSC cohort were significantly more likely to have completed undergraduate qualifications within six years of matriculating than learners from any other race group.

In terms of socioeconomic background, neither parental education nor books in the home are strongly related to learners' main activity. Young people who are still in school at wave 5 and those with smooth-NEET pathways come from homes with fewer books (-) than those in our "gold standard" reference group, but this relationship falls away once we control for individual achievement. This finding is consistent with previous analyses of the SAYPS data (Isdale, et al., 2016) which did not find a significant role for household-level socioeconomic characteristics and literature on educational pathways which highlights the particular role of individual achievement, but is in contrast to research documenting the salience of social and human capital in affecting young people's life chances. (See Branson and Kahn, 2016, for further discussion on the importance of family income in predicting the probability of post-school enrolment).

In line with Figure 5 above, significant relationships between school types and the socioeconomic background of other learners in schools are observed and robust to the inclusion of prior achievement: those still in school and those with other-NEET pathways are less likely to attend Q5 and independent schools than Q1 schools, while those with smooth-NEET transitions less likely to have attended independent schools. Once achievement is controlled for in model 2, some of these significant relationships fall away, that is, some of the relationship between school type and activity group is largely explained by measures of achievement. Nevertheless, those in post-school settings who did not matriculate are more likely to have attended Q4 and independent schools than Q1 schools, with those in smooth-NEET and other-NEET transitions more likely to attend Q2 and Q3 schools. In addition to school type, learners in schools with a higher proportion of youth from disadvantaged backgrounds are more likely to be in a post-school setting having not matriculated and have smooth-NEET trajectories in the first year after Grade 12, than to follow a smooth-smooth transition into Higher Education.

The relationships between learners' own educational attitudes and experiences provide an additional level of insight into youth transitions. Learners in post-school education who did not matriculate have poorer attitudes towards mathematics, valuing the subject less and having lower self-confidence in their own ability. Individuals in this group are also more likely than the reference category in post-school education to have experienced bullying and violence in school. Note, however, this association loses significance once achievement is controlled for, meaning that it is in part through individual achievement that the experience of bullying influences activity destinations. Similarly, those still in school at wave 5 experience more bullying and violence but also have lower educational expectations than those who move smoothly in post-school education, passing Grade 12, even conditional on prior achievement. In model 1, those who exit the schooling system prematurely and become NEET have significantly lower educational expectations, as well as more negative attitudes about mathematics and greater experience of bullying and violence whilst in school.

Unsurprisingly learners in all other main activity groups have lower achievement scores than those in our post-school with Grade 12 passes reference group, and as discussed above the inclusion of prior achievement reduces the strength of most significant relationships highlighting its particular importance in explaining youth transitions and as a mediator of many other indirect influences on educational pathways.

When all the variables are considered together and with the exception of prior achievement, what appears to distinguish the groups the most is the social advantage operating through school

characteristics, with those still in school and on NEET pathways less likely to attend higher quintile and independent schools. Interestingly, learner attitudes, expectations and experiences of bullying and violence also have salient associations with youth activity destinations.

Table 12: Multinomial logit regressions of the probability of wave 5 main activity

Variable	Post-school: Did not matriculate				Still in school				Smooth-NEET				Other-NEET			
	(1)		(2)		(1)		(2)		(1)		(2)		(1)		(2)	
<u>Individual characteristics:</u>																
YP is a girl	.39	(.35)	.31	(.34)	.01	(.17)	-.17	(.17)	.17	(.20)	.07	(.21)	.05	(.28)	-.24	(.30)
Age in W1 (2011)	.57	(.18) ***	.46	(.18) ***	.66	(.10) ***	.49	(.11) ***	.62	(.11) ***	.52	(.12) ***	1.27	(.14) ***	1.06	(.15) ***
Race (ref: Black)																
Coloured	-.06	(.79)	.11	(.83)	-.43	(.47)	-.17	(.62)	.44	(.50)	.62	(.58)	.59	(.70)	.98	(.87)
White, Indian/Asian, other	-1.59	(.82) *	-.96	(.87)	-1.26	(.31) ***	-.59	(.35) *	-1.48	(.43) ***	-.84	(.46) *	-.10	(.49)	.30	(.56)
<u>Household socioeconomic characteristics:</u>																
Highest Household Education	.00	(.17)	.05	(.17)	-.03	(.08)	.01	(.08)	-.07	(.09)	-.03	(.09)	.08	(.12)	.11	(.13)
Number of books in the home	-.07	(.14)	.00	(.15)	-.20	(.08) *	-.11	(.09)	-.16	(.09) *	-.09	(.10)	-.13	(.14)	-.06	(.14)
<u>School characteristics:</u>																
School quintile (ref: Q1)																
Q2	.16	(.72)	.10	(.72)	.10	(.30)	.09	(.30)	.52	(.33)	.45	(.33)	.34	(.43)	.42	(.44)
Q3	.05	(.72)	.21	(.75)	.21	(.29)	.52	(.30) *	.44	(.33)	.59	(.33) *	.49	(.43)	.94	(.45) **
Q4	.88	(.63)	1.21	(.67) *	-.30	(.29)	.20	(.30)	-.06	(.33)	.22	(.34)	.52	(.46)	1.29	(.48) ***
Q5	-.23	(.83)	.80	(.84)	-.78	(.30) **	.59	(.35) *	-.55	(.35)	.34	(.39)	-2.59	(.87) **	-.69	(.93)
Independent school	.35	(.60)	1.40	(.66) **	-.96	(.32) **	.55	(.37)	-.93	(.37) **	.03	(.41)	-1.81	(.68) **	.45	(.71)
% learners school from disadv. bground	.67	(.24) ***	.57	(.25) **	.29	(.09) **	.18	(.11)	.36	(.12) ***	.26	(.13) **	.07	(.15)	.00	(.16)
<u>Learner educational attitudes & experiences:</u>																
YP own educational expectations	-.22	(.32)	.14	(.35)	-.79	(.15) ***	-.28	(.16) *	-.38	(.17) **	-.06	(.19)	-.97	(.20) ***	-.32	(.22)
YP attitudes towards mathematics	-.60	(.18) ***	-.46	(.20) **	-.13	(.08)	.01	(.09)	-.15	(.11)	-.03	(.11)	-.35	(.16) *	-.11	(.17)
YP attitudes towards science	.27	(.25)	.29	(.27)	.03	(.08)	.13	(.10)	.09	(.11)	.11	(.11)	.11	(.16)	.29	(.18)
Exp. of bullying & violence	.39	(.22) *	.30	(.26)	.32	(.09) ***	.15	(.10)	.04	(.11)	-.05	(.12)	.35	(.15) *	.12	(.16)
<u>Achievement:</u>																
TIMSS mathematics score			-.01	(.01) *			-.01	(.00) ***			-.01	(.00) ***			-.02	(.00) ***
TIMSS science score			.00	(.00)			-.01	(.00) ***			.00	(.00)			-.01	(.00) **
N	52				1,015				333				141			
Pseudo R-squared	.15		.20		.15		.20		.15		.20		.15		.20	

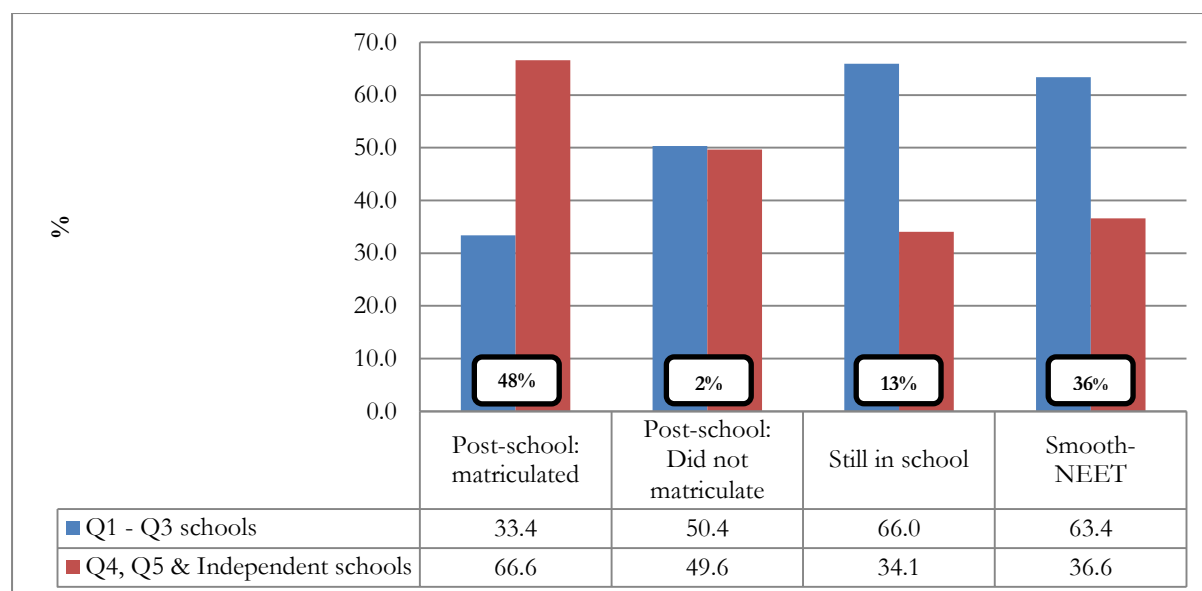
Data Source: SAYPS 1-5 (2011-2015)

Notes: Standard errors in brackets; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; learner educational attitudes and experiences are standardised with mean=0 and std. dev. = 1; Experience of bullying is positively scaled so a higher score = greater experience of bullying and violence. Inverse probability weights are used to account for wave attrition, missing dummies are used for item level attrition.

9. BEATING THE ODDS?

Predictable stories of advantage begetting advantage are the mainstay of educational literature, the world over. Understanding who bucks this trend and succeeds despite the odds gives us an important insight into where in the system policy levers might best operate and for whom. Van Broekhuizen et al. (2017), for example, show that students from less advantaged backgrounds who perform well in Grade 12 are actually more likely than those from more advantaged households who performed similarly at school to go to university and complete their studies. This final section of the report examines the wave 5 activities of those young people defined as “beating the odds” in our previous SAYPS report (Isdale, et al., 2016): that is, learners who have smooth, year-on-year progress over Grades 9 to 12 who attended no-fee public Q1 to Q3 schools at wave 1 (2011), compared with those on a similarly smooth pathway but from Q4, Q5 and Independent schools.

Figure 6: Proportion of wave 1-wave 4 smooth group in each wave 5 main activity, by school type¹²



Data Source: SAYPS waves 1-5 (2011-2015)

Notes: Inverse probability weights are used to account for wave attrition.

Figures in white text boxes give the overall proportion of each activity destination within the “beating the odds” group.

Figure 6 shows, for each of the main wave 5 destinations for the w1-w4 smooth group only, the proportion who attended no-fee public schools *vs.* fee-paying and independent schools. As in Figures 1 and 5 above, there is clear evidence of social advantage operating through school type: learners in the W1-W4 smooth group from Q1-Q3 schools are more likely to remain in school and become NEET than those from Q4, Q5 and Independent schools. However, Figure 6 also shows that a third (33.4%) of those who successfully move into post-school institutions having matriculated come from Q1-Q3 schools. Interestingly, just over a third of the smooth-NEET group (36.6%) come from fee-paying and independent schools.

¹² Figure shows row percentages across school type, so blue and red columns sum to 100%.

Note also that even though a small proportion of the overall beating the odds group (2%), there is no difference the proportion of youth in post-school institutions yet to matriculate in terms of the school attended.

Table 13 shows that of those in universities at wave 5, just under a quarter (23.2%) come from Q1-Q3 schools, with a 44.9% in University of Technology similarly coming from the lowest ranking schools.

Table 13: Wave 5 post-school institution, by school type

	Q1 - Q3 schools	Q4, Q5 and Independent schools
University	23.2	76.8
University of Technology	44.9	55.1
TVET College	46.7	53.3
College (nursing, police etc.)	36.9	63.1
<i>N</i>	<i>191</i>	<i>354</i>

Data Source: SAYPS waves 1-5 (2011-2015)

Notes: Inverse probability weights are used to account for wave attrition.

It is also worth noting here the considerable proportion of learners from the most advantaged schools who pursue post-school education in non-university settings. For example, 34% of those from Q4, Q5 and Independent schools (N=121 learners) are in TVET colleges. Furthermore, it is not the case that these young people failed their Grade 12 examination, in fact over three-quarters (76.9%) of this group successfully matriculated.

10. CONCLUSIONS AND IMPLICATIONS

Enrolment rates at primary and secondary school in South Africa are high and comparable with other countries (Reddy, et al., 2016), but the throughput into tertiary education falls well below international levels (UIS, 2017). This report examines educational transitions for a national cohort of young people over a five-year period and in doing so attempts to understand who is and is not progressing, where the major bottlenecks appear to operate and potential barriers to entering the post-school system.

Our analyses demonstrate the complexity of youth transitions through schooling, highlighting heterogeneity in learner pathways not demonstrated before. We find that individual achievement remains the key driver of successful academic transitions and while it is possible for learners to overcome the odds against them, getting the foundations of literacy and numeracy right in earliest grades for all learners is the key to improving the throughput across the system. Furthermore, our analyses demonstrate that staggered pathways through the grade system are increasingly becoming the new norm for South African youth and that with each interruption, the likelihood of reaching and passing Grade 12 becomes smaller. The challenge, it seems, is rather than focus on the numbers of students passing their Grade 12 matriculation exam, efforts should instead focus on increasing the proportion of students who experience a smooth pathway to Grade 9, across all school types.

Key findings

Five years after first being observed in Grade 9, over 40% of the SAYPS cohort remains in school, many of them struggling to move beyond Grade 11 which appears to be a considerable hurdle in learner progression. This finding is in line with arguments by Hofmeyr et al., (2013) who report that while the number of learners matriculating has gone up over time, it has failed to remain proportionate to the increase in enrolment rates more generally and so is suggestive of poorly-prepared learners who would struggle to pass externally set exams and so are held back.

The findings also suggest that while many learners are getting stuck in the education pipeline, others are exiting a system that does not appear to be preparing them to leave school equipped to enter either higher education or the labour market. For example, nine learners in the SAYPS cohort have remained in Grade 9 for all five years of the study, and only 6% of those in Grade 11 in 2014 progress into Grade 12 in 2015. Thus despite the existence of policies designed to ensure progression, significant numbers of learners are deviating from the prescribed pathways and getting lost in the system (see also van Wyk et al., 2017). Furthermore, two-thirds of those observed as not working or studying at wave 5 - around one in six of the SAYPS cohort – had previously moved smoothly between Grades 9 and 12, most of them having successfully matriculated. The stereotyped view of unemployed youth as unqualified, unskilled school dropouts may then be far from true for many youth, but rather reflect a mismatch between Grade 12 qualifications and the reality of what jobs are available in the labour market, as well as factors such as financial barriers preventing further study.

Together, the results suggest that staggered pathways appear to be becoming the new “norm” for learner progression in South Africa. Van Broekhuizen, et al., (2017) similarly show how few

learners obtain university qualifications within six years of leaving secondary school, with many who complete their secondary schooling not accessing university education for several years. Staggered progression is thus not limited to the secondary phase alone; early grade repetition is compounded as learners move through the system acting as a precursor for dropout and making eventual completion increasingly unlikely. Where being held back is appropriate, for grade repetition to be effective, learners falling behind and at risk of having to repeat, need proper remediation and teaching strategies sufficiently adapted so as to accommodate any necessary remedial action required. Moreover, with staggered pathways the new norm for South African youth, a key indicator to monitor is grade repetition, as well as advising students of all the possible educational pathways available to them: academic, technical, vocational, and trade routes.

Learners in post-school education

- **A quarter of the SAYPS cohort in 2015 have successfully transitioned into post-school settings;** this smooth-smooth group represent the “gold standard” of any education system:
 - As in other literature, both from home and abroad, this group are typically – though not entirely – made up of the most academically able, and socially and economically advantaged youth;
 - It is encouraging that despite this predictable story of advantage, a third of learners in post-school institutions at wave 5 come from Q1-Q3 no-fee, public schools.
- **Less than 60% of learners eligible to continue into post-school education do so one year later:**
 - 39.6% of the SAYPS cohort passed Grade 12 in 2014;
 - but only 56.0% of those learners go onto access post-school education in the year following matriculation.

Learners still in school

- **Learners who remain in school, progressively moving from staggered to stuck pathways, represent over forty per cent of the SAYPS cohort (43.5%):**
 - There is some evidence of progression across all grades, as well as some flexibility in the system which allows young people to return to the schooling they had previously left;
- **However, Grade 11 appears to be a particular hurdle to overcome in terms of grade progression:**
 - There is very limited progression for those in Grade 11 at wave 4, with just 6% of those who were in Grade 11 in 2014 progressing to Grade 12 in 2015;
- **Staggered pathways appear to be the new “norm” for South African youth, starting early on in the grade system and continuing on into tertiary education (Branson and Kahn, 2016; van Broekhuizen, et al., 2017).**

Youth not studying or in work

- **Surprisingly, nearly a third of learners with smooth, uninterrupted paths through waves 1 to 4 of SAYPS are classified as NEET in wave 5;**

- **Learners with previously smooth, uninterrupted educational pathways through school constitute two-thirds of the total wave 5 NEET group in the SAYPS longitudinal sample:**
 - They are not differentiated from those with other routes to being NEET at wave 5 in terms of socioeconomic background, but rather appear to have higher educational expectations and more positive attitudes towards school and life more generally – somehow, however, these positive beginnings are not being met in the post-school era;
 - They make up around 16% of the SAYPS cohort at wave 5 and are not easily distinguishable from those with smooth-smooth transitions aside from some differences with respect to school characteristics and prior achievement;
 - Note, however, the size of this group is likely over-estimated given the high levels of attrition in the SAYPS sample. While statistical techniques are used to lessen the impact of sample bias, the magnitude of missingness in these data make estimating the actual size of this group in a full representative sample difficult;
 - Nevertheless, that so many previously successful youth are failing to rise after matriculating is cause for concern.
- **The NEET group not simply a feckless bunch of lazy individuals.**

Policy implications

Over the past twenty years South Africa has improved the access to and enrolment in tertiary education, but the progression of students and completion of the relevant qualifications has failed to keep pace (Hofmeyr, et al., 2013). Similar problems exist in secondary schools with just 0.57 million learners of the 1.27 million who started Grade 1 in 2003 writing their Grade 12 exam in 2014, and just 150 752 achieving a bachelor's pass (Reddy, et al., 2016). Added to this, the number of young people who qualify for participation in some form of post-school education but are classified as NEET is far too high if South Africa is to achieve its Higher Education participation targets and the development of a highly skilled labour necessary for sustained economic development.

The analyses presented here show clear evidence of limited progression for learners in Grade 11 at wave 4, and while the DBE policy of progressing some students has been put forward, real support for those struggling at Grade 11 is necessary if such a push is likely to actually affect throughput into post-school education. Rather, the challenge is to increase the numbers of students who experience a smooth pathway post Grade 9, and do so across all school types.

We also show that the number of youth eligible for tertiary education is far lower than the proportion who actually do enter in the year following matriculation. The main barrier to further learning for the SAYPS cohort appears to be a financial one with credit constraints clearly limiting learner throughput. As shown by Branson and Kahn (2016), funding opportunities, particularly for middle income groups, are insufficient and limit enrolment and need to be addressed if target numbers are to be met.

For learners who do not manage to progress smoothly through school and into post-school education at the first time of trying, the likelihood of achieving a Grade 12 qualification - let alone

a post-school one - diminishes every year and leaves these young people extremely vulnerable to unemployment. If staggered progression is indeed the new norm, then multiple ‘second-chance’ opportunities are likely to be required for learners at risk of exiting the education system altogether. For example, the current single pathway from Grade 10 to 12 is highly academic and clearly not suited for all young people. TVET colleges, Learnerships and Apprenticeship training, community colleges, skills programmes present alternative options, but as shown in Table 2 very few individuals follow this route post Grade 9 (see also Wildschut and Kruss, 2018, forthcoming). Part of a policy response here thus also needs to be how best to make young people aware of the full range of educational and training options available to them and to shift the post-school discourse away from a purely academic focus.

Finally, our analyses suggest that pathways into becoming NEET are not uniform or straightforward and thus there is a need to rethink not only traditional view of this group but also what policies are required to address their varying needs. This group likely reflects both a lack of opportunities and knowledge of the available options to young people, alongside a mismatch of skills and the jobs available in the labour market, rather than merely a feckless group of unmotivated youth. Recent figures from StatSA indicate that almost five million youth, close to half of the population of 15 to 34 year olds, are either discouraged job seekers or not in employment, education or training (Reddy, et al. 2016), which points not only to a grave waste of talent, but also to the possibility of serious social disruption (Cloete, 2009).

Limitations

As previously noted, one of the major problems with the SAYPS data is its high attrition and the resulting bias inherent in the sample for whom we have data over five years. Our analysis attempts to adjust for some of this imbalance, but given the greatest drop in the sample size was between the first two waves, the extent to which we can recreate nationally representative estimates is limited. Nevertheless, our findings raise important issues about grade progression, particularly between Grades 11 and 12, and the need to keep pace even in the earliest years, not made before. Moreover, even within our relatively more advantaged than average sample, that we see evidence of the bottlenecks in - and barriers to – successful educational participation, demonstrates even more the need to improve tackle a system that appears not to be helping learners that fail.

Given the nature of our data we are only able to focus on enrolment in post-school institutions one year after matriculation. This necessarily precludes those who may go on to enrol in the next year or so, as well as those who have not yet matriculated. Branson and Kahn (2016), for example, find that 21% of university goers had repeated a grade by their matriculation year (see also van Broekhuizen, et al, 2017). Longitudinal studies of this kind thus need to continue for a number of years after the first wave after matriculation if we are to fully understand the nuances of educational transitions for all young people.

We are also unable to explore whether youth who are NEET remain so for extended periods. The high proportion of individuals in this group in our data who come from previously smooth educational pathways may simply reflect an annual “blip”, a single observation of economic inactivity between episodes of otherwise of prolonged education or training, or gainful employment. Moreover, van Broekhuizen et al. (2017) note that many eligible learners do not actually go on to university until a few years after matriculating. Without more detail on this group

we are unable to ascertain whether, and which, young people escape the trap of long term “NEETdom” and who become entrenched in this state.

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APPENDIX

Appendix I: Description of variables

Individual characteristics

Girl: The young person's gender is coded 0 = boy; 1 = girl.

Age: Age is measured in years at the 2011 baseline interview.

Race: Race is assessed using five categories: Black African (89.7%); Coloured (4.1%); Indian or Asian (1.2%); White (4.5%); and Other (0.5%). Since the Indian/Asian, White and Other groups are so small, these groups were recoded into one, creating a threefold variable.

Household socioeconomic characteristics

Highest household education: Measured in the TIMSS questionnaire, young people are asked "what is the highest level of education completed by your mother and father (or stepmother/father or female/male guardian)". The variable is coded separately for each parent as: none/low; completed Grade 9 only; Completed Grade 12; Completed a post-matriculation certificate/diploma; Completed a first degree or higher. A highest household indicator is created as the higher of the two values where both parents are present, and for the one in single parent households.

Number of books in the home: Individuals were asked about the approximate number of books in their home, excluding magazines, newspapers, and school books. The variable is coded on a five point scale from: None or very few (0-10 books) to Enough to fill three or more bookcases (more than 200).

School characteristics

School type: Public school type is measured through quintile membership (no-fee schools: quintiles 1 to 3) and fee-paying schools (quintiles 4 and 5).

Independent school: Coded as 1 if the young person attends an independent school and 0 otherwise.

Economic background of school's learners: Measured by the TIMSS school-level questionnaire, this variable categorises the proportion of a school's learners who come from disadvantaged backgrounds: 0 – 10%; 11 - 25%; 26 - 50%; More than 50%.

Learner educational attitudes and experiences

Educational expectations: Asked in the TIMSS questionnaire, young people were asked "how far in your education do you expect to go?" The variable is coded with the same values as for mother's and father's highest level of education achieved, ranging from "Finishing Grade 9" to "Finishing a first an Honours degree or higher".

Experience of bullying and violence at school: As part of an assessment of school climate, young people were asked six questions about how often, on a four-point scale ranging from "At least once a week" to "Never", they experienced various bullying behaviours. Bullying behaviours included

how often they were made fun of; left out of games of activities; stolen from; and hit or hurt. A score ranging from low (frequent experience of bullying) to high (rare experience of bullying) was created by TIMSS (see the link below for further detail) and is used here.

http://timssandpirls.bc.edu/methods/pdf/T11_G8_G_Scales_SBS.pdf

Attitudes and beliefs about math and science: On completing the TIMSS assessments, learners were asked about their attitudes towards and beliefs about maths and science separately, covering their liking, valuation of, confidence in and engagement with the two subjects. These four subject specific scales were then factor analysed to create one measure of positive attitudes towards and beliefs about each subject.

Achievement

TIMSS achievement: First conducted in 1994/1995 across 45 countries, the Trends in International Mathematics and Science Study (TIMSS) is a cross-national assessment of the mathematics and science knowledge of fourth and eighth grade learners. The TIMSS assessments are designed to align broadly with the mathematics and science curricula in participating countries and, in 2011, was administered to 11,969 grade 9 learners in 285 schools across South Africa.

For mathematics, TIMSS 2011 assessed the content areas of numbers, algebra, geometry, and data and chance. For science, TIMSS 2011 assessed biology, chemistry, physics and earth sciences.

TIMSS achievement test scores are measured out of a possible 1000 scale points, with a centre point set at 500 and a standard deviation of 100.

Appendix II: Missing data

At wave 5, the SAYPS sample drops from 3,613 learners to 2,224, a reduction of just under 40% from wave 4, and constituting around 20% of the original, wave 1 sample (see Table 1 above).

Missing data analysis from our previous research on SAYPS show that our longitudinal panel over represents females, those from more socially advantaged households and higher quintile and independent schools, as well as those who performed better on the TIMSS 2011 assessments (see Isdale, et al., 2016, for further detail). Moreover, the majority of the attrition in the sample across the early waves comes from those who are most likely to have exited the education system prematurely and so be in the group of youth not working or studying. As such, we apply inverse probability weights (IPW) to our estimates to attempt to correct for missing data in the wave 5 sample. (Further details on the methodology of the IPW analysis are available from the authors on request).

IPW is a commonly used statistical technique to adjust for unequal sampling fractions in survey data (see, for example, Seaman and White, 2013, for a review). The IPW technique gives each individual in the population a sampling weight and the probability that he or she is chosen is proportional to this weight. This attempts to correct for the bias introduced into the sample resulting from the high attrition, particularly between waves 1 and 2, but we are limited to only one wave of data for the weighting and so our estimates are still likely to underestimate those who exit the survey who we know to be more male, more socioeconomically disadvantaged and in poorer schools, as well as doing less well academically. These learners are disproportionately more likely to have interrupted pathways through school and to prematurely exit the education system entirely.

Examination of who leaves the survey between waves 4 and 5 indicates little that further distinguishes those who exit and those who remain in the survey in this final wave of data. Therefore missing data at the item level is imputed using mean/mode replacement with dummy indicators.

Appendix Table AI: Summary statistics

Variable	N	Mean	Std. Dev.	Min	Max
<u>Individual characteristics:</u>					
YP is a girl	2224	.58	(.49)	0	1
Age in W1 (2011)	2210	15.7	(1.1)	11.3	19.8
Race (ref: Black)					
Coloured	2224	.04	(.20)	0	1
White, Indian/Asian, other	2224	.06	(.24)	0	1
<u>Household socioeconomic characteristics:</u>					
Highest Household Education	1722	2.3	(1.3)	0	4
Number of books in the home	2199	2.0	(1.0)	1	5
<u>School characteristics:</u>					
School quintile (ref: Q1)					
Q2	2224	.21	(.41)	0	1
Q3	2224	.22	(.41)	0	1
Q4	2224	.19	(.39)	0	1
Q5	2224	.14	(.35)	0	1
Independent school	2224	.09	(.29)	0	1
% learners school from disadv. bground	2164	3.5	(.89)	1	4
<u>Learner educational attitudes and experiences:</u>					
YP own educational expectations	1945	3.8	(1.64)	0	5
YP attitudes towards mathematics	2126	.18	(1.00)	-4.2	2.6
YP attitudes towards science	2109	.17	(1.00)	-4.5	2.3
Exp. of bullying and violence	2148	8.7	(1.59)	2.9	13.0
<u>Achievement:</u>					
TIMSS mathematics score	2224	376.5	(75.86)	193.6	706.9
TIMSS science score	2224	365.3	(97.48)	116.8	713.6

Notes: Summary statistics for complete cases

Appendix Table AII: Summary statistics, by group

	Post-school: matriculated		Post-school: Did not matriculate		Still in school		Smooth-NEET		Other-NEET	
<i>Proportion of the full N = 2,224 wave 5 sample:</i>	22.2		2.3		45.6		15.0		7.0	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<u>Individual characteristics:</u>										
YP is a girl	.66	(.48)	.60	(.50)	.57	(.50)	.65	(.48)	.46	(.50)
Age in years at W1 (2011)	15.2	(.6)	15.6	(.9)	15.8	(1.1)	15.6	(.9)	16.8	(1.3)
Race (ref: Black)										
Coloured	.05	(.21)	.06	(.24)	.03	(.16)	.05	(.22)	.05	(.22)
White, Indian/Asian, other	.14	(.35)	.04	(.19)	.02	(.14)	.03	(.17)	.05	(.22)
<u>Household socioeconomic characteristics:</u>										
Highest Household Education	2.8	(1.2)	2.4	(1.2)	2.1	(1.3)	2.2	(1.2)	2.0	(1.2)
Number of books in the home	2.3	(1.1)	2.1	(.9)	1.9	(1.0)	1.9	(.9)	1.9	(1.0)
<u>School characteristics:</u>										
School quintile (ref: Q1)										
Q2	.12	(.32)	.15	(.36)	.23	(.42)	.23	(.42)	.27	(.45)
Q3	.14	(.34)	.13	(.34)	.26	(.44)	.22	(.41)	.28	(.45)
Q4	.17	(.38)	.27	(.45)	.19	(.39)	.19	(.39)	.24	(.43)
Q5	.30	(.46)	.12	(.32)	.08	(.27)	.12	(.33)	.03	(.18)
Independent school	.19	(.39)	.15	(.36)	.06	(.24)	.07	(.25)	.03	(.16)
% learners school from disadv. bground	3.1	(1.14)	3.7	(.71)	3.7	(.71)	3.7	(.80)	3.6	(.83)
<u>Learner educational attitudes & experiences:</u>										
YP own educational expectations	4.6	(1.0)	4.2	(1.5)	3.5	(1.8)	4.1	(1.5)	3.0	(1.8)
YP attitudes towards mathematics	.28	(1.1)	.11	(.8)	.17	(.9)	.25	(1.0)	-.09	(.9)
YP attitudes towards science	.23	(1.1)	.27	(1.0)	.15	(.9)	.32	(1.0)	-.07	(1.0)
Exp. of bullying & violence	9.2	(1.5)	8.4	(1.5)	8.4	(1.5)	8.9	(1.6)	8.1	(1.7)
<u>Achievement:</u>										
TIMSS mathematics score	446.3	(79.2)	377.7	(60.6)	350.7	(57.3)	377.7	(57.6)	318.9	(49.3)
TIMSS science score	450.6	(94.1)	376.3	(75.7)	331.1	(77.4)	372.1	(79.5)	293.4	(71.6)

Notes: Summary statistics for complete cases