**ABSTRACT**

This study uses a unique dataset to investigate university access, throughput, and dropout for the 2008 national matric cohort. The findings show that university access in South Africa is limited, even among learners who perform relatively well in matric. In addition, those who do gain access to university often take a long time to complete their studies, with many never completing at all. As a result, only a select minority of matric learners manage to obtain university qualifications. Significant inequalities in university outcomes between race groups and across geographical space also remain evident. However, the results from the analysis suggests that observed patterns of university access and university success are strongly influenced by school results. The weak school system has a major influence on who reaches matric, and how they perform in matric. This, and particularly the achievement of Bachelor passes, explains much of the differences in university outcomes by race, gender and province.

Keywords: higher education, university access, post-school transitions

JEL codes: I21,I23, I24

This study is also available as a Labour Market Intelligence Project (LMIP) working paper and can be downloaded from http://www.lmip.org.za/lmippublications.

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# Overview

This research project uses a unique dataset that combines matric examinations data from 2008 to 2013 with data from all South Africans universities (HEMIS data) from 2009 to 2014, and adds to that data from the EMIS Masterlist and the 2011 national census. The combined dataset allows novel analyses of the transition from school (matric) to university, i.e. university access, and how matric results influence university outcomes (completion and dropout). Also, as data are available for all public universities, it is possible to track students not only from school into university, but also within the same university over time, and even between universities.

Extensive results from the analysis of these data are presented in the following ten chapters, arranged according to different themes. In contrast, this chapter rather focuses on providing a broad overview of the results, with the focus particularly on unexpected results that provide new insights that would not have been possible to obtain before. This illustrates the immense value of this dataset.

The main new insights that were derived were the following:

1. Approximately one-third of matriculants[[1]](#footnote-1) that obtained Bachelor passes never go to university.
2. When considering only those matriculants who obtained Bachelor passes (the group considered as potential candidates for university degree programmes), overall university access is not biased against black students or significantly biased against students from lower quintile (poorer) schools. However, differences in access specifically to undergraduate degree programmes remain evident.
3. A large proportion of matriculants who do go to university do not enter university in the year following matric, but only one or more years later.
4. Matric marks are a good indicator of university access, but are only weakly related to eventual university success.
5. There are extremely large differences across universities in the average matric performance of students who attend these universities.
6. It takes a long time for many students to successfully obtain university qualifications.
7. Dropout rates at university, though high, are not as high as are often reported, because many students that are considered “drop-outs” from university in official statistics did not leave the university system, but changed their degree programme, switched from a degree to a diploma or certificate programme, or enrolled in a different university.

The analysis undertaken below is focused on these findings.

## How many qualifying students never attend university?

A Bachelor pass in the National School Certificate (NSC) exams – these exams have been written since 2008 – is usually regarded as an indication that a student should be able to successfully enrol and complete a degree (Bachelor’s) course at university[[2]](#footnote-2), though in practice universities and degree programmes use many different criteria. Nevertheless, Bachelor level passes can be used as a rough proxy for university readiness and is included in the minimum criteria for admission into undergraduate degree studies at most universities.

As many students only enter university a few years after having written the matric examinations, the final university access rate for a particular cohort of matriculants cannot be determined until quite a few years after they matriculate. One-year access rates do not give an accurate reflection of the eventual access rate, so it is desirable to investigate access rates over at least a few years. For the full 2008 matric cohort, the main focus of this study, the six-year access rate (i.e. access over the six years 2009 to 2014, the years for which HEMIS data were available) was 20.0% (Table A2). Amongst those who achieved Bachelor passes, the rate was 68.5%, i.e. 76 487 out of 111 680 Bachelor passes. That means that just under a third of those who did perform well enough to achieve a Bachelor pass did not enrol in university in the next six years. Judging by the shorter period access data available for more recent matric cohorts in Table A2, the proportion of Bachelor pass students who enter university may be declining rather than increasing, though a trend towards later enrolment may be obscuring the trend in access.

Altogether 35 193 matriculants who achieved Bachelors passes in 2008 did not continue on to university studies of any nature in the public sector. Of these, 13 303 attended quintile 1 to 3 schools, and altogether 18 195 were black Africans (Table 1). Even amongst the smaller group of 62 873 matriculants who achieved 60% or above as matric average, almost a quarter (23.2%) or 14 582 did not attend university in the next six years (Table 2). Amongst the 52 678 matriculants who achieved 55% or more for Mathematics, about one in five (20.6%) or 10 840 never entered university (Table 3). Amongst the select group of only 36 812 matriculants who achieved a Bachelor pass, at least 60% in matric and at least 55% in Mathematics, 4 664 (12.7%) did not attend university.

From the perspective of human resources, it thus appears as if there is a lot of “waste” in the sense that many students performing well in matric never go on to further university studies.[[3]](#footnote-3) In a skills hungry economy, this is surprising and worrying. It is even more so when this is the case for black students, or for students from poor backgrounds. The next section thus turns to evaluating to what extent access to university is skewed against black students or students from lower quintiles.

## Is access to university skewed for those who qualify for university?

It is widely believed that access to university amongst those who qualify to go to university is skewed in favour of wealthier matriculants, and particularly to whites. This data for the first time allow a nationally representative analysis of university access. The results are surprising, in that there are only small differences in the composition of the two sub-groups of students who achieved Bachelor passes, namely those who do and those who do not access university in the subsequent six years. Only 63.4% of white matriculants from 2008 who had achieved Bachelor passes went on to study at university in the next six years, as against 71.2% for black matriculants with Bachelor passes. (Table 7.5). However, while 93% of white students in this group entered for degree studies, only 75% of black students did. In other words, black learners who achieved Bachelor passes were comparatively more likely to enrol in undergraduate certificate or diploma programmes rather than undergraduate degree programmes than their white counterparts.

The black share of Bachelor passes for the 2008 matric cohort was 56.4% (see Table 1), whereas the black share of students with Bachelor passes who gained access to university was even slightly higher, at 58.6%. Matriculants in the poorest three school quintiles constituted 35.2% of all Bachelor passes, and a slightly lower 34.0% of those who gained university access, indicating that matriculants from such schools were slightly less inclined than average to gain university access. But the differences are not large.

**Table 1:** Characteristics of learners from the 2008 matric cohort who achieved Bachelor passes by access to university (2009 – 2014)

|  |  |  |  |
| --- | --- | --- | --- |
| Number of candidates | **No access**a | **Access**b | **All** |
| 35 193 | 76 487 | 111 680 |
| Share of 2008 matric cohort | 6.3 | 13.6 | 19.9 |
| Share of Bachelor passes | 31.5 | 68.5 | 100.0 |
| % Over-aged | 23.5 | 14.1 | 17.1 |
| % Female | 53.6 | 56.9 | 55.9 |
| % Black | 51.7 | 58.6 | 56.4 |
| Matric average | 59.0 | 64.3 | 62.7 |
| % offering Mathematics | 45.4 | 70.3 | 62.4 |
| Average Mathematics score | 51.7 | 64.7 | 61.7 |
| Average Mathematical Literacy score | 70.9 | 73.0 | 72.0 |
| % offering Physical Sciences | 34.0 | 53.4 | 47.3 |
| Average Physical Sciences score | 47.4 | 56.9 | 54.8 |
| % offering English Home Language | 33.4 | 43.1 | 40.0 |
| Average English Home Language score | 62.0 | 66.0 | 65.0 |
| Average English FAL score | 61.1 | 65.1 | 63.7 |
| Average School Bachelor pass rate | 42.7 | 48.4 | 46.6 |
| % in Quintile 1 - 3 schools | 37.8 | 34.0 | 35.2 |
| Average school wealth index | 0.9 | 1.0 | 1.0 |

NOTES: Figures are calculated only for those learners from the 2008 matric cohort who achieved Bachelor passes and are disaggregated by whether or not they never enrolled[a] or did enrol[b] in undergraduate studies at some stage between 2009 and 2014.

Tables 2 and 3 provide similar information, but set as criterion not whether matriculants achieved Bachelor passes, but rather whether they achieved a matric average of 60%, or whether they achieved a 55% or higher in Mathematics in matric. Both these tables indicate that, given such performances, blacks are slightly *more* likely to access university than the population as a whole. Considering their matric results, university access amongst black matriculants is significantly *better* than for white matriculants (given performance, white access is the lowest of all population groups). For the lower quintiles, the order varies, but again it does not appear as if there are large deficits in university access for children from the poorest quintiles who perform well in matric.

Table 4 shows that even amongst the much smaller group of matriculants who achieved a Bachelor pass as well as an aggregate matric score of 60% *and* 55% in Mathematics, black students were slightly *more* likely to access university that their counterparts.

**Table 2:** Characteristics of learners from the 2008 matric cohort who achieved a matric average of 60% or higher by access to university (2009 – 2014)

|  |  |  |  |
| --- | --- | --- | --- |
| Number of candidates | **No access**a | **Access**b | **All** |
| 14 582 | 48 291 | 62 873 |
| Share of 2008 matric cohort | 2.6 | 8.6 | 11.2 |
| Share of 60%+ achievers | 23.2 | 76.8 | 100.0 |
| % Over-aged | 15.3 | 9.7 | 11.0 |
| % Female | 59.7 | 58.8 | 59.0 |
| % Black | 29.0 | 45.9 | 42.0 |
| % achieving Bachelor passes | 92.5 | 99.0 | 97.5 |
| % offering Mathematics | 41.1 | 73.8 | 66.2 |
| Average Mathematics score | 65.3 | 72.4 | 71.4 |
| Average Mathematical Literacy score | 79.9 | 79.7 | 79.8 |
| % offering Physical Sciences | 30.6 | 56.9 | 50.8 |
| Average Physical Sciences score | 56.2 | 62.7 | 61.8 |
| % offering English Home Language | 43.0 | 49.4 | 47.9 |
| Average English Home Language score | 66.0 | 69.2 | 68.6 |
| Average English FAL score | 66.9 | 69.7 | 69.0 |
| Average School Bachelor pass rate | 57.7 | 57.3 | 57.4 |
| % in Quintile 1 - 3 schools | 16.9 | 23.0 | 21.6 |
| Average school wealth index | 1.4 | 1.2 | 1.3 |

NOTES: Figures are calculated only for those learners from the 2008 matric cohort who achieved a matric average of 60% or higher and are disaggregated by whether or not they never enrolled[a] or did enrol[b] in undergraduate studies at some stage between 2009 and 2014.

Multivariate regression analysis (see section 10 below) also supports the conclusion that black learners are *more* likely to access university at a given level of matric performance than others, rather than the opposite, as is usually assumed. This applies even when one considers the socio-economic status (quintile and wealth index) of the school attended. This brings strong evidence that access to university amongst the black population is largely constrained by poor school results amongst many black matriculants, rather than other barriers to access.

**Table 3:** Characteristics of learners from the 2008 matric cohort who achieved 55% or higher in NSC Mathematics by access to university (2009 – 2014)

|  |  |  |  |
| --- | --- | --- | --- |
| Number of candidates | **No access**a | **Access**b | **All** |
| 10 840 | 41 838 | 52 678 |
| Share of 2008 matric cohort | 1.9 | 7.4 | 9.4 |
| Share of 55%+ Maths learners | 20.6 | 79.4 | 100.0 |
| % Over-aged | 25.4 | 10.8 | 13.8 |
| % Female | 38.0 | 50.5 | 47.9 |
| % Black | 61.5 | 51.6 | 53.6 |
| Matric average | 59.3 | 67.7 | 66.0 |
| % offering Physical Sciences | 81.4 | 80.2 | 80.4 |
| Average Physical Sciences score | 49.0 | 59.6 | 57.4 |
| % offering English Home Language | 32.8 | 46.2 | 43.4 |
| Average English Home Language score | 64.4 | 69.0 | 68.3 |
| Average English FAL score | 57.8 | 66.8 | 64.6 |
| Average School Bachelor pass rate | 39.3 | 52.5 | 49.8 |
| % in Quintile 1 - 3 schools | 48.4 | 29.9 | 33.7 |
| Average school wealth index | 0.7 | 1.1 | 1.0 |

NOTES: Figures are calculated only for those learners from the 2008 matric cohort who achieved 55% or higher in NSC Mathematics and are disaggregated by whether or not they never enrolled[a] or did enrol[b] in undergraduate studies at some stage between 2009 and 2014.

**Table 4:** Characteristics of learners from the 2008 matric cohort who achieved (1) Bachelor passes, (2) a 60% overall matric average or higher, and (3) 55% or higher in NSC Mathematics by access to university (2009 – 2014)

|  |  |  |  |
| --- | --- | --- | --- |
| Number of candidates | **No access**a | **Access**b | **All** |
| 4 664 | 32 148 | 36 812 |
| Share of 2008 matric cohort | 0.8 | 5.7 | 6.6 |
| Share of 55%+ Maths learners | 12.7 | 87.3 | 100.0 |
| % Over-aged | 13.7 | 7.8 | 8.6 |
| % Female | 49.2 | 54.1 | 53.5 |
| % Black | 35.4 | 42.6 | 41.7 |
| % offering Physical Sciences | 71.8 | 78.0 | 77.2 |
| Average Physical Sciences score | 59.2 | 63.9 | 63.4 |
| % offering English Home Language | 47.9 | 50.5 | 50.2 |
| Average English Home Language score | 69.4 | 71.4 | 71.2 |
| Average English FAL score | 68.8 | 70.9 | 70.6 |
| Average School Bachelor pass rate | 58.0 | 58.9 | 58.8 |
| % in Quintile 1 - 3 schools | 22.4 | 22.3 | 22.3 |
| Average school wealth index | 1.3 | 1.3 | 1.3 |

NOTES: Figures are calculated only for those learners from the 2008 matric cohort who achieved 55% or higher in NSC Mathematics and are disaggregated by whether or not they never enrolled[a] or did enrol[b] in undergraduate studies at some stage between 2009 and 2014.

## How many matriculants delay entry into university studies?

A fairly large proportion of matriculants who do go to university do not enter university in the year following matric, but only one or more years later. Figure 1 shows, for different matric cohorts, how access to university rises with each additional year after leaving school. The 2008 cohort is the only cohort that could be tracked for as long as six years. For this cohort, the access rate in the first year was 13.0% of all matriculants, while the 6-year access rate eventually reached 20.0%, implying that at most 65% of the cohort who accessed university did so immediately after matric. Amongst students who attained Bachelor passes in 2008, the oneyear and six-year university access rates were respectively 51.2% and 68.5% (Table A2). Trends for the subsequent cohorts are not very clear, though over the period 2008 to 2013, the one-year access rate has been improving. Although it appears as if delayed entry to university is also rising, the 2011 cohort appears to be an outlier and trends thereafter seem to have deviated from earlier trends, thus it is difficult to draw firm conclusions.

**Figure 1:** One to six year access rates for the 2008 to 2013 matric cohorts (% of matriculants)

13.0

11.7

12.3

10.0

13.6

14.6

16.7

16.4

17.7

14.2

18.7

18.2

18.3

19.7

15.7

19.0

19.3

20.6

19.6

19.9

2

20.0

%

0

2

%

%

4

6

%

%

8

%

10

%

12

%

14

%

16

%

18

%

20

%

22

Cumulative university access rate

2008

2009

2010

2011

2012

2013

year

year

4-

year

2-

year

2-

1-

year

6-

5-

year

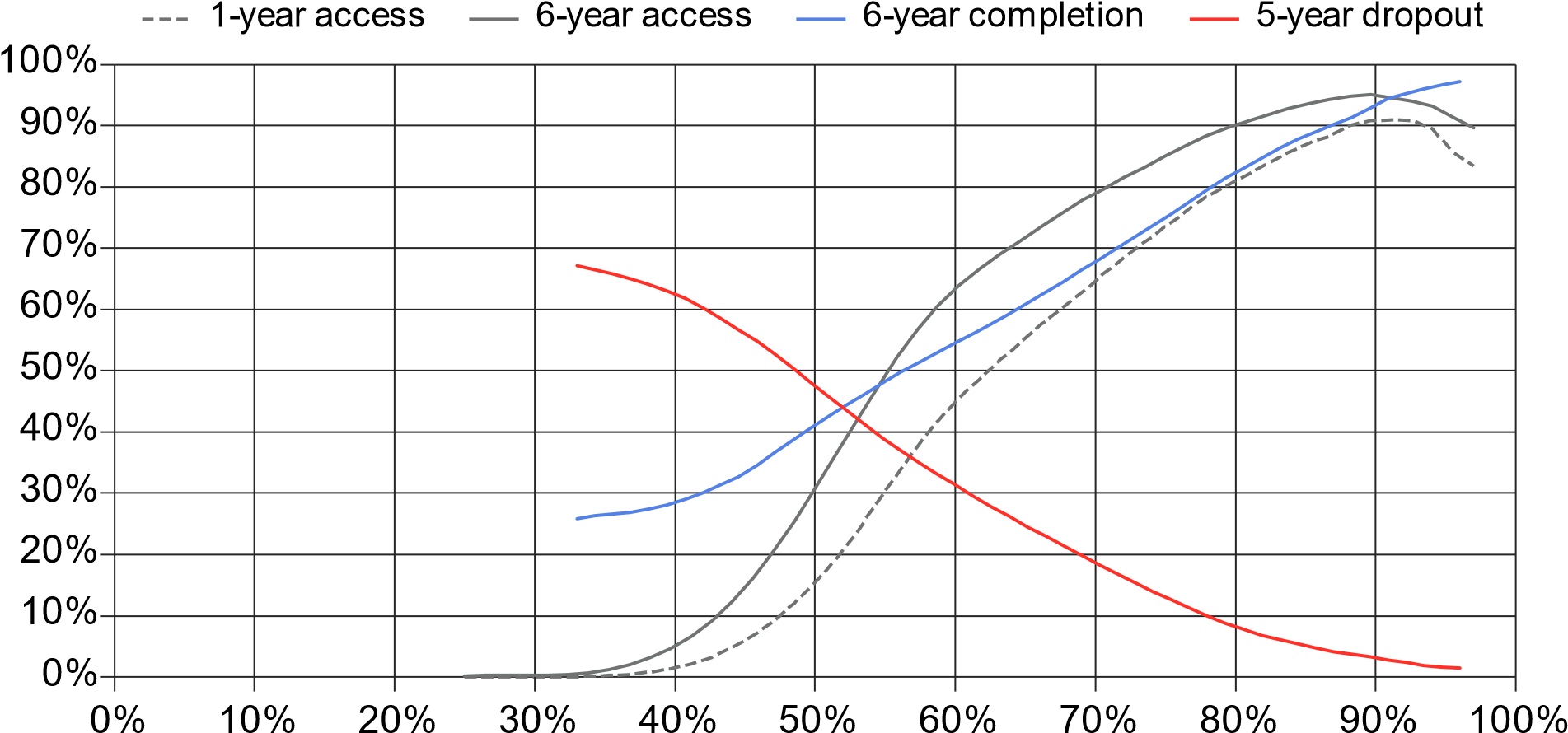
###### Matric Cohort

NOTES: Figures represent the estimated 1-year to 6-year university access rates for the 2008 to 2013 matric cohorts

## How good are matric marks as predictor of university access and of university success?

Matric results to a large degree determine entry to university, but can also be expected to be a relatively good indicator of how well students are prepared for the demands that they are likely to face at university. One would thus expect matric results to act as predictor of both university access and university success. As Figure 2 shows, they do indeed, but not to the same extent. While the relationship between the average matric results obtained and university access over both a 1 and a 6 year timeframe is strong and positive, this relationship is somewhat weaker, though still positive, for university success, and negative for university dropout. The multivariate regression results (presented in Chapter 10 below) confirm that even once controls are added for race and other covariates, the influence of matric results on university access and university success remains, though the coefficient is much lower for the latter. Predicting university success based on observable factors is more difficult than predicting university access, which may be indicative of an articulation gap between school and university.

**Figure 2:** Cumulative Matric average achievement distribution for the 2008 matric cohort



Rate

###### Matric average achievement

NOTES: Lines represent the expected 6-year access, 1-year access, 6-year completion, and 5-year dropout rates conditional on matric average achievement for learners from the 2008 matric cohort and were drawn using local polynomial regression. The curves for completion and dropout are only drawn for those learners from the cohort who enrolled in undergraduate studies for the first time in 2009.

## How much do matric results differ across the universities that students attend?

There are extremely large differences across universities in the average matric performance of students who attend these universities. The range of these differences can be seen in Figure 3.6, which shows that the University of Cape Town, Stellenbosch University and University of Pretoria enrolled students who had average matric marks well above 70%, while some other universities enrolled students that performed at around 55%. One of the contributing factors is that some universities are more inclined to attract students for degree studies, while many technical universities have a smaller component of degree courses and more certificate and diploma students (see Figure 3.1). Nonetheless, Figure 3.7 shows that large differences in average matric performance between universities remain even when one considers only those students enrolled in undergraduate degree programmes.

## How long does it take students to complete degrees or diplomas?

The maximum length of time that students could be tracked at university in the data at the disposal of the research team is six years, if they had enrolled in 2009. Of 2008 matriculants, 9.9% (55 721) had completed an undergraduate qualification of some type by 2014; of those who had achieved Bachelor passes in 2008,

39.2% had (Table 1.1). Only 37 862 matriculants from 2008 had completed a degree (as opposed to another qualification) by 2014 (Table 4.2), which is only 61.8% of those 2008 matriculants who had enrolled for a degree at a university (Table 4.3).

There is a substantial difference of 22 percentage points between four-year and six-year completion rates (Figure 3.3). This finding is of particular significance given that the vast majority of undergraduate programmes at South Africa universities have at most a 4-year minimum study time requirement for completion. Yet, there is clearly a significant share of students who only complete their qualifications after 5 or 6 years.

## How high are dropout rates from university?

Dropout rates at university, though high, are not as high as are often reported, because many students that are considered “drop-outs” in official university statistics did not leave the university system, but changed their degree programme, switched from a degree to a diploma or certificate programme, or enrolled in a different university. Of the 112 000 learners from the 2008 matric cohort who entered university, about 34 000 or 30% had dropped out before 2014 (Table 6.4). The five-year dropout rate was somewhat higher amongst coloured and black students (33% and 32%) than amongst Asians and whites (23% and 17%) (Table 7.3).

## Broad conclusions

The results reported here allow a much more nuanced understanding than available before of the transitions from school to university, and of how school results influence pathways through university. Clearly many of the patterns of university access and to a lesser extent university success that are observed are strongly influenced by school results. The weak school system has a major influence on who reaches matric, and how they perform in matric. This, and particularly the achievement of Bachelor passes, explains much of the differences in access to university by race, gender and province. Thus, for instance, the low university access rate observed for matriculants in the Eastern Cape to a large extent can be explained by the low proportion of its learners that achieved Bachelor passes.

The results reported here can be extended considerably through further analysis to focus on more specific questions. The unique nature of the data set used here provides many possibilities for further analysis. To improve the general understanding of the processes at school level that influence access to and success at university, two further steps are required. Firstly, the data set created and used in this analysis should be made available as a public resource, with the anonymisation that has already taken place. Secondly, this dataset should be expanded and updated annually, so that changing trends can be observed and addressed early, where required.

# 1 Introduction

This summary report provides an overview of higher education (hereafter HE, or university[[4]](#footnote-4)) access, entrance, completion, and exit patterns for the 2008 National Senior Certificate (hereafter NSC or matric) cohort over the period 2009 to 2014.[[5]](#footnote-5) The results are based on analysis of integrated data on NSC exam candidates and data on university enrolments and graduations across two separate databases. The data on the NSC candidates comes from the 2008 matric database, which contains learner-level unit-record information on all learners who wrote the NSC examinations in 2008. The information on university outcomes, on the other hand, was drawn from the Higher Education Management Information System (HEMIS) for the period 2009 to 2014 and contains student-level unit-record data on all enrolments and graduations in South Africa's public HE or university system. Provision, linking, and subsequent anonymisation of the NSC and HEMIS databases were done jointly by the Department of Basic Education (DBE) and the Department of Higher Education and Training (DHET).

## NSC exam results for the 2008 - 2013 national cohorts

It is instructive to consider the relative matric performance of the 2008 matric cohort, compared with the 2009 – 2014 cohorts. Doing so provides some indication of the extent to which one can generalise the patterns of university outcomes observed for the 2008 matric cohort. Figure 1.1 shows the NSC exam results in terms of pass type for each matric cohort over the period 2008 – 2013. (The exact estimates corresponding with the information in this figure can be found in Table A1 in the Appendix.)

Aside from an initial decline in NSC candidate numbers between 2008 and 2011 and a subsequent increase thereafter, there appears to be a broad trend of improving matric results over time. Figure 1.1 shows that eversmaller percentages of candidates are failing the matric examinations, while larger shares are now passing with diploma and bachelor level passes. While only 42% of candidates passed with diploma or bachelor passes in 2008, for example, the corresponding figure for 2013 was 61%. The improvement in average performance is also reflected in Figure 1.2, which shows the matric average distribution for all candidates who passed the matric exams from 2008 to 2013.6 The graph shows a consistent rightward shift in the performance distribution, i.e. that each year saw an improvement in matric results.

### 1.2. University access for the 2008 - 2013 matric cohorts

If matric performance is positively associated with university outcomes such as access and throughput, it would suggest that more recent cohorts should perform slightly better with respect to these outcomes than the 2008 matric cohort, which forms the focus of this report. Figure 1.3, which shows the one-year university access rates for matric cohorts by type of pass achieved, provides further support for this.[[6]](#footnote-6) It indicates that the percentage of learners enrolling in undergraduate studies immediately after matric increased marginally from 13% in 2008 to 15% in 2013 (see also Table A2 in the Appendix). Though this is appears encouraging, it is worth noting that the one-year access rate for learners achieving Higher Certificate, Diploma, or Bachelor passes has actually declined over time. For example, while roughly half of learners who achieved Bachelor level passes in the 2008 NSC examinations enrolled in undergraduate studies in the following year, only 43% of the 2013 NSC examination cohort followed suit. In other words, it would appear as though declining percentages of learners eligible for entry into undergraduate programmes are accessing universities immediately after completing matric.

The reason for these two seemingly contradictory trends in initial university participation among secondary school leavers is that learners who pass the matric examinations represent a rising share of candidates for each subsequent matric cohort. This rise in the percentage of candidates passing the NSC examinations has been sufficiently rapid to effectively counteract the decline in the percentage of passing learners who immediately continue on to HE studies.

**Figure 1.1:** NSC exam results for the 2008 - 2013 matric cohorts

20

%

%

23

19

%

%

38

20

%

%

24

17

%

%

39

%

24

%

27

17

%

32

%

%

24

29

%

17

%

29

%

26

%

%

30

17

%

27

%

%

31

31

%

17

%

22

%

0

100

200

300

400

500

600

Number of candidates ('000s)

2013

2008

2009

2010

2011

2012

Not achieved

SNE/NSC

Higher Certificate

Diploma

Bachelor

Matric Cohort

NOTES: Each bar reflects the NSC exam pass type composition for a particular matric cohort with the various segments reflecting the number/percentages of candidates from the cohort who achieved a particular pass result. The percentage values indicated have been rounded to the nearest integer. Estimates are based on the numbers in Table 1 (p 1 of the Appendix).

**Figure 1.2:** Matric average achievement distributions for the 2008 - 2013 matric cohorts

0.00

0.01

0.02

0.03

0.04

0.05

Density

20

%

30

%

40

%

50

%

60

%

%

70

%

80

90

%

100

%

2008

2009

2013

2012

2011

2010

Matric average achievement

NOTES: Each line represents the matric average achievement distribution for a particular matric cohort.

**Figure 1.3:** 1-year university access rates for the 2008 - 2013 matric cohorts by pass type

13

21

2

11

51

12

19

1

8

48

12

18

1

6

45

10

14

0

4

35

14

19

1

5

46

15

19

1

4

43

%

0

10

%

20

%

30

%

40

%

50

%

60

%

1-

year access rate

2008

2009

2010

2012

2013

2011

Full

cohort

All

passes

Higher Certificate

pass

Diploma

pass

Bachelor

pass

Matric Cohort

NOTES: Dots represent the estimated 1-year university access rates for the 2008 - 2013 matric cohorts, disaggregated by the type of pass achieved in

the NSC exams. Numbers inside the dots have been rounded to the nearest integer.

Thus, while only 13% of the 2008 matric cohort acceded into university in the year immediately following matriculation, and 15% of the 2013 matric cohort did so, a larger proportion (21%) of those who were eligible for entry into university from the 2008 matric cohort enrolled in undergraduate studies in 2009 than was the case for eligible candidates from the 2013 cohort who enrolled in 2014 (19%). Of course, the one-year university access rate only provides an indication of initial participation in university, while many individuals only access university with some delay after matriculating.[[7]](#footnote-7) Table A2 in the Appendix presents one-year to six-year university access rates for the 2008 - 2013 matric cohorts. A number of inferences about the extent and nature of delayed entry can be drawn from this.

First, the extent of delayed entry into university is substantial. The figures for the 2008 - 2010 cohorts suggest that only between 59% and 69% of the learners who enter undergraduate studies within four years of writing the NSC examinations do so in the year immediately after matric.[[8]](#footnote-8) Second, delayed university entry is most severe for learners who achieve Diploma or Higher Certificate passes. Third, there is a marked difference in university participation among learners who achieve Higher Certificate, Diploma, or Bachelor passes in matric. This is hardly surprising, as there are many reasons why learners who perform better in matric are more likely to access university, not least because having achieved a certain type of pass generally serves as a prerequisite for entry into specific undergraduate programmes[[9]](#footnote-9). While these differences decline over time, they remain large even four years after writing matric. For example, the four-year access rates for Bachelor pass candidates from the 2008 - 2010 matric cohorts was between 3 and 4 times greater than the four-year access rates for Diploma pass candidates, and between 15 to 20 times greater than for Higher Certificate pass candidates. Finally, the data suggests that the extent and timing of university participation among matric cohorts may be changing over time. Specifically, the extent of university participation over the short-run access horizon seems to be declining over time, delayed entry seems to be increasing over time, and the gap in university access rates between Higher Certificate, Diploma, and Bachelor pass candidates appears to be growing. However, as shown above, one should be careful of drawing inferences about changes in university participation when it is not possible to observe the extent of university access among cohorts for the same number of years.

### 1.3. University access, entrance, completion, and exit patterns among matric cohorts

Table 1.1 shows the cumulative percentage of the 2008 - 2013 matric cohorts who had completed undergraduate qualifications by the end of 2014, further disaggregated by the type of pass achieved in the NSC examinations.

Only a small percentage of all matriculants complete any undergraduate qualification (whether a degree, a diploma or a certificate) within the first four to six years following matric. The figures for the 2008 - 2010 cohorts suggest that only between 5% and 6% of learners entered and completed undergraduate studies within four years of writing the NSC examinations. As for university success, there is a marked difference in the percentage of Higher Certificate, Diploma, and Bachelor pass candidates who achieve undergraduate qualifications within four to six years following matric.

Apart from the two inferences above, it would be imprudent to draw any further conclusions about university programme completion or dropout from the estimates in Table 3. The problem lies in the fact that the table shows how many students completed undergraduate qualifications between 2009 and 2014 as a percentage of all candidates in the respective matric cohorts, many of whom either never enrolled in university or did not do so in the period for which HEMIS data was available, i.e. up to 2014. This makes sensible comparison of programme completion and dropout over time nearly impossible.

**Table 1.1:** Cumulative percentage of the 2008 - 2013 matric cohorts who completed undergraduate qualifications, by pass type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Yeara** |  |  | *Matric Cohort* | |  |  |
| **2008** | **2009** | **2010** | **2011** | **2012** | **2013** |
| **Full cohort** | 1 2 3 4 5 | 0.0  0.1  2.0  5.4  8.1 | 0.0  0.1  2.2  5.8  8.7 | 0.0 0.1 2.3 6.3  — | 0.0 0.1 2.0  — — | 0.0 0.2  — — — | 0.0  — — — — |
|  | 6 | 9.9 | — | — | — | — | — |
| **Passed (all pass**  **types)** | 1 2 3 4  5 | 0.0  0.1  3.3 8.7  13.0 | 0.0  0.1  3.6 9.5  14.2 | 0.0 0.2 3.4 9.1  — | 0.0 0.2 2.8  —  — | 0.0 0.3  — —  — | 0.1  — — —  — |
|  | 6 | 15.8 | — | — | — | — | — |
| **Higher Certificate**  **pass** | 1 2 3 4 5 6 | 0.0  0.0  0.2  0.5  1.0  1.4 | 0.0  0.0  0.2  0.5 1.0  — | 0.0 0.1 0.2 0.5  — — | 0.0 0.1 0.2  — — — | 0.0 0.2  — — — — | 0.0  — — — — — |
| **Diploma pass** | 1 2 3 4 5 | 0.0  0.1  1.3  3.6  6.0 | 0.1  0.1  1.3  3.8  6.5 | 0.0 0.2 1.1 3.0  — | 0.0 0.2 0.9  — — | 0.0 0.5  — — — | 0.1  — — — — |
|  | 6 | 7.9 | — | — | — | — | — |
| **Bachelor pass** | 1 2 3  4 5 | 0.0  0.2 8.6  22.5  32.8 | 0.0  0.2 9.4  24.1  34.9 | 0.0 0.2 8.4  22.6  — | 0.0 0.2 7.0  — — | 0.0 0.2  —  — — | 0.1  — —  — — |
|  | 6 | 39.2 | — | — | — | — | — |

NOTES: Figures represent the cumulative percentage of the respective matric cohorts who completed undergraduate qualifications in the public university system within a specified number of years after writing the NSC examinations, disaggregated by the type of pass achieved in the NSC exams.

[a] Number of years following the NSC exams (e.g. 1 year represents the year immediately following the year in which the NSC was written).

Blom (2014: 12) notes that tracking cohorts through undergraduate study in South Africa for the purposes of estimating completion or dropout rates requires a minimum time frame of four years. Parker & Sheppard (2015: 15) argue that the estimation of completion and dropout rates in university requires data that extends at least two years beyond the formal minimum time requirements for programme study, i.e. five years for the typical three year Bachelor degree programme. For this reason, this report focuses on university outcomes of the 2008 matric cohort. While this limits the generalisability of the findings, it allows a comprehensive analysis of university entrance, completion and exit patterns of a cohort of matriculants for six years following matric. To the extent that broadly similar patterns can be expected for the 2009 – 2013 matric cohorts, focussing on the cohort that can be tracked the longest provides valuable insight into patterns of university access and success in South Africa.

### 1.4. University access, entrance, completion, and exit patterns among the 2008 matric cohort

Table 1.2 summarises the university enrolment flows for the 2008 national matric cohort along with dropout and completion estimates for the years 2009 to 2014. Roughly 20% of the cohort accessed university at some stage during the first six years following the 2008 matric exams. However, only about 65% of this group commenced with their undergraduate studies in the year immediately following matriculation. A significant share of the university participants from the cohort thus only entered the university system two years or longer after writing matric. The rate of decline in the marginal access rates over the first six years suggest that less than 22% of the cohort will ultimately have enrolled in university.

In 2014, 7% of the cohort was still enrolled in undergraduate programmes. The bulk of this group were non-first-time entering students who had not yet completed any undergraduate qualification prior to 2014. Only 5% were first-time entering students and the remaining 16% were students who had completed some sort of undergraduate qualification and were already enrolled for a further postgraduate programme. By the start of 2014, 40% of the learners who had entered university between 2009 and 2014 were no longer enrolled. Roughly half of this group were students who dropped out of university, while the other half were no longer enrolled because that they had already completed their undergraduate studies prior to 2014. The estimates in Table 1.2 clearly suggest that the number of students from the cohort who left university over the first five years because of dropout was roughly equal to the total number of students who had left because of completion.

The proportion of university participants who had successfully completed an undergraduate qualification increased dramatically in the sixth year following matriculation of the 2008 matric cohort. By the end of 2014, 49.6% of learners who had enrolled in university between 2009 and 2014 had completed at least one undergraduate qualification. This amounts to about 10% of the 2008 matric cohort successfully completing undergraduate qualifications within 6 years of writing the NSC exams. Given the extent of delayed university entry, it is likely that these completion figures would have continued to rise in the years after 2014. It is worth noting, however, that only 69% of the students from the cohort who completed undergraduate qualifications over this period completed undergraduate degrees (see Table A3 in the appendix). This amounts to just 7% of the original 2008 matric cohort completing undergraduate degrees within six years of writing the NSC exams.

**Table 1.2:** University enrolment, exit and completion for the 2008 matric cohort (2009 – 2014)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | *Percentage of the 2008 matric cohort* | | | |  |
| **2009** | **2010** | **2011** | **2012** | **2013** | **2014** |
| **Enrolled** | 12.9 | 14.9 | 15.0 | 13.8 | 11.0 | 8.1 |
| -First-time entering | 12.9 | 3.8 | 1.4 | 0.8 | 0.6 | 0.4 |
| - Non-entering undergraduate | — | 11.1 | 13.5 | 12.2 | 9.2 | 6.3 |
| - Non-entering postgraduate | — | — | 0.0 | 0.8 | 1.2 | 1.3 |
| **Not enrolled** | 87.1 | 85.1 | 85.0 | 86.2 | 89.0 | 91.9 |
| - Non-participants | 87.1 | 83.3 | 81.8 | 81.0 | 80.4 | 80.0 |
| - Exit HE – Completersa | — | 0.0 | 0.0 | 0.6 | 3.0 | 5.9 |
| - Exit HE - Non-Completersa | — | 1.2 | 2.4 | 3.6 | 4.7 | 6.1 |
| **Completersa** | 0.0 | 0.1 | 2.0 | 5.4 | 8.1 | 9.9 |
| - Completers (non-cumulative) | 0.0 | 0.1 | 2.0 | 3.4 | 2.7 | 1.8 |
| **Dropoutsa** | 1.2 | 2.4 | 3.6 | 4.7 | 6.1 | — |
| - Dropouts (non-cumulative) | 1.2 | 1.2 | 1.2 | 1.1 | 1.4 | — |

NOTES: Estimates are expressed as a percentage of the number of learners in the 2008 matric cohort. ‘Completers’refers to students who successfully completed undergraduate qualifications between 2009 and 2014 whereas ‘Dropouts’refers to students who left university prior to 2014 without having completed any undergraduate qualification. [a] Numbers are cumulative.

While Table 1.2 provides a useful summarisation of university completion and dropout among the 2008 matric cohort between 2009 and 2014, it does not accurately reflect university completion, dropout, and retention rates among first-time entering university students. This is because learners from the cohort who entered university in 2013 are lumped together with learners who entered university in 2009. Yet, it should be obvious that learners who entered the university system in 2009 would have had more opportunity to complete their qualifications or drop out of their studies by the end of 2014 than learners who only entered university in 2013. For this reason, it is preferable to focus on a specific first-time entering undergraduate cohort when estimating completion, dropout, and retention rates. This is particularly true if one wishes to compare university completion, dropout, and retention between different matric cohorts. In addition, it is preferable to focus on first-time entering undergraduate cohorts that can be tracked through university for as long a period as is possible. In effect, the longer one can track any first-time entering undergraduate cohort through university, the closer estimates of dropout and completion rates will be to the ultimate dropout and completion rates for that cohort (see the 'Important definitions and caveats'section at the end of this report).

In order to overcome these limitations, Table 1.3 therefore presents the access rates for the learners from the 2008 matric cohort along with the respective completion, dropout, and retention rates for students from the cohort who commenced with their undergraduate studies in 2009. This particular undergraduate cohort is hereafter referred to as the ‘2009first-time entering undergraduate cohort’and was chosen primarily because it could be tracked through university for a period of six years.[[10]](#footnote-10)

The estimates in the table indicate almost 60% of the NSC 2009 first-time entering undergraduate cohort completed their undergraduate qualifications within the first six years of their studies while nearly 30% had dropped out within five years. The table also reflects an important fact about the structure of programme completion and university dropout over the enrolment horizon, namely that programme completion is subject to the minimum study time requirements associated with a particular program whereas university dropout is not. For example, it is possible to drop out of university after one year of studying a four-year Bachelor's degree, but it is not possible to complete that programme within one year. This explains why the estimated dropout rate for the NSC 2009 first-time entering undergraduate cohort exceeded the estimated completion rate over the first three years of the enrolment horizon, particularly considering the fact that 94% of the NSC 2009 first-time entering undergraduate cohort were enrolled for three or four-year undergraduate programmes in 2009. It is only after four years (2012) that the completion rate overtook the dropout rate for the cohort. Despite this, the four-year completion rate for the cohort was still fairly low at about 37%.

**Table 1.3:** University access, completion, dropout, and retention rates (%) for the 2008 matric and 2009 firsttime entering undergraduate NSC cohorts (2009 - 2014)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **1 year** | **2 years** | **3 years** | **4 years** | **5 years** | **6 years** |
| **Access rate** | *(2009)* | *(2010)* | *(2011)* | *(2012)* | *(2013)* | *(2014)* |
| 12.9 | 16.7 | 18.2 | 19.0 | 19.6 | 20.0 |
| **Completion rate** | 0.2 | 0.5 | 15.4 | 36.9 | 50.3 | 58.1 |
| **Dropout rate** | 9.2 | 14.5 | 19.2 | 23.4 | 28.4 | — |
| **Retention ratea** | 85.6 | 80.4 | 60.9 | 36.9 | 21.1 | — |

NOTES: Access rates are estimated for learners from the 2008 matric cohort while completion, dropout, and retention rates are only estimated for students from this cohort who enrolled in undergraduate studies for the first time in 2009. Access, completion, and dropout rates are cumulative. [a] The retention rate presented in the table reflects the estimated percentage of students from the 2009 first-time entering cohort who had not yet completed any qualification, but were still enrolled in undergraduate studies in the following year.

1. The term “matriculant” is here used to refer to all those full time candidates that write the NSC or matric exam, and to exclude those who may have attended grade 12 but were not full time candidates that wrote the exam. [↑](#footnote-ref-1)
2. Before the NSC, such passes were more appropriately referred to as university endorsements or university exemptions. [↑](#footnote-ref-2)
3. It is likely that at least some of the learners who do not go to university may go to TVET colleges instead. Unfortunately, the HEMIS data used in this study contains no information on enrolments at private or public TVET colleges. Moreover, there is (to the authors’ knowledge) no existing study or data source that provides information on the numbers of matric learners who continue on to TVET studies, despite having performed well enough in Matric to go to university. [↑](#footnote-ref-3)
4. Since the time when former technikons became universities of technology, there now no longer exist any public higher education institutions that are not universities. For the period under consideration, the terms HE and university are synonyms. [↑](#footnote-ref-4)
5. Unless explicitly stated otherwise, the sample under consideration throughout includes only full-time matric learners who wrote the NSC exams at some stage between 2008 and 2013. Data on part-time learners appears to be incomplete and was only available for some years in the database received. 6 In this report, the matric average refers to the average across the six highest marks that a learner achieved among the subjects that they offered in the NSC exam, provided that those subjects collectively satisfy the requirements for the NSC as described in DBE (2010: 3 – 5). [↑](#footnote-ref-5)
6. In the current context, the 1-year HE access rate expresses the number of learners enrolling in undergraduate studies immediately after completing matric as a percentage of the number of candidates in the original national matric cohort. See the *Important definitions and caveats* section at the end of this report for the definitions of HE participation, the HE access rate, and other important metrics used below. [↑](#footnote-ref-6)
7. See Van Broekhuizen (2016: 51 – 54) for a discussion of delayed HE entry among secondary school leavers in the Western Cape, for example.

   [↑](#footnote-ref-7)
8. Delayed entry is particularly prevalent at UNISA. The figures for the 2008 – 2010 matric cohorts show that between 27% and 33% of learners who enter undergraduate studies at UNISA within four years of writing the NSC exams do so in the year immediately after matric. The comparable figures for the rest of the system (i.e. excluding UNISA) are between 63% and 74%. [↑](#footnote-ref-8)
9. See Van Broekhuizen (2016) for a discussion of some of these factors. [↑](#footnote-ref-9)
10. Note that, unless otherwise specified, any reference to first-time entering undergraduate cohort(s) in this report refers specifically to learners from the 2008 matric cohort who enrolled in undergraduate studies in the public university system for the first time in a particular year. [↑](#footnote-ref-10)