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Estimating the size and impact of Affirmative Action at the University of Cape Town

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Abstract

In this paper we estimate the extent and targeting of affirmative action at the University of Cape Town, a large public university in South Africa. To do this we use admissions data from the University of Cape Town (UCT), as well as South African population census data and administrative enrolment and graduation data from the South African Department of Higher Education. We find that affirmative action does have a significant effect on the racial distribution of who is made an offer by the university. We also find that affirmative action is well targeted, with those who we estimate to be beneficiaries being of much lower socioeconomic status than those who we estimate are displaced by affirmative action. Beneficiaries of affirmative action have low graduation rates on average, with those beneficiaries who attend UCT being less likely to graduate than those beneficiaries who enrol at other public universities.

1 Introduction

Affirmative action in higher education is a policy designed to lower inequalities across different racial groups. South Africa has large and persistent inequalities between race groups in education and labour market outcomes, amongst many other measures of wellbeing. These inequalities stem from a long history of racial discrimination, most recently in the Apartheid period, and despite some progress, life chances are still strongly correlated with an individual's racial group.

The Higher Education Act that regulates higher education in South Africa notes that it is desirable that there is redress for past discrimination and ensuring representivity and equal access. The University of Cape Town is a public higher education institution that uses its admissions policy to implement affirmative action in selecting which students to make offers of places at the university to. Affirmative action is targeted towards black African, coloured, Indian and Chinese South Africans, as a result of the history of discrimination against these groups by the white minority group.

In this paper we explore the impact of an affirmative action admissions policy at the University of Cape Town. The policy that we study was applied until 2015. For applicants entering in 2016 a new admissions policy was implemented which took account of both race and various measures of socio-economic status in the decision to make an offer of admission. We do not investigate the effects of this new policy in this paper.

We study the size of the effect on the racial composition of the distribution of offers made to potential undergraduate students, the extent to which the policy targeted low-income students and how the policy impacted both the beneficiaries of the policy and those who were displaced. To do this we combine university applicant data, population census data and government administrative higher education records of applicants.

2 Research on Affirmative Action

2.1 Affirmative Action research in South Africa

The issue of affirmative action in higher education is a prominent topic in public life in South Africa. The admissions policy of the University of Cape Town (UCT), one of the leading universities in

the country, is regularly debated in the pages of the country's newspapers and on talk radio. There is a substantial academic literature debating the role, merits and purposes of affirmative action in South Africa. Sarakinsky (1993) noted the need for affirmative action in higher education in South Africa as an urgent issue in anticipation of the multi-faceted challenges involving redress in the post-apartheid era. Over time, the discourse has shifted from one where race was widely accepted as a clear proxy for disadvantage, to a more contested and complex version of disadvantage. For example, Seekings (2008, pg. 1) claims that "Racial discrimination per se seems to be of minor importance in shaping opportunities in post-apartheid South Africa. Far more important are the disadvantages of class, exacerbated by neighbourhood effects: poor schooling, a lack of footholds in the labour market, a lack of financial capital".

In March 2009, the UCT Senate called for a review of the university's admissions policy. A core component of the review was "the question of affirmative action and whether race remained a legitimate proxy for determining and comprehending disadvantage" (Soudien 2010a, pg. 221). This review, which involved widespread consultations, resulted in a collection of articles that span a wide range of viewpoints and arguments on the desirability of a race based affirmative action program in admissions at UCT. Soudien (2010b) frames the debate by considering two dominant discourses on the role of a university; that of a patriotic university that should be a mirror of its society, and that of a global university which emphasizes an international commitment to knowledge production. On this issue, Waghid (2010) believes that a university should move beyond concerning itself with racial diversity and simply focus on the pursuit of truths. Benetar (2010) argues that a race based admissions policy is both "morally indefensible" and practically absurd. Bitzer (2010) advocates a move towards expanding race based affirmative action in admissions to students of all races who come from low socio-economic status backgrounds. Erasmus (2010) holds a more nuanced view, holding that at that moment in time, the need for race as an admissions criteria remains valid but over the longer term, a strategy to find alternative measures of disadvantage that eventually replace the use of apartheid racial categories would be desirable.

As part of a comparative volume on affirmative action in South African and American higher education Loury (2010) argued for studies to address empirical questions on the extent and efficacy of affirmative action in different societies. Of the South African literature, we are aware of only one empirical study that indirectly answers questions about the efficacy of affirmative action policies

on university admissions at UCT. Favish and Hendry (2010) summarise several aspects of the UCT 2009 undergraduate applicants, analysing their data along the dimensions of offers, rejections and enrolments by race and poverty quintile. A key motivation for their study was to inform the question of whether race continued to be a suitable empirical proxy for disadvantage, although they do not explicitly try to model the affirmative action policy at the time. Despite some data limitations, particularly with regard to the school poverty quintile of applicants, they argue that there was no empirical basis for race to cease to be a factor in admissions. In particular, they note that, “Given the estimate of half of the African students at UCT coming from township schools this may point to the fact that students from the most disadvantaged communities are benefitting most from the current race based admissions policies. However further work would need to be done to confirm this hypothesis” (Favish and Hendry 2010, pg. 279).

Despite the importance of affirmative action in university admissions, none of the above mentioned papers address the specific questions that seem to feature prominently in the general debates; the extent to which affirmative action policies are well targeted or even the more basic question of measuring the extent of affirmative action. In this paper we attempt to answer some of these questions empirically using actual application data from the University of Cape Town, administrative data from the South African Department of Higher Education and population census data from Statistics South Africa.

2.2 Affirmative Action Research in other countries

The international empirical literature on affirmative action has mainly been developed in the US context, where the constitutionality of affirmative action policies has been challenged in recent years. In states where affirmative action has been banned as a result of these legal challenges research has found large decreases in minority enrollments at selective universities (Kain et al. (2005), Arcidiacono et al. (2013)), although there is some evidence that targeted recruitment programmes can offset these effects ((Andrews et al. 2010).

There is also a small literature on affirmative action outside the US, mainly from India and Brazil. Bertrand et al. (2010) use data from a highly selective engineering college in India to show that quotas for low caste applicants are well targeted, in the sense that low caste applicants who benefit from the quota system are poorer than non-low caste applicants who are displaced by the

quotas. The authors find that although low caste beneficiaries have a positive return to admission, this benefit is possibly outweighed by the much larger cost to higher caste applicants who were displaced.

Francis and Tannuri-Pianto (2012) examine the implementation of an affirmative action policy at the University of Brasilia in 2004, where 20 percent of available places were reserved for students who self-identified as black. The authors find that the policy successfully targeted applicants from lower income backgrounds. In addition, it did not appear to lower pre-university effort levels of black applicants or increase the racial disparities in college scores once applicants were admitted.

In the following section we describe the affirmative action policy at the University of Cape Town before estimating the extent and targeting of the policy.

3 Institutional Background

In order to explore the extent of affirmative action, one needs to have access to the application data of the students who apply to the university. We have access to this data for the 2007 and 2013 academic years for first year undergraduate students applying to the University of Cape Town. An affirmative action admissions policy was applied in both of these years.

Applicants apply to specific programmes and generally apply to two programmes. The UCT 2011 Admissions Policy document (University of Cape Town 2011) sets out how offers are made, stating that “We set overall enrolment targets and equity targets per programme. These are aspirational targets, not quotas. All faculties will aim to admit specified minimum numbers of eligible South African Black, Chinese, Coloured and Indian students in accordance with these targets.”

In practice, applicants are divided into population groups and ranked by their secondary school education scores and university entrance test scores, which are combined into the Applicant Point Score (APS).¹ International and White students are placed in the open category whilst other students are included in redress categories for black, coloured, Indian and Chinese applicants. Any student with a rank for a particular programme that is above the number of places reserved for a

¹Each programme uses different combinations of entrance test scores (National Benchmark Tests) and school leaving scores (NSC) as the score to rank applicants. This combined score is called the Applicant Points Score (APS) and we use this abbreviation in the rest of the paper.

particular population group, is then made an offer, conditional on them meeting some minimum entrance requirements that vary by programme. It is thus possible that quotas are not met, if not enough applicants who meet the minimum requirements apply.

In addition to the procedures just documented, the university runs academic development programmes in most faculties. These programs admit black, coloured and Indian students who do not have the minimum entrance requirements required for the mainstream programmes. These students complete their degrees over a year longer than mainstream students, and benefit from extra tutorials and academic support.

In practice many students do not take up offers made due to offers from other universities or because they face financial constraints. As a result of this issue, we focus predominantly on offer decisions and not on whether these offers were actually accepted.

4 A Methodology for Estimating the Extent of Affirmative Action

Although the APS thresholds for different population groups are made public by the University of Cape Town in its admissions policy documents each year, the actual extent of affirmative action has not been estimated. Thus the first aim of this paper is to estimate the size of the effect of affirmative action on the racial composition of those applicants who are made offers by the university. We do this using a simple simulation, following the work of Bertrand, Hanna and Mullainathan (2010).

UCT makes offers of acceptance to students for each programme, using a ranking based on their APS and on their race. To calculate the extent of affirmative action we imagine an alternative admissions policy where race is not taken into account and students applying to each programme are ranked only by their APS. We can then examine which students would be made offers in both admissions regimes, which students were only made offers under the affirmative action regime (the displacing) and which students would only be made offers under the no affirmative action admissions regime (the displaced). This would then reveal the extent of affirmative action.

It may help to provide an illustrative example. Consider a set of students who are applying to a particular programme, some white and some black African, with a distribution of test scores. For simplicity, assume that UCT sets a target for admissions to obtain an incoming cohort that is 75% black African. Suppose further that for a particular program the university has only four

positions, and that UCT only receives 6 applications in total, 3 from whites with APSs of 80, 60 and 55 respectively; and 3 from black Africans with APSs of 80, 59 and 50 respectively. Under this affirmative action (AA) policy, UCT would accept the highest ranking white application, and all 3 black African applications, with a racial composition of 25:75, as targeted. However, under a no-AA policy, we assume the university would rank all students by their APSs, and accept the top four ranked applicants. In this case, the composition of admissions by race would change, and UCT would end up with a racial composition of 50:50.

The example highlights two issues. First, by imposing a fixed class size limit, an AA rule that has any effect is going to involve winners and losers from the advantaged and disadvantaged groups, and the number of losers must be equal to the number of winners. Second, the displacing candidate in our example is the black African applicant with an APS of 50, while the displaced candidate is the white applicant with an APS of 60. By the way that we've classified applicants into displaced or displacing (or neither), it must be the case that the highest ranking displacing candidate has an APS score that is (weakly) lower than the lowest ranking displaced candidate.

In the counterfactual no-AA world that we simulate, the academic development programmes (ADPs), which are a key part of the affirmative action policy, are assumed not to exist. In our simulation, the places that UCT has allocated to these ADPs are instead reallocated to mainstream programmes in each faculty in which an ADP exists.

This simulation is only an estimate of the extent to which the offer distribution would change if the university abandoned its affirmative action policy in favour of a race-blind admissions policy. For example, applicants might change the programmes to which they apply or new applicants might apply if there was a race-blind policy.²

5 Results

5.1 Estimating the Extent of Affirmative Action at UCT

Table 1 shows the distribution of applications by population group for 2007 and 2013. We focus predominantly on applications rather than applicants in this paper, since the same applicant may

²This is not as a serious concern as might be thought because most applicants would apply before knowing their final school leaving results that the university bases its offers on, and thus would not know with certainty whether or not their application would be affected by affirmative action in the UCT admissions policy.

have different outcomes for each application.³ Black Africans represent about 80% of the population of South Africa but only 40% of applications in 2013 and 35% in 2007. Whites make up less than 10% of the population but around 26% of applications in 2007 and 19% in 2013. There was a large increase in applications between 2007 and 2013. This was predominantly the result of a change in the secondary schooling final exam in 2008 which meant that many more secondary school students earned a certificate that qualified them to apply for university level study.

Table 2 shows the actual offer distribution by population group for 2007 and 2013. The number of applications are lower than in Table 1 because individuals with incomplete applications are excluded.⁴ There were 7510 Black African applications in 2007 and 2495 were made offers. This represents an offer rate (shown in column 3) of 33%. In 2013 the number of applications from black Africans more than doubled to 15992, the number of offers rose by 27% to 3178 and the offer rate declined to 20%, a decrease of approximately 13 percentage points. For white applications the offer rate was 66% and 44% in 2007 and 2013 respectively.

The changes in the number of applications and offers results in changes in the distribution of offers by race. For example column 4 in Table 2 shows that offers to black African applications made up 27% of all offers in 2007 and 29% in 2013, whilst offers to white applications made up 35% of total offers in 2007 and 31% of total offers in 2013.

We now discuss the results of implementing the methodology for estimating the extent of affirmative action, described above in Section 4. The results are shown in Table 3, which shows the actual offer distribution and the counterfactual offer distribution assuming that race is not taken into account in the decision to make an offer. The 3801 applications from international students are excluded from this analysis, so the number of applications drops compared to Table 2.⁵ We also exclude around 1400 South African applications where no APS scores were recorded in the data we are using. The results of the simulation suggest that in 2007 the number of offers to black African applications would have decreased by around 22% if no affirmative action was implemented whilst the number of offers to white applications would have increased by 17%.

³In the following subsection we discuss the relationship between applications and applicants and its implications for estimating the extent of affirmative action.

⁴We continue to exclude incomplete applications in the rest of the paper and when we refer to applications this means complete applications.

⁵International Applicants generally do not have APS scores, which makes it impossible to rank them like South African students. We thus exclude international students from all subsequent analysis.

In 2013, the number of offers to black African applications would have decreased by around 27% if no affirmative action was implemented, whilst the number of offers to white applications would have increased by 30%. These percentages are calculated by comparing columns 2 and 4. Another way of looking at the effects of affirmative action is to look at the offer rates, i.e. the percentage of applications that are made an offer, which are shown in columns 3 and 5. The offer rate to black African applications was 32% in 2007 and we estimate that the offer rate would be 25% without affirmative action. In 2013, the offer rate to black Africans was 20% but we estimate it would be about 15% if there was no affirmative action. This analysis suggests that affirmative action has a substantial impact on the racial composition of the offer distribution at the University of Cape Town.

5.2 Applicants and Applications

In the rest of the paper we focus on applications rather than applicants, since applicants make more than 1 application and UCT looks at applications to programmes when deciding whether to make offers. But it is important to discuss briefly the relationship between applications, applicants and how these are affected by affirmative action. In 2007 73% of applicants submitted 2 applications and 26% submitted only one, so that 99% submitted either 1 or 2 applications. In 2013 81.7% of applicants submitted 2 applications and 18% submitted 1 so that 99.7% of applicants submitted either 1 or 2 applications.

Ignoring the very small fraction with more than 2 applications, applicants with at least one application accepted because of affirmative action may still have their other application accepted without the benefit of affirmative action. Applicants who have an application rejected because of affirmative action may also have another application rejected because of affirmative action, or rejected even without affirmative action, or they may have another application accepted. These possibilities are the reason that we focus on applications in the rest of the paper.

A somewhat different picture emerges when we focus on applicants. Of the displaced applications 90% were for applicants who only had 1 application displaced (89% in 2013) whilst 10% were to individuals who had 2 applications displaced in 2007 (11% in 2013). Of the white applicants who had at least one application displaced by affirmative action, 48% had another successful application in 2007 (38% in 2013). Of the black African applicants who had at least one offer made that would

not have been made if there was no affirmative action, 15% had another successful application that we estimate was not due to affirmative action (26% in 2013). These numbers, and the difference between applicants and applications, should be kept in mind in the rest of the paper where we focus on applications only. In the following sections we explore the extent to which affirmative action targets low income black African students and explore the higher education outcomes for both the displaced and displacing groups.

6 The Targeting of affirmative action

One potential criticism of affirmative action is that it benefits higher socioeconomic status individuals within a disadvantaged group at the cost of lower socioeconomic status individuals in the advantaged group. We can test this in two ways using data that we have on 2013 applicants.⁶ Firstly, applicants can apply to the university for financial aid, and the award is based on family income. We can thus explore what fractions of both displaced and displacing students applied for, and obtained, financial aid. Secondly, we can match some applicants physical addresses with neighbourhood data from the 2011 Census and calculate the average income levels in the neighbourhoods in which applicants live.

6.1 Using Financial Aid Application data

Table 4 shows our findings on financial aid applications for 2013 applications. 60% of black African applications apply for financial aid as opposed to 11% of white applications. But out of the total white applications only 6.5% both applied and were eligible compared to around 53% for black African applications.

Of the displaced white applications around 8% applied for and were eligible for financial aid while more than 50% of black African displacing applications applied for and were eligible for financial aid. Assuming that those who do not apply are not eligible, this is suggestive evidence that affirmative action is indeed targeting lower income applicants.

⁶We were not able to access financial aid data for 2007 applicants.

6.2 Using 2011 Census Data

Application for or eligibility for financial aid is a crude measure of socioeconomic status- partly because they are binary outcomes and partly because those who do not apply may actually be eligible. For example, applicants may be unaware that they can apply for financial aid or believe that they will be discriminated against and therefore choose not to apply. In such cases we would be assuming that the policy is better targeted than it actually is. It could also be that we are understating the extent to which the policy is well targeted if poorer applicants are more likely to fail to obtain the evidence required (for example of their parents' income levels) to submit a financial aid application.

We thus provide an alternative measure of socioeconomic status - income data from the 2011 population census small areas in which applicants resided. To implement this we match home addresses provided by applicants with South African 2011 census small area data. Small areas are small- the median number of households across small areas was 159 in the 2011 census data, and the median number of individuals living in the small area was 581. Small area data are thus likely to provide a good proxy for the circumstances of the applicant's household.

To preserve confidentiality of census respondents Statistics South Africa does not release household level data at this low level of geography. What it does release are aggregated data for each small area. So we know the total number of children or adults in the small area, the total number of people employed, the number of people studying etc. This census data can be matched to physical addresses provided by applicants to UCT because the small area data includes a GIS shape file with the exact location of the small area. We used the Stata routine `gpsbound` (Brophy et al. 2015) to match physical addresses provided by applicants to UCT and thus provide a measure of income in the small areas where applicants reside.

In the census 2011 questionnaire, questions about income were asked at the individual level and included all types of income. Individuals were asked to report what income category they fell into and, importantly for our purposes, the number of individuals reporting incomes in each bracket is then included in the data for each small area. We use income levels in the small area in which an applicant resided as a proxy for the applicant's household income. Because small areas are so small this method is likely to provide a reasonable measure of the applicant's socioeconomic status.

We attempted to match all individual application addresses to census small area data for displaced and displacing applications for the 2013 academic year. There were 4233 displaced or displacing applications in 2013. Of these, around 38% did not provide a physical address (they provided a postal address) and thus could not be matched to a small area. Of the remaining 62% we managed to match 98% with a census 2011 small area using the Google Maps API. The Google Maps API returned an “Approximate” latitude and longitude from the applicant’s address in only 7% of addresses that were matched. Thus we are confident that our matching process was accurate.

It may be the case, however, that either low or high income individuals are more likely to give postal addresses rather than physical addresses, which would be a selection problem that would bias our estimates of the differences in socioeconomic between displaced and displacing applications. Table 5 shows the likelihood of giving a postal address by population group, financial aid status and whether the application was displaced or displacing. Black African applications were least likely to be matched, with only 52% matched. The difference between the rates for black Africans, whites and Indians are not large- 57% for Indians and 59% for whites. Coloured students are much more likely to be matched, with 86% matched. Those applications that did not apply for financial aid are less likely to have been matched than those who did and were either eligible or ineligible. The last two rows of the table show that displaced and displacing applicants are equally likely to have been matched.

We then use the census 2011 small area data that we were able to match with student addresses to construct two different measures of welfare. Both are imperfect in different ways as a result of the way Stats SA collected and reported the census data to preserve confidentiality. The income data was collected at the individual level and included all types of income (not just labour income). There were 12 different brackets as well as an “Unspecified” option.

The first measure of welfare is the distribution of the individual bracket responses in the small area. Figure 1 shows the distribution of this measure in the small areas of black African displacing and white displaced applications. Only individuals 15 years and older are included. The median income bracket reported in small areas in which white displacing applications live is R6401 - R12800 per month whilst for black African displacing applications it is R801-1600. This suggests that individual income levels are substantially lower in the areas in which displacing applications reside. The downside of this measure is that no account is taken of income pooling within households so

there is a large fraction of individuals reporting no income in both groups which masks potentially important income sharing.

The second measure of welfare is per capita income in the small area. We created this variable by imputing amounts (using bracket mid-points) for individual bracket responses, aggregating this income at the small area level and then dividing by total population in the small area level. This is not a household level variable but rather a small area level variable. Table 6 clearly shows that displacing individuals live in small areas with substantially lower per capita income. The 50th percentile for displacing applications is roughly the same as the 20th percentile for displaced applications. When we compare black African displacing applications with white displaced applications the results are even more stark. The 80th percentile for black African displacing applications is approximately the same as the 20th percentile for displaced white applications. This indicates that higher income black African applications are not displacing low income white applications due to affirmative action. Rather, generally low income black African applications are displacing applications from white applicants who live in areas that have much higher levels of income.

6.3 Correlation between Measures of Socio-economic Status

Both the financial aid status and the two measures of small area income from the 2011 census used above are imperfect. Our argument would be strengthened if our two measures of socio-economic status are correlated with each other, which we now test informally. Table 7 shows the conditional distribution of small area per capita income quintiles by financial aid application and eligibility. The results suggest that the two measures are positively related. Of those applications that did not apply for financial aid 75% were in the top three census small area income quintiles of all displaced and displacing applicants. Of those that applied and were eligible 69% were in the bottom two quintiles. The measures are less well correlated for those who applied and who were ineligible but still 54% of the ineligible applications were in the top three quintiles.

6.4 Conclusions on Targeting

We have used two different methods for exploring the targeting of affirmative action in higher education in South Africa. The financial aid application and eligibility data, as well as the census 2011 small area data, suggest that the policy is relatively well targeted, in that the beneficiaries

have much lower income levels than those who are displaced as a result of the policy. We have also shown that our two measures are strongly correlated- with 75% of those applications who did not apply for financial aid found to be in the top 60% of the income distribution of applications and 69% of those who were found to be eligible in the bottom 40% of the income distribution of applications.

7 Academic Outcomes for applications

One aspect of the public debate in South Africa about affirmative action in admissions is concern about academic outcomes for those who benefit or are displaced by affirmative action. To investigate these issues we obtained data from a database on all students who have enrolled in the public university system, maintained by the South African Department of Higher Education and Training. This database is called the Higher Education Management information system (HEMIS). Microdata from HEMIS has previously been used to help identify the size of financial constraints on enrollments for South African university students (Gurgand et al. 2011).

We matched every 2007 South African UCT applicant to the HEMIS data using their South African identity number (all South African students had to provide this number to UCT). If there was no record then the student did not enrol in the public university system and may have enrolled in the private higher education system, moved overseas or not enrolled at all. Using HEMIS we can thus know whether the 2007 UCT applicants enrolled in the public university system, whether they had graduated by 2013 and what institution they attended.

Table 8 shows the enrollment and graduation rates for displacing and displaced applications. Enrollment rates are high for all applications- at over 90%. The large fraction of displaced applications who did enrol suggests that almost all of those applicants who had displaced applications at UCT as a result of affirmative action did enrol at public higher education institutions. The displacing black African applications had lower probabilities of graduation than the displaced white applications. This is not unexpected since the displacing black African applications had lower APSs than the displaced white applications when they applied.

These rates of graduation are for all institutions, wherever students actually studied in the public higher education system. The first two columns of Table 9 show the numbers of enrolled

displaced white and displacing black African applications that applied to UCT by institution. A relatively low fraction of the displacing black African applications (who were made an offer by UCT) ended up with the applicant enrolled at UCT- 37% (255/683). A not insignificant fraction of the displaced white applications (23%= 110/479) also ended up with the applicant enrolled at UCT- this was possible either because another application made by the displaced applicant was made an offer or because the student applied again in a subsequent year and her application was then successful.

Table 9 also shows graduation rates by institution. The graduation rate for black African displacing applications who attended UCT was 51%, lower than the graduation rate for black displacing applications across all institutions of 60% (or 65% if we exclude UCT). This suggests that those affirmative action beneficiaries who enrol at UCT do worse, as measured by graduation rates, than beneficiaries who decide to enroll elsewhere.

This descriptive finding suggests a number of different possibilities which we hope to investigate in future research. It could be that UCT has more challenging programmes than other institutions or that there are selection effects on which beneficiaries of affirmative action actually choose to enroll in UCT. For example applicant scores, financial resources in the home and the programmes into which applicants were accepted at UCT and other institutions may all affect which applicants enroll at UCT and which choose to enroll elsewhere. Even if applicants do face a lower likelihood of graduating if they choose to attend UCT some may still do so if the rewards to a UCT degree compared to a degree from another institution are high enough.

8 Conclusions

Racial inequalities in South Africa arise as a result of discrimination before, during and after Apartheid, and remain substantial in the post-Apartheid period. Affirmative action in higher education is one response to these kinds of inequalities and has been practised in a number of countries, including South Africa. Despite this there is no evidence on the extent, targeting or efficacy of affirmative action in South Africa.

In this paper we have presented evidence on the extent of affirmative action at the University of Cape Town. We estimate that offers to black African applications would have declined by 23%

and 27% if there had been no affirmative action policy in 2007 and 2013 respectively.

We used two pieces of data to explore whether affirmative action targets individuals from low socioeconomic status backgrounds. Both university financial aid data and 2011 census data show that the displacing applications are much poorer than the displaced applications in 2013. The 80th percentile of per capita income in the small areas in which displacing black applications live is roughly equal to the 20th percentile of per capita income in the small areas in which displaced white applications live, suggesting that the policy is well targeted.

Using data from HEMIS we were also able to explore the higher education outcomes for the displaced and displacing applications. Over 90% of both displaced and displacing applications by applicants to UCT in 2007 resulted in the applicant enrolling in a public higher educational institution in or after 2007. We find that around 25% of displaced white applications resulted in the applicant enrolling at UCT, whilst more than 90% enrol at some South African public higher educational institution. Around 38% of displacing applications result in the applicant enrolling at UCT, a relatively low number that may reflect financial constraints of those who end up choosing a lower cost university. The graduation rate for black African applicants who submitted displacing applications was 51% for those that actually enrolled at UCT and 65% for those who ended up enrolling at other tertiary institutions. This is a finding we hope to explore in further work, focusing on selection, financial constraints to attending university and the benefits of a UCT degree in the labour market.

Table 1: Application demographics

Population Group	2007		2013	
	<i>Num</i>	<i>%</i>	<i>Num</i>	<i>%</i>
Black African	8101	34.90	19564	40.32
Chinese	35	0.15	206	0.42
Coloured	2614	11.26	5685	11.72
Indian	1648	7.10	3294	6.79
NA/Unknown	597	2.57	2051	4.23
White	6005	25.87	9280	19.13
International	4210	18.14	8442	17.40
Total	23210	100.00	48522	100.00

Source: Own calculations from UCT 2007 and 2013 applicant data.

Table 2: Offer Distribution

	Applications		Offers	
	<i>Num App</i>	<i>Num Offer</i>	<i>Offer rate</i>	<i>% of Total Offers</i>
2007				
Population Group				
Black African	7510	2495	33.22	26.71
Chinese	29	19	65.52	0.20
Coloured	2313	1216	52.57	13.02
Indian	1488	811	54.50	8.68
NA/Unknown	532	255	47.93	2.73
White	4933	3248	65.84	34.77
International	3801	1297	34.12	13.89
Total	20606	9341	45.33	100.00
2013				
Population Group				
Black African	15992	3178	19.87	28.79
Chinese	166	91	54.82	0.82
Coloured	4853	1543	31.79	13.98
Indian	2929	1228	41.93	11.13
NA/Unknown	1717	578	33.66	5.24
White	7852	3471	44.21	31.45
International	5170	948	18.34	8.59
Total	38679	11037	28.53	100.00

Source: Own calculations from UCT 2007 and 2013 applicant data. The number of applicants is lower than in Table 1 because we have excluded applications where it is not possible to say whether the application was made an offer.

Table 3: Applications, Offer and Counterfactual Distribution

	Applications	Actual Offers		Counterfactual Offers	
	(1)	Offers (2)	Offer Rate (3)	Offers (4)	Offer Rate (5)
2007					
Population Group					
Black African	7067	2277	32.22	1787	25.29
Chinese	24	18	75.00	19	79.17
Coloured	2037	1012	49.68	855	41.97
Indian	1388	765	55.12	889	64.05
NA/Unknown SA	460	211	45.87	215	46.74
White	4454	2937	65.94	3431	77.03
Total	15430	7220	46.79	7196	46.64
2013					
Population Group					
Black African	14970	3029	20.23	2225	14.86
Chinese	152	84	55.26	80	52.63
Coloured	4399	1382	31.42	1047	23.80
Indian	2829	1194	42.21	1248	44.11
NA/Unknown SA	1480	478	32.30	588	39.73
White	7200	3221	44.74	4181	58.07
Total	31030	9388	30.25	9369	30.19

Source: Own calculations from UCT 2007 and 2013 applicant data. CF Offer is the simulated counter-factual offers. Total applications and offers differ from Table 2 because of dropping foreign students and South African students without APS scores.

Table 4: 2013 Financial Aid applications and Eligibility

Population Group	Did not Apply		Ineligible		Eligible		Total
	<i>Num</i>	<i>%</i>	<i>Num</i>	<i>%</i>	<i>Num</i>	<i>%</i>	
Black African	5952	39.76	1130	7.55	7888	52.69	14970
Chinese	130	85.53	6	3.95	16	10.53	152
Coloured	2007	45.62	647	14.71	1745	39.67	4399
Indian	2119	74.90	266	9.40	444	15.69	2829
NA/Unknown	1004	67.84	101	6.82	375	25.34	1480
White	6399	88.88	327	4.54	474	6.58	7200
Total	17611	56.75	2477	7.98	10942	35.26	31030
Displacement Status							
Displacing	831	45.86	263	14.51	718	39.62	1812
Displaced	1360	75.85	148	8.25	285	15.90	1793
Displacing Black African	379	36.37	135	12.96	528	50.67	1042
Displaced White	972	87.57	49	4.41	89	8.02	1110

Source: Own calculations from UCT 2013 applicant data. % are row percentages.

Table 5: Address Matching correlates for Displaced and Displacing

Population Group	Not Matched		Matched		Total
	<i>Num</i>	<i>Row %</i>	<i>Num</i>	<i>Row %</i>	
Black African	614	47.97	666	52.03	1280
Chinese	7	31.82	15	68.18	22
Coloured	77	13.95	475	86.05	552
Indian	132	42.86	176	57.14	308
NA/Unknown	66	36.07	117	63.93	183
White	516	40.95	744	59.05	1260
Financial Aid Status					
Did not apply	919	41.94	1272	58.06	2191
Eligible	342	34.10	661	65.90	1003
Ineligible	151	36.74	260	63.26	411
Displacement Status					
Displacing	693	38.25	1119	61.75	1812
Displaced	719	40.10	1074	59.90	1793

Source: Own calculations from UCT 2013 applicant data and Census 2011 Small Area public release data.

Table 6: Welfare Measure Two: Small Area per Capita Income Percentiles by Displacement Status

Displacement Status	<i>20th Percentile</i>	<i>40th Percentile</i>	<i>Median</i>	<i>60th Percentile</i>	<i>80th Percentile</i>
Displacing	1651	4202	5620	7511	11931
Displaced	6629	10508	12510	14814	20157
Displacing Black African	1081	2171	3631	5491	9840
Displaced White	9891	13493	15227	16857	22237

Source: Own calculations from UCT 2013 applicant data and Census 2011 Small Area public release data. PCinc is monthly per capita income in the small area in Rand. Rand/ US dollar exchange rate was about 8:1 at the time of Census 2011.

Table 7: Distribution of Financial Aid Eligibility conditional on per capita income quintile

Per capita income	Did not Apply		Eligible		Ineligible	
	<i>Num</i>	<i>Col %</i>	<i>Num</i>	<i>Col %</i>	<i>Num</i>	<i>Col %</i>
Quintile 1	104	8	283	44	45	17
Quintile 2	198	16	158	25	75	29
Quintile 3	267	21	92	14	72	28
Quintile 4	314	25	70	11	47	18
Quintile 5	372	30	39	6	20	8
Total	1255	100	642	100	259	100

Source: Own calculations from UCT 2013 applicant data and Census 2011 Small Area public release data. Only the displaced and displacing students from 2013 are included in this table.

Table 8: Enrollment and Graduation Rates

	<i>EnrollmentRate</i>	<i>GraduationRate</i>
Displacing	91.68	62.88
Displaced	94.00	78.90
Displacing Black African	90.54	59.88
Displaced White	92.05	77.87

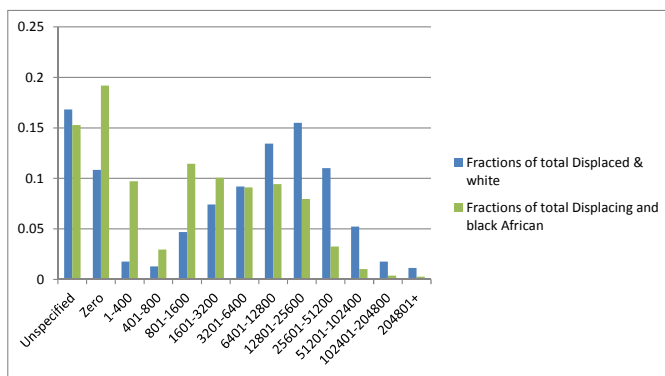
Source: Own calculations from UCT 2007 applicant data and matched 2007 HEMIS data.

Table 9: Enrollment and Graduation by Displacement Status and Institution

Universities	Enrollments		Graduation Rates (%)	
	<i>Displacing B</i>	<i>Displaced W</i>	<i>Displacing B</i>	<i>Displaced W</i>
Cape Peninsula University of Technology	36	18	75.0	83.3
Central University of Technology	2	0	100.0	.
Durban University of Technology	13	0	69.2	.
Mangosuthu University of Technology	5	0	60.0	.
Nelson Mandela Metropolitan University	24	11	75.0	81.8
North West University	12	2	75.0	50.0
Rhodes University	13	21	69.2	85.7
Tshwane University of Technology	23	0	56.5	.
University of Cape Town	255	110	51.4	77.3
University of Fort Hare	12	1	50.0	100.0
University of Johannesburg	43	11	79.1	90.9
University of KwaZulu-Natal	45	20	57.8	90.0
University of Limpopo	18	2	66.7	100.0
University of Pretoria	33	53	66.7	84.9
University of South Africa	25	41	8.0	61.0
University of Stellenbosch	10	133	50.0	75.2
University of Venda	1	0	100.0	.
University of Western Cape	21	11	76.2	63.6
University of Witwatersrand	31	45	67.7	82.2
University of Zululand	4	0	75.0	.
University of the Free State	5	0	100.0	.
Vaal University of Technology	7	0	57.1	.
Walter Sisulu University	15	0	86.7	.
Total	653	479	59.9	77.9

Source: Own calculations from UCT 2007 applicant data and matched 2007 HEMIS data. Displacing B indicates displacing black African and Displaced W indicates displaced white.

Figure 1: Welfare Measure One: Distribution of Individual Incomes



Source: Own calculations from UCT applicant and Census 2011 Small Area data. Amounts are Rand per month. Rand/ US dollar exchange rate was roughly 8:1 at the time of Census 2011.

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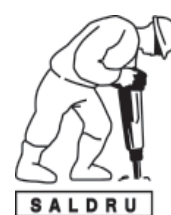
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southern africa labour and development research unit

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

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



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