



POLICY BRIEF

Smooth, staggered or stopped? Educational transitions in the South African Youth Panel Study

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The South African Youth Panel Study (SAYPS) followed Grade 9 learners who participated in TIMSS 2011 over four consecutive years, in order to explore the educational transitions of young people. The study found that:

- South African learners follow one of four educational pathways. Forty-seven per cent follow a *smooth* pathway, where they progress through secondary school without interruption. A further 40% follow a *staggered* pathway where their advancement is marked by at least one interruption. An additional 7% remains stuck in grade 9 or 10 and a final 7% leave school shortly after Grade 9 and do not return.
- Although 57% of the smooth transition group come from fee-paying and independent schools, 43% come from no-fee schools.
- Learners who follow a smooth transition tend to have better educated parents and to achieve higher scores in TIMSS mathematics and science.
- Positive attitudes about school, prior achievement and high educational expectations are all related to smooth transitions.
- Gender (being a boy), age (being older) and grade repetition are all related to interrupted pathways through school.
- While the importance of prior achievement and school quality is clear, many young South Africans from the least well-off schools who have low average TIMSS scores are nonetheless following smooth progression pathways.

Insights into how young people move through the education system can support existing youth policies and programmes

Understanding educational transitions is vital to addressing basic skills shortages and improving the life chances of all South African learners. Efforts here have, however, been hampered by a lack of high quality, longitudinal data. In response to the lack of appropriate data to examine these issues and to obtain a better understanding of the varied pathways and transitions taken by South African youth, the first wave of the South African Youth Panel Study (SAYPS) was administered in 2011. SAYPS, a longitudinal, panel study, followed Grade 9 learners who participated in the Trends in International Mathematics and Science Study (TIMSS) over four consecutive years, to explore the educational transitions of young people. SAYPS makes it possible to explore in detail what young people are doing, how they move through the education system and how background and school-level factors influence those pathways.

The strength of SAYPS lies in its rich and detailed data on individuals collected over four consecutive years. Its weakness, however, is that it contains high levels of missing data: by wave 4 just 30% of the initial sample remains part of the study. Analysis of the patterns of missing data show that those who exit the survey are more likely to: be male; come from more disadvantaged households; attend poorer schools; and have lower scores in both TIMSS mathematics and science.

Our methodological approach, however, is to use the richest data available for policy makers in order to address the research questions put forward and so we focus on the core sample of 3,616 learners present at all four waves, while acknowledging the upward bias inherent in this reduced sample.

Policies to promote opportunities for South African youth often focus on the inactive group that is outside of both the education sector and the labour market. This is likely a reflection of the fact that statistics on South African youth unemployment are alarmingly high even when South Africa's high unemployment rate is account for (Statistics South Africa, 2015; Woolard, 2013). In 2012, youth unemployment (including discouraged job seekers) was estimated to be 66% (Southern African Labour and Development Research Unit, 2013). Recent policy responses have focused on reducing the risk of employing young inexperienced workers (Bhorat, Hirsch, Kanbur, & Ncube, 2014) and expanding post-school educational opportunities (DHET, 2013). This study therefore also provides an additional lens to this discussion by showing what progress through school looks like for different types of learners.

South African learners follow one of four educational pathways through secondary school

We identify learners as following different types of educational pathways, namely:

Smooth	Staggered	Stuck	Stopped
Neat, year-on-year grade progression through school.	Learners in school for all four waves of SAYPS, who make some grade progress but have at least one episode of grade repetition or a move to FET college; and Individuals who return to school in Wave 4 but are out of education (either working or NEET) for at least one wave.	Learners in school for all four waves of SAYPS, but stuck in grade 9 or 10 for three or more periods	Individuals who leave school before Wave 4 and do not return

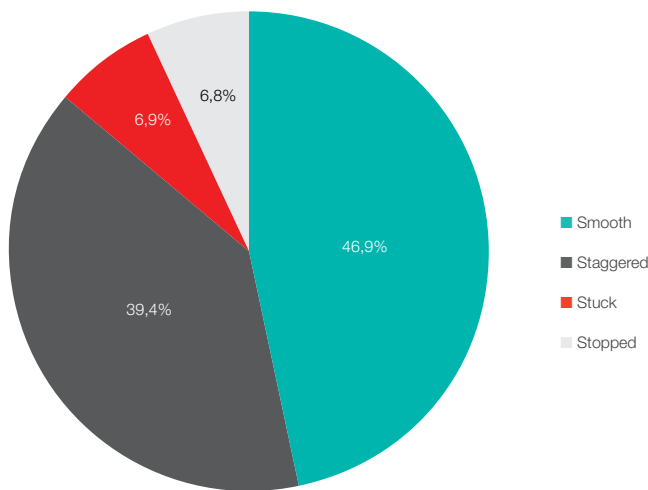


Figure 1: Possible Educational Pathways for South African Youth

The smooth group is by far the largest with almost half, 46.9%, of the sample following this pathway. Those in the staggered group are the next most common with 39.4% of young people following a more protracted pathway but are nevertheless in school at the most recent wave of data collection. Stuck learners represent a small percentage (6.9%) of the sample, but problematic group of young people who appear lost in the school system with at least three observations in the same school grade, while the stopped group, 6.8%, represent those who exit the education system prematurely.

Although some explanations for smooth educational transitions are predictable...

Table 1 presents summary statistics for several key variables by these four transition pattern categories and offers an insight into the different characteristics of young people following different pathways. For example, 63% of the smooth group are girls, while just 43% of those in the stopped group are female. Those in the smooth group are also the youngest at the Wave 1 baseline indicating that up to that point they had similarly been following a smooth grade progression through school, while those who are stuck or stopped are older, suggesting grade repetition prior to grade 9.

A brief look at the social background across the four groups shows that young people following a smooth educational pathway come from households with higher levels of parental education and social standing, as well as more resources as measured by number of books in the home. Those who stop and exit the education system prematurely appear to come from the most disadvantaged households.

Table 1: Descriptive statistics for reduced transition pattern groups

	Freq.	Per cent	Girl		Baseline age (in 2011)		Highest household education		Position on social ladder		Number of books in the home (scale)	
			Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
All			.58	(.49)	15.70	(1.06)	4.82	(1.72)	5.46	(2.06)	2.01	(1.03)
Smooth	1,697	46.9	.63	(.48)	15.37	(.78)	5.11	(1.79)	5.58	(1.82)	2.15	(1.09)
Staggered	1,425	39.4	.54	(.50)	15.80	(1.08)	4.62	(1.63)	5.41	(2.19)	1.88	(.96)
Stuck	250	6.9	.54	(.50)	16.05	(1.20)	4.55	(1.62)	5.37	(2.33)	1.82	(.91)
Stopped	244	6.8	.43	(.50)	17.03	(1.26)	4.28	(1.44)	5.10	(2.43)	1.91	(.97)

Those in the smooth group also have higher than average achievement scores as measured by the TIMSS assessments in mathematics and science. Table 2 below reports the average scores for the full sample as well as by transition group and shows that those in the smooth group have a much higher average in both subjects than either the full sample or any of the other transition groups.

Table 2: TIMSS achievement in mathematics and science, by transition group

	TIMSS mathematics score				TIMSS science score			
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
All	366.8	(77.3)	193.6	746.0	351.2	(101.2)	98.8	756.2
Smooth	408.6	(81.4)	195.3	746.0	406.5	(102.3)	145.3	756.2
Staggered	343.3	(55.4)	199.8	562.8	321.2	(75.5)	98.8	618.7
Stuck	318.4	(51.3)	207.3	485.0	286.0	(71.5)	139.1	507.8
Stopped	309.2	(55.6)	193.6	600.9	271.0	(78.4)	140.5	616.0

It is also worth noting that even though the smooth group outperforms both the SAYPS sample and other transition groups, their mean scores of 408.6 and 406.5 points respectively only just exceeds the bottom limit of the “low” benchmark of 400 set by TIMSS. However, despite the apparently low internationally comparable standards, across all groups some young people are meeting and exceeding those benchmarks.

...others are new. This serves to remind us that it is possible to succeed academically despite disadvantage

Table 3 reports the summary results for the logistic models which show whether a particular characteristic is significantly positively or negatively associated with being in that transition group when different factors are considered jointly. Panel 1 shows the likelihood of being in the smooth group compared to all other possible transition groups. Panel 2 shows the likelihood of being in the staggered group compared to the stuck and stopped groups only. Given the particular importance of achievement in influencing educational pathways, we show the models with and without controls for prior achievement (ACH). In so doing, we are able to examine some of the relationships that might be masked once achievement is included in the model. As in the earlier descriptive analysis, we see that, even when controlling for key features of social background, individual characteristics and school factors, girls are more likely (+) than boys to have a smooth transition through school. Column 2 of panel 1 shows that this is also the case, even when controlling for prior TIMSS achievement.

Those who are younger are also more likely to have a smooth pathway through school; age is negatively, though significantly, associated with the likelihood of being in the smooth group indicating that members of this category are younger than those who are in other types of transition group. White & Indian/Asian young people are more likely (+) than Black Africans¹ to be in the smooth group, while those who *sometimes* (-) or *never* (-) speak the language of the TIMSS test at home are significantly less likely to have a smooth transition through school. Interestingly, in contrast to previous studies, social background as measured by highest household education and the young person’s own perception of the family’s social position, are not predictive of educational transitions when considered alongside other key features of the individual, their family and school settings.

¹ In the case of categorical variables, each category is compared to a “reference” group, typically the largest of the categories, to ascertain the likelihood of being significantly associated with group membership. So for race, being Coloured and White, Indian/Asian & other are compared to the likelihood with which Black young people are in the smooth group.

Table 3: Odds ratios: Predicting the likelihood of having a smooth and staggered transition (summary)

	Smooth (Panel 1)		Staggered (Panel 2)	
	<i>excl. ACH</i>	<i>inc. ACH</i>	<i>excl. ACH</i>	<i>inc. ACH</i>
<i>Individual characteristics:</i>				
Girl	+	+		
Age	-	-	-	-
<i>Social background:</i>				
Highest household education (ref: None/Low):				
~ Completed Grade 9 only				
~ Completed Grade 12				
~ Post-matric certificate/Diploma				
~ Degree and higher				
Perceived position on social ladder				
Race (ref: Black African):				
~ Coloured				
~ White, Indian/Asian, Other	+		-	-
Freq. lang. of test spoken (ref: Always/almost always)				
~ Sometimes	-			
~ Never	-			
<i>Household Resources:</i>				
Number of books in the home				
<i>Student academic perceptions:</i>				
Attitudes and beliefs about mathematics	+			
Attitudes and beliefs about science				
Not bullied at school (high = never/rarely bullied)	+			
<i>Educational Expectations (ref: Finish Grade 9 only):</i>				
~ Finish Grade 12				-
~ Finish post-matric certificate				
~ Finish diploma				
~ Finish degree	+			
~ Finish Honours degree or higher	+			
<i>School factors:</i>				
School quintile (ref: quintile 1 = low)				
Quintile 2				
Quintile 3				
Quintile 4				
Quintile 5	+		+	+
Independent school	+			
Economic background (ref: 0 - 10% disadv. learners)				
~ 11–25%				
~ 26–50%	-	-		
~ More than 50%	-	-		
<i>Achievement:</i>				
TIMSS Mathematics score		+		
TIMSS Science score		+		+

Table 3 also shows that those with stronger, more positive attitudes and beliefs about mathematics, those who are not bullied², and those with higher educational expectations (those wanting to finish a degree or higher) are similarly more likely to have a smooth pathway through school. Figure 2 reports the predicted probabilities of having a smooth transition for each level of learner educational expectations, controlling for individual, family and school-level characteristics, and clearly shows that with each step change in how far the young person wants to take their educational journey, the likelihood of them progressing smoothly through the system increases.

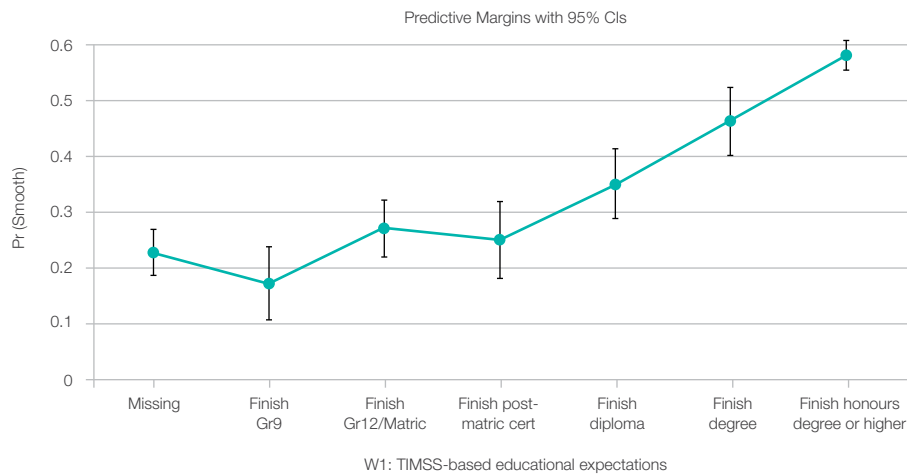


Figure 2: Predicted probabilities of having a smooth transition

We note, however, that in this sample of learners, educational expectations are particularly high with almost 60% of learners expecting to finish a degree (7.9%) or an Honours degree or higher (52%).

Young people in the most well-off highest government fee-paying schools (quintile 5) and learners in the independent school sector are also more likely to have smooth transitions (+), while those in the most disadvantaged schools are less likely to have smooth pathways (-).

However, as predicted, once prior achievement is controlled for (see column 2, panel 1), most of the significant relationships fall away, suggesting that many of these associations may be mediated by, that is their relationship operates through, individual achievement: learners with greater educational expectations for themselves, those in the better off government schools as well as those in the independent sector, for example, are also more likely to have higher levels of TIMSS achievement and the association between being in the smooth transition group and prior achievement is stronger. Only gender, age, and the economic background of the schools' learners remain significant alongside TIMSS mathematics and science achievement scores in predicting the likelihood of having a smooth progression through school.

By contrast, those in the staggered group (vs. being in either the stuck or stopped groups) are less likely (-) to be White & Indian/Asian than Black African, even controlling for prior achievement (column 2, panel 2), and have lower educational expectations: young people who expect to finish grade 12 are less likely than those who expect to finish grade 9 only to be in the staggered group. Young people following a staggered pathway are similarly more likely than those in the stuck or stopped groups to be from the best-off government schools than the least well-off and resourced, though interestingly not so from Independent

² A positive coefficient on the "Not bullied at school" scale here reflects that those who are never or rarely bullied are more likely to be in the smooth group than any other, since the measure is scaled such that a high score means less or no bullying.

schools.³ On the whole, however, there are fewer characteristics that seem to differentiate those in the staggered group, from those in the stuck and stopped groups, than there are for distinguishing those in the smooth category from the other three transition pathways, at least with respect to the set of individual, family and school factors considered here.

Figure 3 below shows that not only are young people with low average scores in the TIMSS assessments following smooth progression pathways, they are doing so from the least well-off schools and with performance levels well below the TIMSS lowest benchmark cut-offs.

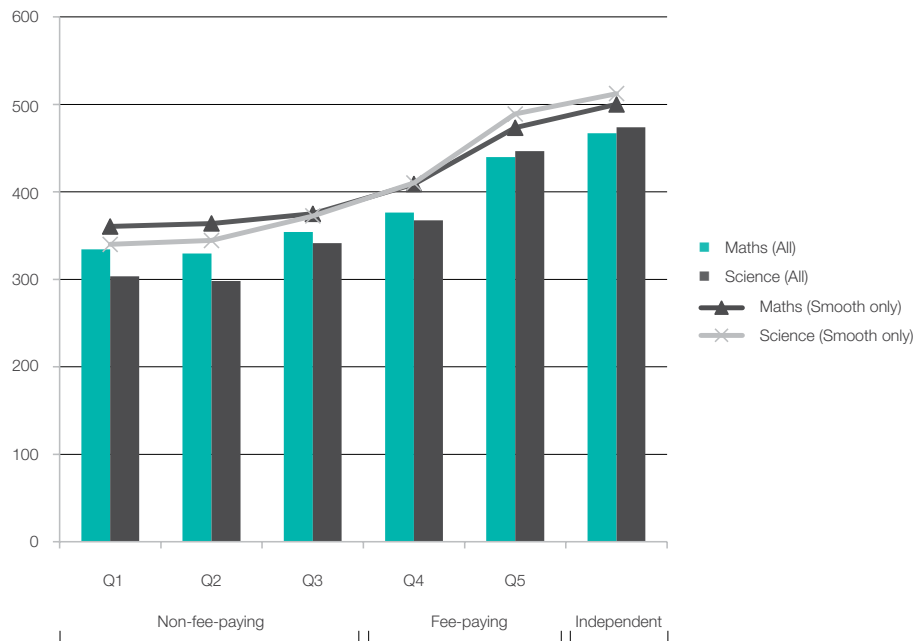


Figure 3: TIMSS average and smooth group only achievement, by school quintile

Policy implications

There are a number of policy implications that emerge from our findings:

National Level

- Our predictable story supports commitments to increasing educational opportunities and ensuring that learners thrive at school, and lend support to the National Development Plan's (NDP) focus on early interventions to address opportunity gaps.
- Our results also suggest that shifts into and out of the schooling system might be more frequent than previously thought and so it is important that the country's schooling and post-schooling system is well-integrated to allow for these movements.
- Equally important is clarifying what options are available for learners, in terms of Technical Vocational Education and Training and community colleges, the terrain of which is currently very complicated.
- The results also compel us to reflect on the role of international assessments in evaluating South Africa's educational progress and to tighten the feedback loop between assessment and intervention.

³ We note, however, that 70% of independent school students (9% of the overall sample) have smooth pathways, making the numbers here quite small.

School Level

- Evidence of persistent grade repetition suggests a need to understand how the current progression policy is applied practically across different schools.
- There are also systemic challenges faced by boys at school that require further attention.

Learners, Households and Communities

- One potentially policy amenable finding from our research concerns the relationship between attitudes and progress through school. It also underscores the crucial role that parents can play in shaping positive views about education whatever their own level of schooling might be.

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