## Place, race and language: Secondary school 'choice' in South Africa's Gauteng province

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# Place, race and language: Secondary school 'choice' in South Africa's Gauteng province<sup>1</sup>

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## ABSTRACT

This paper uses 2021 and 2022 school-level administration data to examine the relationship between primary and high school locations to determine whether high-quality secondary schools still mostly draw learners selectively from nearby 'feeder' primary schools, and as a result affect racial diversity in enrolments. We find that race is still a powerful predictor of access to high-quality secondary schools in South Africa. Gauteng's poorest-performing schools are home to mostly Black and Coloured learners, while its best-performing schools have an over-representation of White and Asian/Indian learners (relative to their overall population proportions in Gauteng). The findings in this paper suggest that the uneven distributions of high-quality schools, feeder zone rules and affordability constraints prevent many South African learners from enrolling in high-quality schools.



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### 1. Introduction

School choice, or rather the historical lack thereof, is a crucial component of inequality generation and persistence in the South African context. South Africa's education system still effectively functions as two separate systems: one that is well-resourced and historically served South Africa's White minority, and a second system that is under-resourced and poorly managed where most Black children attend school (Taylor, 2011; Van der Berg, 2015). These education input and output inequalities manifest themselves in unequal labour market outcomes, further cementing the multi-generational cycle of severe racial and geographical inequalities that have come to characterize the South African economy.

School choice in the South African context is however largely limited to parents being able to use their financial resources to enrol children in better schools than the ones in close proximity, rather than schooling authorities presenting options such as school vouchers, charter schools (independently operated schools funded by government), or deliberately building new schools at the midpoint between poor and rich neighbourhoods, as is the case in the United States (Kane *et al.*, 2006). Nevertheless, even having limited freedom to choose between schools offers some opportunity for social justice in that access to better education quality could lead to better labour market outcomes, and the subsequent reduction of poverty and inequality. However, sending children to better schools located in former (and often presently) White areas can also impose substantial financial, time and safety costs on parents and children of colour.

This paper therefore aims to understand the impact of geography on school choice in South Africa by examining the transition between primary school exit and secondary school enrolment in Gauteng in 2022. We are interested specifically in the relationship between primary and high school locations, with the aim of determining whether high-quality secondary schools still mostly draw learners selectively from nearby 'feeder' primary schools, and as a result affect racial diversity in enrolments. Our study is confined to Gauteng as this is the only province for which we could get relatively reliable data on learner movements between primary and high schools. We find that the distances between the secondary school and the primary school of origin is small for most learners. This, coupled with our findings that the bestperforming secondary schools in Gauteng are largely situated in White-dominant areas and dominated by White and Asian/Indian learner bodies, is indicative of a geographic constraint that reduces school choice for Black and Coloured learners. While feeder zone rules may contribute to these access inequalities, transport costs between these schools and neighbourhoods where Black and Coloured children live may also contribute to reduced school choice for these learners. Ensuring that high-quality education is provided in all South Africa's schools, rather than simply attempting to redistribute limited seats in affluent schools, is therefore of utmost importance to overcome the legacy of apartheid.

## 2. School choice and geography in South Africa

In apartheid-era South Africa, severely under-resourced schools were more often than not located in Black-dominant neighbourhoods, while high-quality, well-resourced schools were located in historically White neighbourhoods (Woolman and Fleisch, 2006; Fiske and Ladd, 2006; Msila, 2009). While legal obstacles to race-based enrolment have not been present since the early 1990s, South African schools at the top end of the education quality distribution remain out of reach for most disadvantaged South Africans. The most visible barrier to entry to these schools are the fees they charge, which are unaffordable to the vast majority of South Africans (Lemon, 2004; Ndimande, 2006). In the early 1990s the apartheid government promoted the introduction of fees in White schools to encourage more independence from the public fiscus (Hunter, 2015). Charging (higher) fees than poorer schools therefore also made it possible for these schools to employ extra staff beyond those that are paid by government. Feecharging schools therefore have some incentive to exercise some gatekeeping to ensure that as many of their learners can afford to pay high fees once admitted.

A second visible barrier to the socio-economic and racial diversification of learner bodies in high-quality schools is the feeder zone 'rule' that is applicable to most South African schools and is determined by the provincial Head of Department after consultation with school governing bodies (South African Schools Act, 1996). Enrolment in schools in South Africa has historically been governed partly by a feeder zone rule, where learners can apply to a maximum of 5 schools and are then offered a place within a certain feeder zone (Blake and Maistry, 2021). Historically, one of the factors determining enrolment preference has been that learners who live within 5 kilometres of a given school are given preference to enrol over those living further away. Unsurprisingly, in South Africa where neighbourhoods are often not racially diverse, this type of residence-based allocation rule is likely to reinforce pre-existing racial segregation between and within schools, particularly in urban areas where well-resourced, good-quality schools are often located in neighbourhoods that were or still are mostly populated by White people. Geography therefore limits public school choice.

Three distinct theoretical rationales are typically advanced for more schooling choice. Firstly, introducing more information and market mechanisms are likely to lead to more competition amongst schools, which would then incentivize them to maintain or increase performance to retain learners and survive in the long term (Goldhaber and Eide, 2004; Feinberg and Lubienski, 2008). These high-performing schools could then expand efficiently, while poorly performing schools would lose good students, staff and funding over time and eventually close or adapt. In this way school quality increases overall in the long term.

The second major argument in favour of school choice pertains to freedom of choice (Musset, 2012). Since government is the only producer of public-school education and the only allocator of learners to schools, not having school choice not only introduces inefficiencies but also robs parents of freedom of choice. Parents who have more choice in where they send their child to

school may also be more actively interested in their children's schooling (Lauder and Hughes, 1999).

The third argument in favour of school choice is to promote social justice. With more school choice, children born into low-income neighbourhoods need not be confined to attending low-quality schools. Introducing more school choice in the South African context could therefore be seen as being linked to reparation, in that children of colour were historically denied access to better-resourced schools. More school choice (if one assumes that more choice would increase overall education quality) therefore offers some opportunity for social justice in that access to better education quality could lead to better labour market outcomes, and the eventual reduction of poverty and inequality.

## 3. Data and methodology

To analyse the transition from primary school to high school (or from Grade 7 to 8) in Gauteng between 2021 and 2022, the Learner Unit Record and Tracking System (LURITS) data as well as the anonymized South African School Administration and Management System data (hereinafter referred to as SA-SAMS and retrieved from the Data-Drive Districts initiative) are coupled with the South African Schools Masterlist data (Department of Education, 2022) and the 2019 National Senior Certificate results. Because of difficulties in tracking learners engaged in interprovincial moves, our data set is confined to movements within the province, and therefore excludes all migration into and out of the province.

The SA-SAMS data set provides information on the location of the learner's primary school in 2021, the new high school that the learner moves to in 2022, as well as school language of instruction and the learner's home language, age, race and gender. The SA-SAMS data does not contain information about the learner's home address, therefore we can only analyse the movement between the primary and high school. Our implicit but necessary assumption, given the data limitation, is therefore that the learner's primary school is located close to their homes. The movements that we study are therefore between primary and high schools rather than mobility between residences and high school. The General Household Survey 2018 largely corroborates this assumption of proximity between schools and homes, as 87% of primary and 90% of secondary school learners in Gauteng are reported to travel less than 30 minutes to get to school (Hall, 2019).

A 'feeder school', as the term is used in this paper, refers to a primary school from which a particular high school attracts its learners. It is possible to determine the primary school of origin of all those learners in the first year of secondary school (Grade 8) when they were in primary school the previous year. This of course only applies to learners appearing in the SA-SAMS records for both years (2021 for Grade 7 and 2022 for Grade 8 learners) and where their unique identification number was correctly captured and the same for the two years. From our initial population of 225 588 Grade 8 learners in 2022, we exclude 22 276 learners who are repeating Grade 8 in 2022. Imperfect data capturing of student details at school or education

department level leads to imperfect tracking of learners between Grade 7 and Grade 8 in Gauteng leads to a further exclusion of 56 616 learners. Our final population size is therefore 146 696 learners.

Learners are assumed to choose high schools based on perceived quality of the school, proximity, language of instruction and affordability. High school quality is proxied by the school-level average of learner marks attained in the National Senior Certificate examination of 2019 (Department of Education, 2019), which is the most accessible and standardized signal of quality for parents and learners who are not intimately familiar with the quality of other services offered by specific schools.

### 4. Education quality and school location in South Africa

The current inequalities in South Africa's education quality are inextricably tied to the inherited spatial legacies of apartheid. Two policies in particular stand out as the 20<sup>th</sup>-century progenitors of enduring spatial and educational segregation by race: the all-encompassing neighbourhood segregation imposed by policies such as the Group Areas Act of 1952 that forced South Africa's people of colour into areas distant from or on the outskirts of economic activity; and secondly, the institutionalized racial segregation of schools, which under apartheid were managed by different departments (Lemon, 2004). Under this dispensation, previously White schools, located in what are still mostly White neighbourhoods, were very well resourced, while formerly Black, Coloured and Asian/Indian schools were extremely poorly resourced on average. Fiske and Ladd's (2006) estimates suggest that at the height of apartheid, the per capita spending in Black schools was one-tenth of that spent on White schools. Those spending inequalities were exacerbated by inequalities in teacher skills between race groups, both of which conspired to produce differing levels of education quality between schools (Moll, 1998). Thus, under apartheid, the average Black learner was doubly disadvantaged through socio-economic circumstance, as well as legally sanctioned denial of access to well-resourced high-quality schools because of neighbourhood segregation.

The dissolution of separate education systems towards the end of the 1980s, as well as the ushering in of a democratic government in the 1990s meant that children of colour could now legally attend former White schools. Given the resource and quality differences between former White schools and other schools, many parents of colour would rationally have desired to send their children to former White schools. The impact of school quality on academic outcomes is well documented in the South African context. Coetzee (2014), for example, shows that Black children attending former White schools achieve significantly higher scores in standardized English and Mathematics test scores than their Black child counterparts attending Black schools. It is therefore not irrational for parents of Black children to shop around for better schools in other neighbourhoods when township schools fail to provide similar access to resources and education quality (Msila, 2005).

But by 2009 only 40% of the learner population in former White schools were Black, indicating how profound and long-lasting the impact of *de jure* desegregation was (Coetzee, 2014). The few children of colour who were able to enter historically White schools were typically from more affluent households than those children who through circumstance or geographic distance could not qualify for entry to former White schools (although former Black schools largely retained their racial homogeneity). While enrolment in schools was no longer race-restricted by law, school feeder zone rules still largely upheld racial imbalances at the bottom and top ends of the school performance distribution.

The apartheid legacy of segregation in Gauteng's education system is evidenced by the distribution of schools by school quintile<sup>3</sup> in 2022. Figure 1 shows where Gauteng's high schools are located, dependent on the quintile assigned to them by the Department of Basic Education, and the proportion of people who are White in each ward. White-shaded areas below show wards where 42% or more of the resident population is White. It is in these largely White areas that most quintile 5 (the most affluent) high schools are located. In contrast, the poorest 40% of high schools (quintiles 1 and 2) are predominantly located in Gauteng's townships and close to the North West and Limpopo province borders in the north of Gauteng.



Figure 1 High schools by school quintile and White population ratio 2022

Source: Own calculations based on SA-SAMS data and NSC 2019 data (Department of Basic Education, 2020).

<sup>&</sup>lt;sup>3</sup> South African schools are assigned quintiles between 1 (poorest) and 5 (richest) by the Department of Basic Education.

While Figure 1 paints a picture of education *input* inequality, Figure 2 shows how unequally education quality *in terms of access to outputs* are distributed. Schools in the top 20% of the matric performance distribution (shown as yellow dots) are predominantly located in mostly White neighbourhoods. Poorer performing schools are located in areas where the White population is relatively absent. Figure 2 therefore shows how persistent the relationship between school location and education quality is, three decades into South Africa's democracy.



Figure 2 High schools in Gauteng by Grade 12 final examination average marks and ward 2022

Source: Own calculations based on SA-SAMS data and NSC 2019 data (Department of Basic Education, 2020).

In response to these persistent inequalities in access to good schools, in 2019 the Gauteng Department of Education announced the increase of the feeder zone radius from 5km to 30km, effective in the 2020 school year. This move would theoretically have diversified student populations as the radii around former White schools would now include neighbourhoods of colour. An example of how the increased catchment/feeder area would affect school choice is shown below using a high-performance high school as an example in Figure 3. The 5km radius around this high school is shown in blue, while the 30km radius feeder zone radius introduced in 2019 is shown in shown in purple. Student movements between primary schools and the high-performance high school are shown in orange to yellow, with lighter shades indicating larger movements of learners from specific primary schools to the high school.

Under the previous 5km feeder zone radius, the vast majority of students who would be privileged by the proximity rule resided in mostly White areas. The change to a 30km proximity

rule would theoretically include many children residing in mostly Black, Coloured and Asian/Indian areas. However, patterns of entry to top schools in Gauteng remain relatively exclusive despite the introduction of the 30km feeder zone radius. The learner movement map for the high-performing school above shows a clear pattern of 'feeder schools' preference that survives intact even after the feeder zone radius increase to diversify learner intakes: most learners are still drawn from a relatively tight radius of 5km around the school, coming from mostly White neighbourhoods.



Figure 3 Feeder schools for a high-performing high school's Grade 8 intake 2022

Source: Own calculations based on SA-SAMS data and NSC 2019 data (Department of Basic Education, 2020).

This high school is not an isolated case. Most Grade 8 learners' high schools are relatively close to the primary schools that they used to attend. Figure 3 shows the average distances in kilometres between learners' primary and high schools, dependent on the high school performance decile. Most learners, irrespective of the quality of the high school, are drawn from primary schools relatively close by (although learners are drawn from slightly further afield in better-quality schools). Children therefore have a better chance of getting into good-quality schools that they live close to, or if they enrolled in primary schools that are close to a good-quality high school.

Figure 4 Average distances between feeder school and receiving school, by high school performance decile



Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022) and NSC 2019 data (Department of Basic Education, 2020).

The intention of increasing the feeder zone radius from 5km to 30km was to address the spatial legacies of apartheid. However, given the relatively short distances between feeder primary schools and receiving high schools, there appears to be some intractability in reversing some of the apartheid-era racial concentrations within schools. Almost 92% of learners in Grade 8 are drawn from primary schools within 10km of the receiving high school (shown by race in Figure 5).

Figure 5 Percentage of Grade 8 learners whose primary school is within 5km and 10km of their current high school



Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022) and NSC 2019 data (Department of Basic Education, 2020).

Given that the distance between feeder schools and receiving schools are quite small, and because good schools are located in mostly White neighbourhoods, it is perhaps unsurprising that the racial composition of high schools is largely White at the very top end of the school quality spectrum. Figure 6 below shows high school learner composition by race and school performance decile. The bottom 40% of the school performance distribution is almost exclusively made up of Black, Coloured and Asian/Indian learners. In contrast, in deciles 9 and 10 of the high school performance distribution White and Asian/Indian learners are overrepresented relative to their overall population sizes. This is particularly evident in the top 10% of schools, where White and Asian/Indian students make up 60% and 9% of the student body, respectively.



Figure 6 Grade 8 racial composition, by school matric performance decile

Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022) and NSC 2019 data (Department of Basic Education, 2020).

## 5. School choice and language in South Africa

The importance of dominant language acquisition for learning and labour market outcome has been studied extensively internationally but less so in the South African context. Earnings premiums in Germany, Australia and the United States range from approximately 5 to 17 percent in some studies (see for example Chiswick and Miller; 1995 and 2002). In their study of African men in South Africa, Casale and Posel (2011) find extraordinarily large returns to education premia for men who reported being proficient in English. If English proficiency confers a wage premium, or if English language dominance is an observable proxy for high-quality schools, parents who are aware of these labour market premia could then rationally decide to send their children to English schools. However, exposure to mother tongue instruction has been found to be beneficial for English proficiency (Taylor and Von Fintel, 2016) as well as numeracy, literacy, income and later English proficiency (Eriksson, 2004). Academically dominant language proficiency, which in the South African context would be English or Afrikaans because of relatively well-developed curriculum content in these languages, could therefore be one of the factors that parents consider in their school choices.

The Gauteng Department of Education's (GDE) Policy for the Delimitation of Feeder Zones for Schools (Gauteng Department of Education (GDE), 2018) emphasises the importance of language (amongst other factors) in how parents and learners are likely to choose schools. As Table 1 shows, the language most spoken by 13 to 15-year-olds in Gauteng is isiZulu, with approximately one in four respondents naming it as the language of their household in both our

Grade 8 sample and the Community Survey 2016<sup>4</sup>. Sesotho is the second most prevalent home language, followed by Setswana, Sepedi and English. All 11 official languages of South Africa have at least some representations in Gauteng.

	Community Survey	Grade 8 final
	2016 (%)	sample (%)
Afrikaans	7.42	8.14
English	9.31	10.87
Isindebele	1.9	1.14
Isixhosa	7.31	6.53
Isizulu	25.86	27.26
Sepedi	11.46	12.11
Sesotho	14.68	14.5
Setswana	12.56	12.01
Sign language	0.02	0.01
Siswati	0.87	0.39
Tshivenda	1.84	1.9
Xitsonga	5.8	4.67
Other	0.97	0.47

#### Table 1 Language distribution of Grade 8 learners 2022

Source: Community Survey 2016 (Statistics South Africa, 2016) and own calculations based on SA-SAMS data (Data Driven Dashboards, 2022). \* "Other" includes learners who appear to cite more than one language as a home language.

Despite African languages' dominance as home languages, most Grade 8 learners in our sample come from Grade 7 classes where the language of instruction is English. This is largely due to the fact that the language of teaching and learning in government schools, even for the African home language majority, is generally only in English or Afrikaans from Grade 4 onwards, and sometimes as early as Grade 1 (Probyn et al., 2002; Taylor and von Fintel, 2016). The only exception is the learner's chosen home language, which parents may factor into school choice decisions for the sake of learning outcomes (related to performance in the home language, and possible informal assistance with translation in other subjects), or because their information about schools is limited to their social circles.

A shortage of secondary schools nearby that offer the learner's home language could lead to suboptimal learning outcomes if the learner enrols in a school where the home language is not offered. The SA-SAMS DDD data reveal that the majority of learners' home languages that

<sup>&</sup>lt;sup>4</sup> Our Community Survey 2016 estimates include children aged 7 to 9 years old, as they would be 13 to 15 years old in 2022.

they enrolled for in Grade 7 and Grade 8 were identical. This is particularly true for Afrikaans and isiZulu home language learners, with 90 and 82.4 percent of these learners able to continue in the same home language. More than two-thirds percent of learners taking English, isiXhosa, SePedi, SeTswana and xiTsonga as home languages could also do so in Grade 8. Therefore, it appears as if most Grade 8 2022 learners could continue with the same home language that they had taken in primary school.

#### Table 2 Home language in Grade 7 and Grade 8

#### Grade 7 home language

		Afrikaans	English	isiNdebele	SiSwati	isiXhosa	isiZulu	seSotho	sePedi	seTswana	TshiVenda	xiTSonga	Sign language	Afr/Eng/Xhosa	Total
	Afrikaans	90.0	2.7	0.5	0.3	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.0	0.5	7.4
	English	8.0	69.5	7.3	13.2	5.2	4.7	4.4	4.8	5.5	9.6	4.6	18.8	30.5	12.6
	isiNdebele	0.1	0.7	45.3	1.1	0.1	1.0	0.2	0.8	0.8	0.2	0.5	0.0	1.1	1.3
a)	SiSwati	0.0	0.3	0.4	28.0	0.3	0.4	0.1	0.2	0.3	0.2	0.2	0.0	0.7	0.4
uag	isiXhosa	0.2	2.6	0.7	3.9	72.5	3.2	1.3	0.4	1.5	1.0	1.7	0.0	1.0	6.5
ang	isiZulu	0.5	8.6	28.4	26.2	14.3	82.4	7.3	3.6	3.5	19.0	7.4	6.3	10.7	27.3
mel	seSotho	0.4	4.0	1.5	4.1	2.5	3.6	75.7	5.3	5.0	2.3	5.4	12.5	4.1	13.7
S ho:	sePedi	0.2	3.3	6.3	14.4	0.8	1.6	5.1	74.2	6.5	3.1	5.1	6.3	6.2	11.8
Ide 8	seTswana	0.4	4.9	7.3	5.9	2.9	1.5	4.5	8.0	73.6	3.6	5.7	18.8	3.4	11.4
Gra	tshiVenda	0.1	0.9	0.4	0.3	0.2	0.2	0.3	0.4	0.5	57.7	1.3	6.3	1.0	1.9
	xiTSonga	0.1	1.1	1.2	1.4	0.6	1.0	0.4	1.9	2.2	2.5	67.4	18.8	2.4	4.6
	Sign lang	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0
	Afr/Eng/Xhos			~ <b>-</b>										• • •	
_	a	0.1	1.5	0.7	1.1	0.3	0.3	0.4	0.4	0.3	0.7	0.5	0.0	38.5	1.1
	Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022) and NSC 2019 data (Department of Basic Education, 2020).

Regardless of the reasons for choosing a school (or lack of choice), the outcomes manifest themselves in relatively predictable patterns of varying access to high-quality education. Figure 10 shows the percentages of learners by home language and school performance decile (derived from the National Senior Certificate 2019 results). The green, navy and brown segments show the percentages of new Grade 8 learners who chose isiZulu, seSotho and sePedi as home languages, respectively. These learners dominate the bottom 80% of Gauteng schools, while the top 20% of schools are dominated by Afrikaans and English speakers. This is particularly true for decile 10 (top 10%), where three-quarters of learners have English and Afrikaans as home languages.



Figure 7 Distribution of home language by school's Matric average decile

Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022) and NSC 2019 data (Department of Basic Education, 2020).

## 6. Factors influencing enrolment in Gauteng's top-performing schools

While the data provided is relatively limited, the Grade 7 and Grade 8 data provide some insight into who is able to select into high-quality education secondary schools. The proxy for education quality that we use is the school-level average mark obtained in Grade 12 in 2019. We assume that the school's average Grade 12 mark is a strong signal for parents who factor school quality into their school choice decision.

Our variable of interest is entry of primary school learners into the top 10 percent of secondary schools. Factors in our data set that are expected to affect learner entry are the quintile of their primary school, race, gender, their home language and the distance between their primary school and the nearest top 10 school (summary statistics shown in Appendix Table A1).

As Figure 7 shows, distance from the learner's primary school to the nearest top 10 percent secondary school is smallest in the more urban centre of Gauteng, and generally largest for primary schools in the remote corners of the province bordering North West Province, Mpumalanga and the Free State.

Figure 8 Distance between learner's primary school and the top 10 percent of high schools



Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022) and NSC 2019 data (Department of Basic Education, 2020).

Figure 9 Distance between learner's primary school and the top 20 percent of high schools



Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022) and NSC 2019 data (Department of Basic Education, 2020).

Regression analysis of factors associated with entry into Grade 8 in a top 10% secondary school reveals some interesting patterns. In Table 2, models 1 to 3 present regressions of the factors affecting selection into any decile 10 high school. Model 4 is a repetition of the full regression in Model 3 but only for learners who are transitioning into public secondary schools. The reference categories for categorical variables are indicated in the grey rows below.

	Enrolment in top 10% high school Enro 20%							
	Model 1	Model 2	Model 3	Model 4	Model 5			
Race:White	0	0	0	0	0			
Calaurad	-0.0296***	-0.00833**	-0.0247***	-0.0181***	-0.0599***			
Coloured	(0.00374)	(0.0038)	(0.0037)	(0.0034)	(0.0063)			
Asian/Indian	0.141***	0.125***	0.118***	0.0743***	0.142***			
	(0.0051)	(0.005)	(0.005)	(0.0048)	(0.0088)			
White	0.479***	0.470***	0.464***	0.476***	0.563***			
	(0.0031)	(0.0031)	(0.0031)	(0.0029)	(0.0052)			
Male	0	0	0	0	0			
Female	0.00645***	0.00596***	0.00595***	0.00462***	0.0108***			
	(0.0012)	(0.0011)	(0.0011)	(0.001)	(0.0019)			
Home language Eng or Afrikaans	0	0	0	0	0			
Home language not Eng or	-0.0636***	-0.0382***	-0.0325***	-0.0332***	-0.0554***			
Afrikaans	(0.0025)	(0.0025)	(0.0025)	(0.0023)	(0.0043)			
Learner from: Quintile 1 primary school	0	0	0	0	0			
		-0.00181	-0.0130***	-0.0123***	0.0362***			
Quintile 2 primary school		(0.0021)	(0.0021)	(0.0019)	(0.0033)			
		-0.00267	-0.00875***	-0.00575***	0.00223			
Quintile 3 primary school		(0.002)	(0.002)	(0.0018)	(0.0033)			
		-0.00697***	-0.0208***	-0.0151***	-0.0323***			
Quintile 4 primary school		(0.002)	(0.002)	(0.0018)	(0.0032)			
Quintile 5 primary school		0.0441***	0.0229***	0.0291***	0.0301***			
Quintile 5 primary school		(0.0019)	(0.002)	(0.0019)	(0.0032)			
From private primary school								
		-0.206***	-0.195***	-0.0228***	0.0158			
From public primary school		(0.0054)	(0.0054)	(0.0066)	(0.012)			
Rural primary school								
Urban primary school			-0.0106***	-0.0126***	-0.0416***			
			(0.0022)	(0.0021)	(0.0037)			
Nearest top 10% or 20% high school less than 5km from primary school	0	0	0	0	0			

*Table 3 Regression of factors associated with enrolment in top 10%<sup>5</sup> or top 20%<sup>6</sup> secondary schools* 

<sup>5</sup> Decile 10 of the school-level average matric mark distribution.

<sup>6</sup> Deciles 9 and 10 of the school-level average matric mark distribution.

5 to 10km	-0.0711***	-0.0588***	-0.0372***			
5 to Tokin		(0.0015)	(0.0014)	(0.0027)		
10 to 20km	-0.0745***	-0.0631***	-0.128***			
10 10 20811		(0.0015)	(0.0014)	(0.0059)		
More than 20km away	-0.0706***	-0.0519***	-0.104***			
			(0.0023)	(0.0021)	(0.0208)	
Number of learners at high school			2.65e-05***	5.21e-05***	-0.000122***	
			(1E06)	(1E06)	(2E06)	
Constant	0.0747***	0.452***	0.455***	0.0602***	0.343***	
	(0.0025)	(0.011)	(0.0111)	(0.0137)	(0.0247)	
Observations	117 716	117 716	117 716	114 659	120 905	

Source: Own calculations based on SA-SAMS data (Data Driven Dashboards, 2022), South African Schools Masterlist (Department of Education, 2022) and NSC 2019 data (Department of Basic Education, 2020).

Model 1 reveals that White learners are most likely to be enrolled in a decile 10 (top 10%) secondary school, followed by Asian/Indian learners. Coloured learners are least likely to get into a top 10% school. There is a negligible difference between male and female learners in top 10% secondary school entry, but the difference is statistically significant and in favour of female learners. The race coefficients are ranking-stable across Models 1 to 4. Learners who had an African home language in primary school were also less likely than English or Afrikaans home language learners to be selected into decile 10 secondary schools.

Model 2 adds a proxy for the learner's socioeconomic status (primary school quintile), and a variable indicating whether the learner comes from a public or independent primary school. There are negligible (but statistically significant) differences between learners from quintiles 1 to 4 primary schools, but learners from quintile 5 primary schools are more likely to get into decile 10 high schools than their quintile 1 counterparts. The difference in probabilities of top 10% high school enrolment between learners from public and independent schools is 20.6%.

Our full model, Model 3, adds primary school location as predictors of entry into a decile 10 high school. Most of our model 3 coefficients are of similar magnitudes and ranking to those in Model 2 (albeit slightly reduced). However, model 3 reveals that learners from rural primary schools are less likely than learners from urban primary schools to be admitted to decile 10 high schools. Learners living further than 5km away from a decile 10 high school are less likely to enrol in a decile 10 high school than learners living within 5km of a decile 10 school.

Given that 25 percent of top decile secondary schools are independent, we now exclude independent schools in Model 4 as their selection criteria may differ significantly from those of public secondary schools. Enrolment in a decile 10 public secondary school is still largely race-dependent, with the Black-White difference in decile 10 enrolment probability being 47.6%. Asian/Indian learners are also more likely than Black learners to enrol in a decile 10 school. There is relatively difference overall between our full sample and the sample restricted

to public secondary schools, other than the fact that selection into top public schools is markedly less dependent on whether the learner attended a private school or not. In our full sample, the enrolment probability difference between learners from public and independent schools is 19.5%, whereas it is only 1.3% when only public secondary school enrolment is considered.

Model 5 is a repetition of the Model 4, except that the dependent variable is now less restrictive. Differences by race are still quite stark, with White learners having the highest probability of selecting into a top 20% secondary school. The enrolment probability differences for language (in favour of English and Afrikaans), sex, area type of the feeder primary school and distance of that primary school to the nearest top 20% secondary school are more pronounced than they were for enrolment in the top 10% of secondary schools, but still exhibit the same signs.

## 7. Conclusion

The results in this paper suggest that after three decades of democracy race, either through direct racial discrimination or as a proxy for unobserved socio-economic or preference indicators, is still a powerful predictor of access to high-quality schools. Gauteng's poorest-performing schools are home to mostly Black and Coloured learners, while its best-performing schools have an over-representation of White and Asian/Indian learners (relative to their overall population proportions in Gauteng). While these racial imbalances by school performance decile have their roots in apartheid-era neighbourhood and school segregation policy, unequal access to education quality persists along racial and geographical lines partly because of geographic proximity rules and uneven geographical distributions of high-quality schools.

While it may be tempting to suggest that policies simply be implemented to improve racial distributions in existing high-quality schools, doing so would simply change who gets access first to the limited supply of seats in the existing good schools. There would therefore be some redistributive effect but there is likely to be no substantive change in the *total* number of learners who have access to high-quality schools. This is particularly problematic in the South African context, where it is the majority of schools who struggle to produce good education outcomes. It is therefore of utmost importance that government continues to focus on ensuring that high-quality education is provided at *more* schools, and more evenly along geographic and socio-economic status dimensions.

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## Appendix

## Table A1 Summary statistics

	Bottom 9 sch	0 percent seco ool enrolments	ndary s	Top 10 percent secondary school enrolments			
Variable	N	Mean / Proportions	N	Mean / Proportions	Std. dev.		
Race							
Black	110 100	0.91	0.28	7 616	0.25	0.43	
Coloured	110 100	0.04	0.19	7 616	0.03	0.16	
Asian/Indian	110 100	0.01	0.11	7 616	0.05	0.22	
White	110 100	0.04	0.19	7 616	0.68	0.47	
Sex							
Male	110 100	0.49	0.50	7 616	0.46	0.50	
Female	110 100	0.51	0.50	7 616	0.54	0.50	
Grade 7 quintile							
1	110 100	0.16	0.37	7 616	0.02	0.12	
2	110 100	0.16	0.37	7 616	0.01	0.11	
3	110 100	0.19	0.40	7 616	0.05	0.23	
4	110 100	0.21	0.41	7 616	0.03	0.18	
5	110 100	0.27	0.44	7 616	0.89	0.32	
Grade 7 area type							
Rural	110 100	0.07	0.26	7 616	0.06	0.23	
Urban	110 100	0.93	0.26	7 616	0.94	0.23	
Kilometres between primary school and nearest top 10% school	110 100	9.62	9.17	7 616	2.53	3.48	
Secondary school number of learners	110 100 1408.49 414.99		7 616	1326.85	423.87		