

An Empirical Analysis of Racial Segregation in Higher Education^{*}

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Abstract: This paper documents how segregation between blacks and whites across colleges in the United States has evolved since the 1960s. It also explores potential explanations for the trends. The main findings are as follows: (1) White exposure to blacks has been rising since the 1960s, whereas black exposure to whites increased sharply in the late 1960s and early 1970s and has fluctuated since then. Meanwhile, black-white dissimilarity fell sharply in the late 1960s and early 1970s and has fallen more gradually since. (2) There has been regional convergence, although colleges in the South remain more segregated than those in any other region when measured by dissimilarity or by black exposure to whites. (3) A major channel for the decline in segregation, especially in the South, is the declining share of blacks attending historically black colleges and universities. (4) Recent statewide affirmative action bans by some states may actually be *reducing* racial segregation.

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I. Introduction

In the early twentieth century, Southern states operated dual systems of higher education, and universities in other regions of the country enrolled very few African-American students. But then several important Supreme Court rulings held that the separate higher education accommodations provided to blacks were in fact unequal (*Missouri ex rel. Gaines v. Canada* in 1938, *Sipuel v. Board of Regents of the University of Oklahoma* in 1948, and *Sweatt v. Painter* and *McLaurin v. Oklahoma State Regents for Higher Education* in 1950), which helped set the stage for the 1954 *Brown v. Board of Education* ruling that separate can never be equal. Some states took longer than others to integrate their colleges, but U.S. colleges today are open to students of all races. But as evidenced by affirmative action bans in several states, recent court rulings, ongoing college desegregation litigation, and the fact that the Supreme Court will hear the affirmative action case *Fisher v. University of Texas* in its 2012-13 term, issues of race and higher education are still high on the public policy agenda. Further, colleges today are less segregated than they were a century ago, but students of different races still have differing enrollment patterns.

The purpose of this paper is to document how racial segregation between blacks and whites has evolved across four-year colleges in the United States since the 1960s and to consider some potential explanations for the observed trends. Although little is known about racial segregation at the college level, research on K-12 schools has found negative effects of racial segregation on students and has found positive effects of desegregation plans (Guryan 2004; Johnson 2010, 2011; Reber 2010; Weiner, Lutz, and Ludwig 2009). Moreover, the Supreme Court has taken the view in two important affirmative action cases, 1978's *Regents of the University of California v. Bakke* and 2003's *Grutter v. Bollinger*, that affirmative action is

constitutional on the grounds that there are educational benefits to racial diversity. Furthermore, racial segregation across colleges may have important implications for social networks, job networks, and housing patterns. This may in turn affect incomes, economic inequality, and social cohesion. But even though little is known about the consequences of racial segregation in higher education, documenting its extent and considering its causes should be a worthwhile step toward a more complete understanding of racial segregation at the college level.

In showing how the level of racial segregation has changed over the years, I utilize data on the racial composition of nearly every college in the continental 48 states and the District of Columbia in the even years between 1968 and 1988 and every year since 1990. I also make use of data on the racial compositions of public universities in the South every year from 1960 to 1967. I employ standard measures of segregation such as the index of white exposure to blacks, the index of black exposure to whites, and the black-white dissimilarity index to study how segregation has evolved nationally. I also examine differences by geographic region and public/private control, and I explore potential explanations for the trends. The main results are:

- (1) White exposure to blacks has been rising since the 1960s, whereas black exposure to whites increased sharply in the late 1960s and early 1970s and has fluctuated since then. Meanwhile, black-white dissimilarity fell sharply in the late 1960s and early 1970s and has fallen more gradually since.
- (2) There has been regional convergence, although colleges in the South remain more segregated than those in any other region when measured by dissimilarity or by black exposure to whites.
- (3) A major channel for the decline in segregation, especially in the South, is the declining share of blacks attending historically black colleges and universities.

(4) Recent statewide affirmative action bans by some states may actually be *reducing* racial segregation.

There has been a large amount of research on racial segregation in contexts other than higher education in recent years, especially in the context of elementary and secondary schools. This work on elementary and secondary schools includes descriptive work (Clotfelter 2004; Cascio et al. 2008; Rivkin and Welch 2006) and research on the impact of financial incentives on desegregation (Cascio et al. 2010). It also includes work on the effects of K-12 desegregation policy on segregation levels (Reber 2005), school district finances (Reber 2011), housing prices (Boustan 2012), residential and school choices (Baum-Snow and Lutz 2011), educational outcomes (Guryan 2004; Reber 2010; Johnson 2011), economic outcomes (Johnson 2011), health (Johnson 2010, 2011), and crime (Weiner, Lutz, and Ludwig 2009; Johnson 2011).¹ Clotfelter, Vigdor, and Ladd (2006); Lutz (2011); and Reardon et al. (2012) have studied whether there is “resegregation” now that desegregation plans are being lifted. Billings, Deming, and Rockoff (2012) study the effects of ending a desegregation plan on academic outcomes and crime. Apart from the study of schools, other areas of recent research interest include residential segregation (Ananat 2011; Ananat and Washington 2009; Boustan 2011; Card, Mas, and Rothstein 2008; Card and Rothstein 2007; La Ferrara and Mele 2007) and hospital desegregation (Almond, Chay, and Greenstone 2006; Chay, Guryan, and Mazumder 2009).

Although racial segregation in some contexts has been thoroughly studied, there is very little research on segregation at the college level. A notable exception is Clotfelter (2004, Ch. 6),

¹ Rivkin and Welch (2006) provide useful background information and a review of earlier research on elementary and secondary school desegregation. For another overview, see Vigdor (2011). For a recent cross-country study of segregation, see Alesina and Zhuravskaya (2011).

who documents segregation levels at U.S. colleges and universities in 1976, 1986, and 1998.² Clotfelter (2004, Ch. 6) also makes use of selected pre-1976 data by reporting racial compositions of a set of 28 selective institutions in 1951, 1967, and 1970; showing the exposure rate of whites to nonwhites for a sample of 175 institutions for 1970 as well as the four-year private institutions among them for 1967; and reporting a segregation index for four-year public institutions in the South in 1961, 1965, and 1970. This paper adds to Clotfelter (2004, Ch. 6) by taking the full sample of universities farther back in time, going farther forward in time, and exploring the dynamics of segregation over shorter intervals (every other year from 1968 to 1988 and year-to-year since 1990). To the extent that it is possible to compare, the results in Clotfelter (2004, Ch. 6) and this paper are broadly consistent. However, some important results emerge from using the additional data, including the fact that there was a large decline in segregation between 1968 and 1972, the trends in segregation since 1998, and the fact that changes in segregation are generally more gradual than episodic. After documenting trends, this paper also then goes on to consider explanations for those trends.

The next section of this paper lays out the basic facts about racial segregation in higher education. The following section discusses potential mechanisms for the observed trends in segregation levels. I then discuss the issue of segregation within colleges. Finally, I present the conclusion.

II. Basic Facts

A. Data

² Another piece about racial segregation at the college level, albeit not about segregation in the overall student body, is Goff, McCormick, and Tollison (2002). That paper finds that winning Atlantic Coast Conference (ACC) basketball teams integrated first and that doing so further improved their records.

The data I use in most of the analysis are data on fall full-time undergraduate enrollment by race for nearly every college in the continental United States. These data exist for the even years from 1968 to 1988 and for every year from 1990 to 2009. The data since 1986 come from the Integrated Postsecondary Education Data System (IPEDS), data from 1976-1984 come from the Higher Education General Enrollment Survey (HEGIS), and data for the earlier years come from surveys conducted by the Office for Civil Rights (OCR) whose results I digitized (U.S. Department of Health, Education, and Welfare Office for Civil Rights 1969, 1972, 1974, 1976).

Although other racial groups have played an increasingly prominent role in American higher education over the years, there are several reasons why this paper focuses on segregation between blacks and whites. First, much of the history of race relations in the United States centers around blacks and whites. Second, as seen in Figure 1, representation of other racial groups at U.S. colleges and universities was limited until recently. Third, although the results are not reported here, the overall trends in segregation between underrepresented minorities collectively (i.e., combining blacks, Hispanics, and Native Americans into one group) and whites and also between non-whites and whites are similar to the trends in segregation between blacks and whites. Many of the same trends are also evident when examining other minority groups separately. For example, when examining segregation between Hispanics and whites, even the levels are similar to the levels of segregation between blacks and whites. However, one notable difference is that Hispanic exposure to whites was much higher than black exposure to whites at the beginning of the time period I study, although it has fallen gradually over time so that now the exposures of Hispanics and blacks to whites are similar. Asian exposure to whites has also declined gradually, but, in contrast to the downward trends in black-white and Hispanic-white dissimilarity, Asian-white dissimilarity has fluctuated over time. Asian-white dissimilarity

increased until 1976 and has generally declined since then, although the decline has not been monotonic.

A few additional points about the data are in order. First, I exclude Alaska and Hawaii from the analysis because these states do not appear in the data I employ until 1976. However, the main results are not sensitive to the exclusion or inclusion of colleges in these states.³ Second, I focus on four-year colleges. But although not shown here, many of the trends with two-year colleges are similar. One difference, though, is that black-white dissimilarity fluctuates more across two-year colleges than across four-year colleges, even though in both cases the general trend is toward less segregation. Third, although again the results are not shown here, the same general trends in segregation are seen when limiting the data to a balanced panel of universities that appear in the data set in each year. However, entry and exit of colleges may be an important channel through which changes in segregation occur, which is why the results shown in this paper include the full sample available in each year. Fourth, due to the nature of the data, my calculations of segregation by region are based on region of college attendance rather than region of residence. However, most students attend college in their home census region. For example, according to my calculations from the 2008 IPEDS Residence and Migration survey, 87.3% of four-year college students in 2008 attended a college in their home region.⁴ It is also worth noting that, to the extent that college students live near their college after they exit, studying college racial segregation by the census region of college attendance may provide some information about later residential segregation or segregation of friendship groups.

³ On the other hand, I keep data from West Virginia even though data from that state are missing in 1970. But again, the main results are not sensitive to this decision.

⁴ The data do not permit breaking this figure down by race.

To help put the later results on segregation in context, Figure 1 shows how the racial composition of colleges overall has evolved over time. The figure reveals that colleges in the U.S. have become less white and more black over time. The figure also shows that representation of other racial groups was limited until recently. Although not shown here, analysis of data from the October Current Population Survey education supplements from 1968 to 2010 suggests that the rising ratio of blacks to whites in four-year colleges comes about at least in part because of a rising ratio of blacks to whites in the college-aged population. Trends in the black-white relative four-year college attendance rate are more difficult to discern with the CPS data, although blacks in recent years do seem to be attending college at a relatively higher rate compared to whites than they did in the earlier years.

B. Exposure

One way of conceptualizing segregation is as isolation, which can lead to methods of measuring segregation based on exposure indexes. The principle is to measure how much contact students may potentially have with members of various races. I begin by showing the extent to which whites are attending college with blacks by using the index of white exposure to blacks. Suppose there are N colleges; that there are W white students overall; and that college i enrolls w_i white students, b_i black students, h_i Hispanic students, a_i Asian students, and n_i Native American students. Then the exposure index of whites to blacks is defined as

$$100 \times \frac{1}{W} \sum_{i=1}^N w_i \frac{b_i}{w_i + b_i + h_i + a_i + n_i}. \text{ This measures the percentage of students at the average}$$

white student's university who are black. Lower values of this index correspond to higher levels of segregation.

Figure 2 shows that white exposure to blacks has been rising almost continuously over time.⁵ In 1968, the typical white student attended a college that was 2.3% black. By 2009, this had risen to 9.8%. This increase may be partly attributed to the rising share of blacks amongst four-year college students seen in Figure 1. Black representation overall rose from 5.5% to 13.7% over this period. However, the magnitude of the increase in exposure in proportional terms is much larger than the increase in black composition overall, which suggests that changes in choices of which colleges to attend may also be partly responsible for the increase in exposure. Figure 2 also reveals that at one time whites were more exposed to blacks at public universities but now are at private universities. Table 1 shows that the states with the lowest exposure of whites to blacks in both 1968 and 2009 were Western states with low black populations. There have, however, been some changes in the states with the greatest exposure of blacks to whites. In 1968 these tended to be Midwestern states such as Michigan and Illinois, whereas in 2009 they were Southern states with large black populations such as Mississippi and Georgia. It is also worth noting that exposure of whites to blacks increased dramatically at the higher end. The highest value in 1968 was 6.0% in the District of Columbia, whereas the highest value in 2009 was Mississippi's 24.6%. Figure 3 further explores regional differences. Exposure of whites to blacks has risen in each census region. The increase has been particularly large in the South, although in recent years there has been a spike in white exposure to blacks in the West.⁶

It is also useful to measure the extent to which blacks attend college with whites by using the index of black exposure to whites. Using the same notation as before and letting B refer to

⁵ Although not shown here, the results are similar when calculating the denominator as simply $w_i + b_i$.

⁶ This large increase in the West in recent years is in large part due to the University of Phoenix. If this institution is dropped from the analysis, the increase in white exposure to blacks in the West in recent years becomes less dramatic and Arizona is no longer one of the states with the highest exposure of whites to blacks. However, the other results in the paper are substantively the same.

the total number of black college students, this is defined as $100 \times \frac{1}{B} \sum_{i=1}^N b_i \frac{w_i}{w_i + b_i + h_i + a_i + n_i}$.

This measures the percentage of white students at the average black student's college. The index of black exposure to whites need not reveal the same trends in segregation as the index of white exposure to blacks if, as is actually the case, the racial composition of the overall pool of students is changing over time.

Figure 4 shows that black exposure to whites increased sharply in the late 1960s and early 1970s but has fluctuated since then.⁷ In 1968, the typical black student attended a college that was 38.6% white. By 1972, this had risen to 51.2%. In 2009, this figure stood at 49.2%. The figure also reveals that blacks have greater exposure to whites at public universities, although the trends over time are similar between publics and privates. Table 2 shows which states had the higher and lowest black exposure to whites in 1968 and 2009. In both years, Western and New England states with large white populations were the ones with the highest exposure of blacks to whites. Southern states are heavily represented amongst those with the lowest exposure in both years. However, the table also shows that there was a large increase in exposure at the lower end between 1968 and 2009. For example, only 3.9% of students at the college of the average black student in Mississippi were white in 1968, but this had risen to 35.7% by 2009. Figure 5 shows trends by census region over time. The most striking result here is the regional convergence. The South had much lower exposure of blacks to whites than the other regions in 1968, but exposure of blacks to whites there has risen over time. There was an especially large increase in the 1970s. Meanwhile, exposure of blacks to whites has fallen in the other regions. This falling exposure is surely in large part due to the declining white representation overall observed in Figure 1, but it is also worth noting that it comes at a time

⁷ Although not shown here, the results are again similar when calculating the denominator as simply $w_i + b_i$.

when inequality in the labor market, for example, is generally rising (Autor, Katz, and Kearney 2008).

C. Dissimilarity

Changes in exposure come about through both changes in the overall representation of the various racial groups and changes in how evenly those groups are distributed across colleges. It may be useful to isolate the changes in how evenly students of different racial groups are distributed across different colleges in a way that is not sensitive to the overall sizes of the groups. One way to do so is with the black-white dissimilarity index, which is defined as

$100 \times \frac{1}{2} \sum_{i=1}^N \left| \frac{b_i}{B} - \frac{w_i}{W} \right|$. This measures the percentage of members of one racial group who would need to switch colleges in order for all colleges to have the same ratio of white to black students as one another. Higher values of the dissimilarity index correspond to greater segregation.

Figure 6 reveals that black-white dissimilarity fell sharply in the late 1960s and early 1970s and has fallen gradually since then. In 1968, 63.9% of whites (or 63.9% of blacks) would have needed to move to a different university in order for all universities to have the same ratio of white to black students as one another. This figure had dropped to 52.5% by 1972 and to 48.0% by 2009. Figure 6 also reveals that the private sector is more segregated than the public sector when segregation is measured by the black-white dissimilarity index. A similarity between Figures 2, 4, and 6 is the large decline in segregation between 1968 and 1972. To put the magnitudes of the black-white dissimilarity index in higher education in perspective, Rivkin and Welch (2006) report that the black-white dissimilarity index in elementary and secondary schools in the United States was 81.2% in 1968 and 68.7% in 2000. Thus, the higher education sector is less segregated than the K-12 sector when measured by black-white dissimilarity. In

fact, K-12 schools were more segregated in 2000 than colleges and universities were in 1968. However, one point to keep in mind when comparing segregation at the college level to segregation at the elementary and secondary level is that college attendance is not compulsory, and so the results do not necessarily measure the extent of segregation experienced by all individuals of college age in their daily lives. Furthermore, if college attendance rates change, the results may be sensitive to the type of college attended by the marginal student. But despite this caveat, the results should still be valid as a measure of segregation amongst those students who are enrolled in college.

Table 3 shows which states were the most and least segregated according to the black-white dissimilarity index in 1968 and 2009. The states with the lowest dissimilarity indexes tend to be Western states, especially in 2009 but also to a lesser extent in 1968. The list of the most segregated states in 1968 includes Deep South states like Georgia, Alabama, and Mississippi. In 2009, these states are missing from the list, but the list includes the border states Maryland and Delaware, as well as the District of Columbia. It is also noteworthy that the most segregated states in 2009 were much less segregated than the most segregated states in 1968. For example, in Virginia in 1968, nearly 97% of students of one race would have needed to switch colleges in order for all colleges to have the same ratio of white to black students as one another. North Carolina appears in the same slot in both lists, but the dissimilarity index had fallen by slightly over 34 percentage points between 1968 and 2009.

Figure 7 shows trends by region over time. This figure clearly demonstrates regional convergence. Segregation has fallen dramatically over time in the South, and it has increased in the other regions. But despite this regional convergence and dramatic decline in segregation in the South, colleges in the South have consistently remained more segregated than those in any

other region when measured by dissimilarity or by black exposure to whites. This is in contrast to the case of K-12 schools, in which, at least from 1972 to 2000, schools in the South were actually less segregated than those in other regions (Clotfelter 2004, Table 2.1; Rivkin and Welch 2006, Table 4).⁸ A simple explanation for the lower K-12 segregation but higher college segregation in the South is that it may be more difficult to desegregate colleges than elementary and secondary schools. For example, college attendance is not compulsory, and students generally have more choice of which college to attend than which high school to attend. It is more common to move away for college than it is for high school, and the private sector, which is less subject to government oversight than the public sector, is larger for colleges than for K-12. Although parents choose elementary and secondary schools through residential location choices, there is no analog of “forced busing” or “attendance zones” in higher education. This high level of choice in higher education may facilitate racial segregation at the college level. On the other hand, since colleges generally have wider catchment areas than elementary and secondary school districts, college desegregation policy is not limited by residential segregation to the extent that elementary and secondary desegregation policy is.

Figure 8 gives evidence of the decline in segregation in South over a longer time period by using data on Southern public universities going back to 1960. The pre-1968 data consist of information from a *Chronicle of Higher Education* article that published results from an Office for Civil Rights survey on the racial compositions of colleges enrolling 500 students or more in 1967, as well as reports from the Southern Education Reporting Service (SERS) on the racial compositions of public universities in the South from 1960-1966 (Southern Education Reporting

⁸ Additionally, when compared to the results for elementary and secondary schools presented by Rivkin and Welch (2006), elementary and secondary schools in the South show a similar level of segregation to colleges and universities in that region over the years. In other regions, however, K-12 schools are more segregated than colleges are.

Service 1961a, 1961b, 1962, 1963-64, 1964-65, 1965-66, 1966-67; *The Chronicle of Higher Education* 1968). Contrary to the case of the other data sources used in this study, there is a fair amount of missing data in the SERS reports. But taking the results at face value, Figure 8 reveals that the decline in black-white dissimilarity in the South is even more dramatic when viewed over a longer period of time. Furthermore, the public university systems in Alabama, Mississippi, and South Carolina were completely segregated at the beginning of the time period I examine, and the university systems in all the Southern states were completely segregated in the beginning part of the twentieth century. Thus, extrapolating the results in Figure 8 back in time would make the decline in segregation appear yet more dramatic.⁹

III. Potential Mechanisms

In order to gain a fuller understanding of racial segregation at the college level, this section explores some reasons why and channels through which changes in racial segregation may be occurring. Doing this may provide insight into other consequences that come along with changes in segregation levels, and it may shed light on which policies may be able to reduce segregation.

A. Declining Share of Black Students Attending Historically Black Colleges and Universities

One channel through which the decline in racial segregation over time is occurring is the large decline in the share of black college students who are attending historically black colleges and universities (HBCUs). HBCUs are higher education institutions that were created prior to

⁹ However, one caveat is that, as Wallenstein (2009) points out, blacks attended the University of South Carolina as undergraduates during Reconstruction, so references to “the first black student to attend a white university in the South” often actually refer to the first student to do so in the twentieth century. Furthermore, the University of Alabama had briefly enrolled a black student in 1956, but public institutions in Alabama were completely segregated again after that.

1964 with the goal of educating black Americans, and the vast majority of them are located in the South. Private HBCUs were primarily founded in the latter half of the nineteenth century by Northern missionaries and philanthropists, and many of the public HBCUs are the consequence of the 1890 Second Morrill Act, which prohibited federal land grant funding from going to states that operated universities intended for students of one race unless they also operated universities for students of other races. Over 100 HBCUs still exist today, the large majority of which are four-year institutions.

Figure 9 shows that as recently as 1970 over half of black college students enrolled in a four-year college were enrolled in an HBCU. That share is now down to less than 20%. Meanwhile, although whites are eligible to attend HBCUs, Figure 9 shows that a very small fraction of white college students choose to do so. Figure 10 reveals that, whereas non-HBCUs enroll a mix of racial groups, HBCUs continue to have a largely black student body. This figure may even give the impression that there are more whites at the typical HBCU than there actually are, since a large share of the white HBCU attendance is concentrated at a small number of HBCUs that have large white representations. Two HBCUs in West Virginia, Bluefield State College and West Virginia State University, were 83.9% and 78.5% white in 2009. Lincoln University in Missouri was over half white at one point and was 42.8% white in 2009. These three institutions combined enrolled 36.3% of the whites enrolled at HBCUs in 2009. On the opposite extreme are institutions such as Lane College, a private HBCU in Tennessee that was 99.9% black in 2009 and enrolled no whites, and Spelman College, which was 99.7% black in 2009 and enrolled two whites. The median HBCU in 2009 was 97.1% black. Because HBCUs have a predominantly black enrollment and non-HBCUs do not, as seen in Figure 10, the shift in black enrollment from HBCUs to non-HBCUs observed in Figure 9 would presumably decrease

measured segregation. Additional evidence that HBCUs are a part of the story for declining segregation comes from Figure 11, which shows that black-white dissimilarity within non-HBCUs has actually been rising over time.

However, the effect of HBCUs on segregation levels is just one factor that should be taken into account when evaluating the merits of HBCUs.¹⁰ For example, it is well known that HBCUs have a long history of being a training ground for black leaders. They may provide a welcoming atmosphere for black students and remedial education opportunities for underprepared students. Mykerezi and Mills (2008) find that HBCUs led to higher wage growth for black males using the 1979 National Longitudinal Survey of Youth. Fryer and Greenstone (2010) find that the returns to attending an HBCU were positive in the 1970s, but they do find that the returns were negative in the 1990s.

Fryer and Greenstone's findings may be useful in explaining the declining HBCU attendance seen in Figure 9, or vice versa. On the one hand, the lower return to attending an HBCU may cause an enrollment shift away from HBCUs and toward non-HBCUs. On the other hand, the lower return may be a consequence of the enrollment shift if, for example, lower enrollments made HBCUs less efficient or if high-ability black students (or faculty) left HBCUs for non-HBCUs and left the remaining students in a lesser position to benefit from peer effects. A third possibility, however, is that declining black HBCU enrollment is somewhat mechanical. The number of HBCUs presumably will not increase over time, since they are carryovers of an earlier era when Southern states operated dual systems of higher education and higher education opportunities for blacks were extremely limited. In fact, federal legislation *defines* HBCUs as having existed prior to 1964. Thus, under this definition, any increase in HBCU enrollment

¹⁰ In addition, to the extent that HBCUs are drawing in students who would not attend college otherwise, it is not clear that it should be cause for concern that HBCUs are increasing racial segregation amongst those who are enrolled in college.

would need to come about through increases in enrollment at existing HBCUs rather than through entry of new HBCUs. To the extent that the existing HBCUs have limited capacity to expand, it is natural that a smaller share of black college students will be attending HBCUs over time as the number of black college students rises. In fact, in results not shown here, I find that the count of black students enrolled at HBCUs has actually risen over time but that this increase has not been as large as the increase in the number of black college students overall.

B. Affirmative Action Bans

Another factor that may be affecting segregation levels in recent years is statewide affirmative action bans. Affirmative action went into widespread use at American colleges and universities in the 1960s and 1970s in an effort to raise minority enrollment (Bowen and Bok 1998, Ch. 1; Stulberg and Chen 2011). However, in recent years, several states have decided to discontinue affirmative action in admissions to public universities statewide. This has come through direct decisions of voters in Arizona, California, Michigan, Nebraska, and Washington state; executive order in Florida; the legislature in New Hampshire; and, for a time, a federal court ruling in Texas. There is a growing body of research on the effects of affirmative action bans on enrollment, and the usual finding is that they reduce minority enrollment at selective colleges (Arcidiacono 2005, Arcidiacono et al. 2011, Hinrichs 2012b, Howell 2010, Long 2004). However, the effects of affirmative action bans on racial segregation have not yet been directly studied.

One might imagine that because they have a negative effect on minority enrollment at elite colleges that affirmative action bans will result in increases in segregation. In order to test this empirically, I use a panel of U.S. states for 1995-2003 to estimate the effects of having a

statewide affirmative action ban on the various segregation indexes. This is a time period that has been studied in prior research, as several states had affirmative action bans go into effect for undergraduates in the middle of this time period: California in 1998, Florida in 2001, Texas in 1997, and Washington state in 1999.¹¹ I estimate models of the following form:

$$segregation_{st} = ban_{st}\alpha + \mu_s + \delta_t + \eta_s t + \varepsilon_{st}.$$

Here $segregation_{st}$ is a segregation index for state s in year t , ban_{st} is a dummy variable for whether state s has an affirmative action ban in effect in year t , μ_s refers to a full set of state dummies, δ_t refers to a full set of time dummies, $\eta_s t$ denotes a full set of state-specific linear time trends, ε_{st} is the error term, and α is the parameter of interest. Table 4 shows the coefficients on the treatment variable in these regressions, as well as standard errors that are robust to clustering at the state level. The results suggest that statewide affirmative action bans may actually be *reducing* racial segregation in higher education. For example, the table suggests that, at public universities, an affirmative action ban is associated with an increase in black exposure to whites of 1.45 percentage points and a decrease in dissimilarity of 1.66 percentage points. Two results from recent research papers may provide an explanation for this apparently counterintuitive finding. First, Arcidiacono, Khan, and Vigdor (2011) show that there is a U-shaped relationship across colleges between average SAT score and percent black, with the minimum black share coming at an SAT score of 1090 out of 1600. Second, research on the enrollment effects of affirmative action bans, including Hinrichs (2012b), finds that affirmative action bans redistribute blacks from the most selective colleges to slightly less selective ones. In

¹¹ Several other states that were in jurisdictions where important affirmative action litigation was going on but that did not have outright bans are dropped from the regressions: Alabama, Georgia, Louisiana, Michigan, and Mississippi.

light of these two results, it is plausible that an affirmative action ban could decrease measured racial segregation.

However, even if affirmative action bans actually do reduce racial segregation in higher education, this is only one a variety of considerations that should be taken into account when evaluating the desirability of affirmative action as a policy. Other important issues include the effects of affirmative action on minority enrollment (Arcidiacono 2005, Arcidiacono et al. 2011, Hinrichs 2012b, Howell 2010, Long 2004), pre-college human capital investment (Hickman 2010), longer-run outcomes such as educational attainment and earnings (Arcidiacono 2005, Arcidiacono et al. 2011, Hinrichs 2012a), and cross-racial interaction (Arcidiacono, Khan, and Vigdor 2011); the effects of cross-racial interaction on attitudes and on friendship groups (Boisjoly et al. 2006; Baker, Mayer, and Puller 2011; Camargo, Stinebrickner, and Stinebrickner 2010); and the effects of overall college racial diversity on earnings and other outcomes (Arcidiacono and Vigdor 2010; Daniel, Black, and Smith 2001; Hinrichs 2011).¹²

C. College Desegregation Policy

An additional factor that may affect segregation levels is college desegregation policy. After the color barrier was broken in each of the Southern states and after the Civil Rights Act of 1964 was passed, Southern states that had previously operated dual systems eventually found themselves under the scrutiny of the federal government to further desegregate. College desegregation has been a long process that has involved much back and forth between federal courts, the states, the Office for Civil Rights, and outside organizations such as the NAACP

¹² Additional areas of research that are relevant to the affirmative action debate include research on college quality (Black and Smith 2004, 2006; Dale and Krueger 2002, 2011; Hoekstra 2009; Long 2008, 2010) and the more general body of research on peer effects in college (Foster 2006; Sacerdote 2001; Stinebrickner and Stinebrickner 2006; Zimmerman 2003).

Legal Defense and Educational Fund. A number of states were eventually subject to oversight by the Office for Civil Rights.¹³ Other states, such as Alabama, Louisiana, Mississippi, and Tennessee, were subject to separate litigation in the courts. Mississippi's higher education desegregation case, *United States v. Fordice*, reached the Supreme Court in 1992. The issue of college desegregation policy is also one of contemporary interest because there are several states whose higher education systems have not yet been declared desegregated by the Office for Civil Rights, and there is an ongoing college desegregation case in Maryland that went to trial in a federal court in January 2012.

As a result of college desegregation litigation, various states in various years have been required to submit desegregation plans. College desegregation policy has, amongst other things, attempted to increase funding for HBCUs, place high-demand academic programs at HBCUs, reduce program duplication between HBCUs and nearby non-HBCUs, and improve the experience of black students at non-HBCUs. College desegregation policy may have the potential to reduce racial segregation by attracting whites to HBCUs and by attracting blacks to non-HBCUs. Research on K-12 desegregation (e.g., Reber 2005) has found that desegregation policy has reduced segregation levels. However, because of the differences between colleges and elementary and secondary schools mentioned earlier, college desegregation may be either more or less difficult than elementary and secondary desegregation. Unlike the case of K-12, there is very little direct evidence on the effects of college desegregation plans. However, some commentators (e.g., Williams 1997) are skeptical about the efficacy of college desegregation policy as implemented. College desegregation policy is a subject of ongoing research.

¹³ The college desegregation litigation involving the largest number of states was originally known as *Adams v. Richardson*, although the name of the main defendant varied over time depending on the name of the sitting Secretary of Health, Education, and Welfare or Secretary of Education.

IV. Segregation within Colleges

Even if blacks and whites are attending the same colleges as one another, this does not mean that they are taking the same courses, participating in the same activities outside of the classroom, living near each other, or that they are friends with one another. Segregation across courses, extracurricular activities, residential location, and friendship groups within colleges may be just as important as or more important than segregation across colleges.

Data for studying segregation across the entire country at a finer level than the college level are limited, but I attempt to shed some light on the issue by measuring segregation in earned degrees across all major \times university combinations using data from the 2010 IPEDS Completions survey. This data set provides university-level information on the number of students of each race who received a bachelor's degree by two-digit, four-digit, and six-digit Classification of Instructional Programs (CIP) major codes. To give an example of these major codes, the six-digit code 450601 is "Economics, General," the four-digit code 4506 combines "Economics, General" with related categories like "Econometrics and Quantitative Economics" and "International Economics," and the two-digit code 45 combines the various economics majors with majors in other social sciences such as political science and sociology. This data set provides some information about the extent to which students are in the same classroom with students of a different race and possibly about the extent to which members of different racial groups are interacting with one another, but there are also several limitations to using these data to study segregation at the college level. First, since not every college student goes on to graduate, there are many students who attended college but are not included in the data. Second, major choice is only one measure of interaction. Course selection within the major, extracurricular activities, living groups, and friendship groups may be important as well. But

even though the data are not ideal and the evidence is admittedly limited, the results should still be valid as measures of segregation across majors amongst college graduates.

The results using the within-college data are presented in Table 5. The first column aggregates the major data up to the university level to look at segregation across colleges just for those who graduated. The results in this column are somewhat similar to those presented in Figures 2, 4, and 6 for segregation across colleges for all enrolled students in recent years. However, the results in the first column of Table 5 for college graduates suggest that there is lower white exposure to blacks amongst graduates than amongst all students but less segregation amongst graduates by the other two measures. As the table moves across columns, it measures segregation across smaller units. Students would presumably have more interaction in the classroom with those at their university with whom they share the same six-digit major code than they would with the average student at the university, and they would presumably also have more interaction with those at their university with whom they share a two-digit or four-digit major code than they would with those with whom they only share a six-digit major code. Interestingly, when moving across columns from the university level to eventually the two-digit major level at the university, the results do not change a great deal. For example, 7.7% of the graduates at the typical white graduate's university are black, and 7.0% of the graduates at the typical white graduate's university sharing the same six-digit major code are black. This suggests that, although there is segregation within colleges, much of the segregation observed in higher education is segregation across colleges rather than segregation within colleges across majors.

V. Conclusion

The results of this paper suggest that, by several different measures, segregation at the college level has declined over the years. Black-white dissimilarity has fallen, whites have been increasingly exposed to blacks, and black exposure to whites is higher than it was in 1970 even though it has fluctuated since then. The trend of blacks attending HBCUs at a lower rate may be decreasing segregation, and so may affirmative action bans. On the other hand, black-white dissimilarity has risen in non-HBCUs and, although not shown in this paper, black exposure to whites has fallen as well. Further, in three of four census regions, black exposure to whites has fallen and black-white dissimilarity has risen. Additionally, based on the results of this paper, substantially increasing the amount of interaction between blacks and whites in the classroom would seem to necessitate students attending different colleges rather than changing students' choices of field of study within colleges. When viewed as a whole, the results of this paper may suggest some successes but also some cause for concern for those who are concerned about racial segregation in higher education.

This paper represents a step toward understanding racial segregation at the college level by documenting how it has evolved over time and considering some factors that affect it. A useful avenue for future research would be to estimate the impact of higher education segregation on social networks, job networks, housing patterns, educational outcomes, earnings, income inequality, and other outcomes. It may also be fruitful to study the effects on segregation of other factors, such as the integration of the higher education market in the United States described by Hoxby (2009). It is also worth noting that policies and events that coincide with declining segregation, including falling enrollment at HBCUs and affirmative action bans, may come along with other costs or benefits. Understanding these costs and benefits would be useful as well. There are many difficult issues involved in making policies related to issues of race in

higher education; but the effects of policies on segregation levels and other outcomes, as well as the effects of segregation, are factors that should be taken into account when thinking about which policies to enact.

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Figure 1: Racial Composition of Colleges

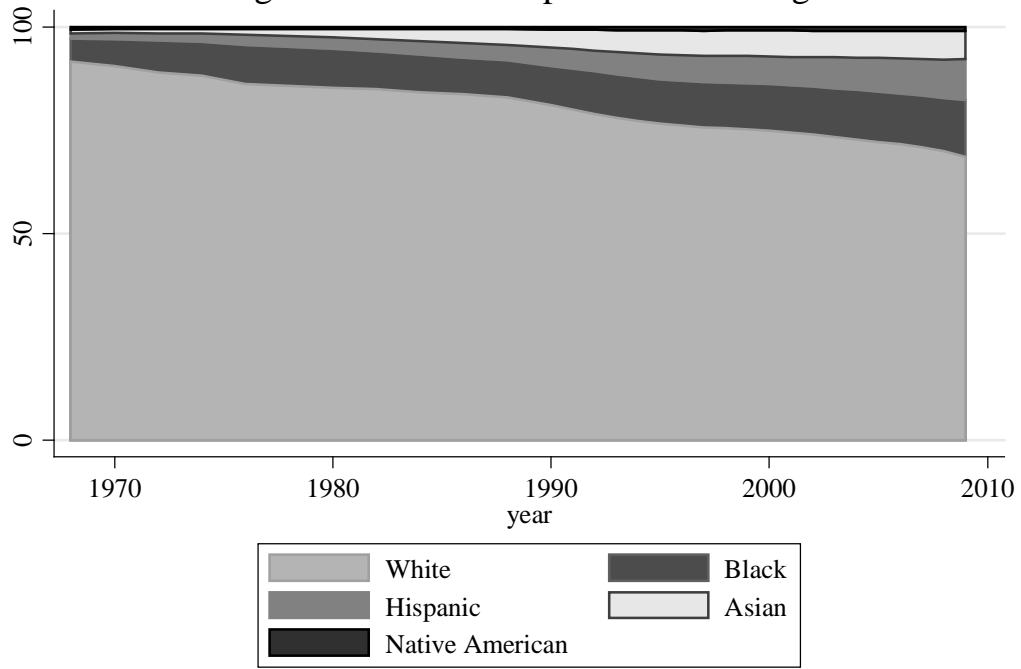


Figure 2: White Exposure to Blacks

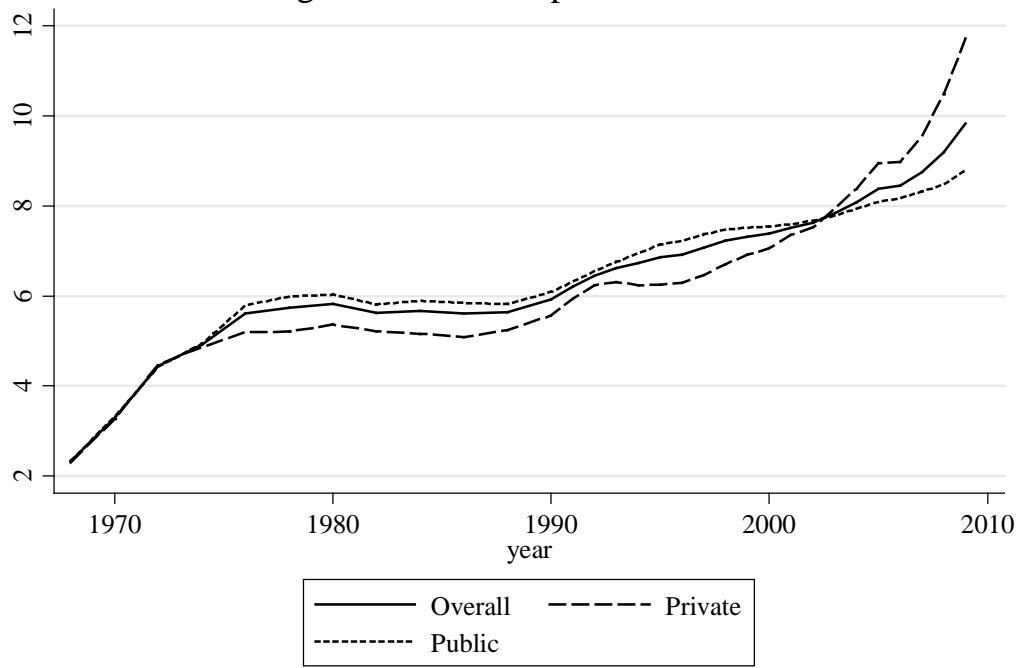


Figure 3: White Exposure to Blacks by Census Region

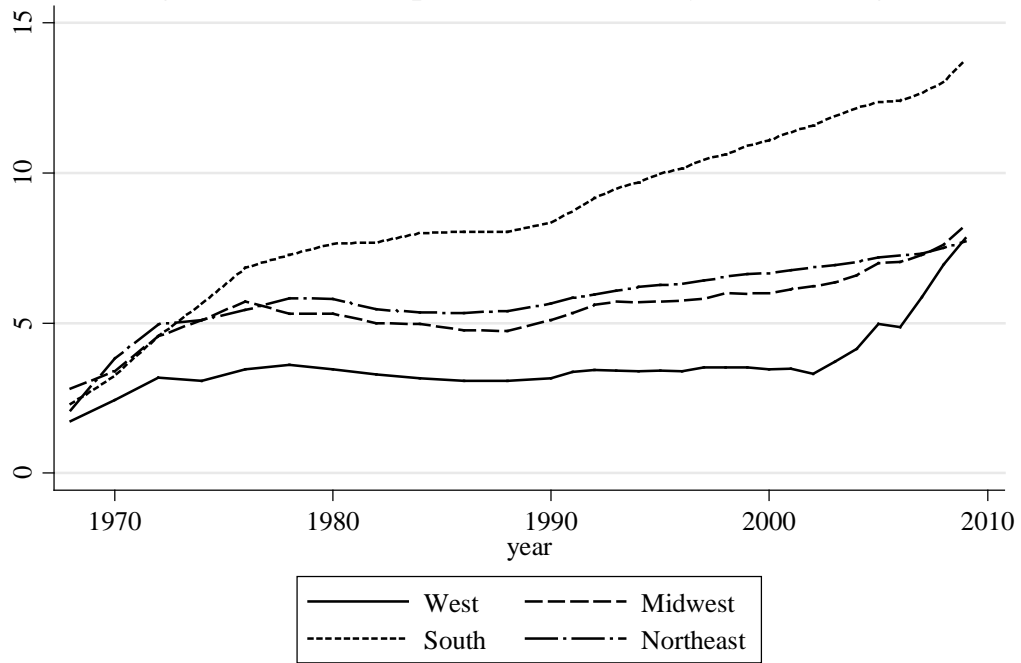


Figure 4: Black Exposure to Whites

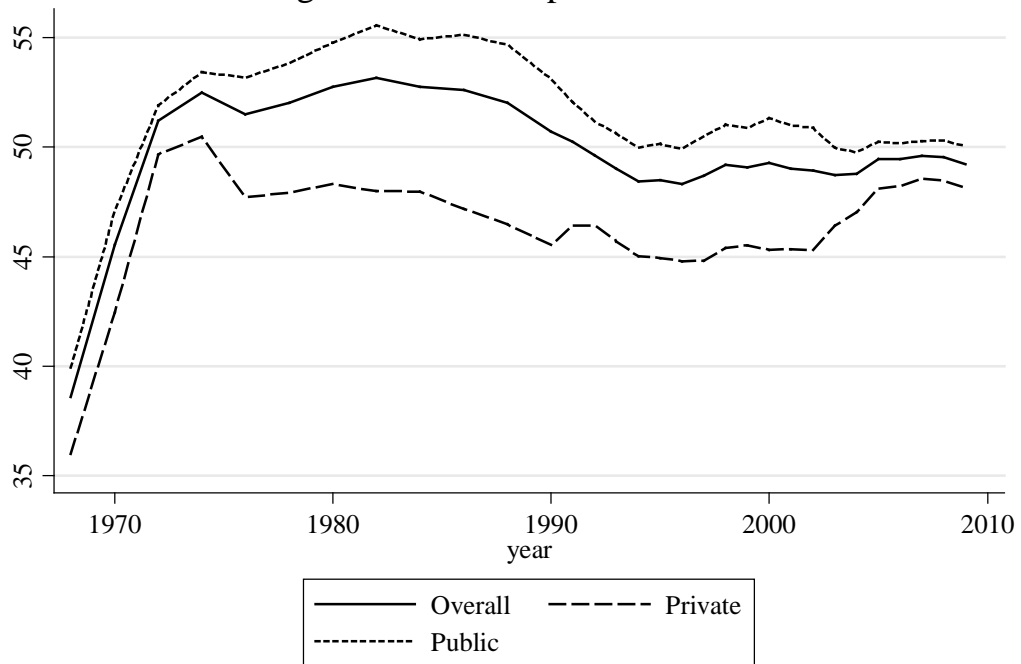


Figure 5: Black Exposure to Whites by Census Region

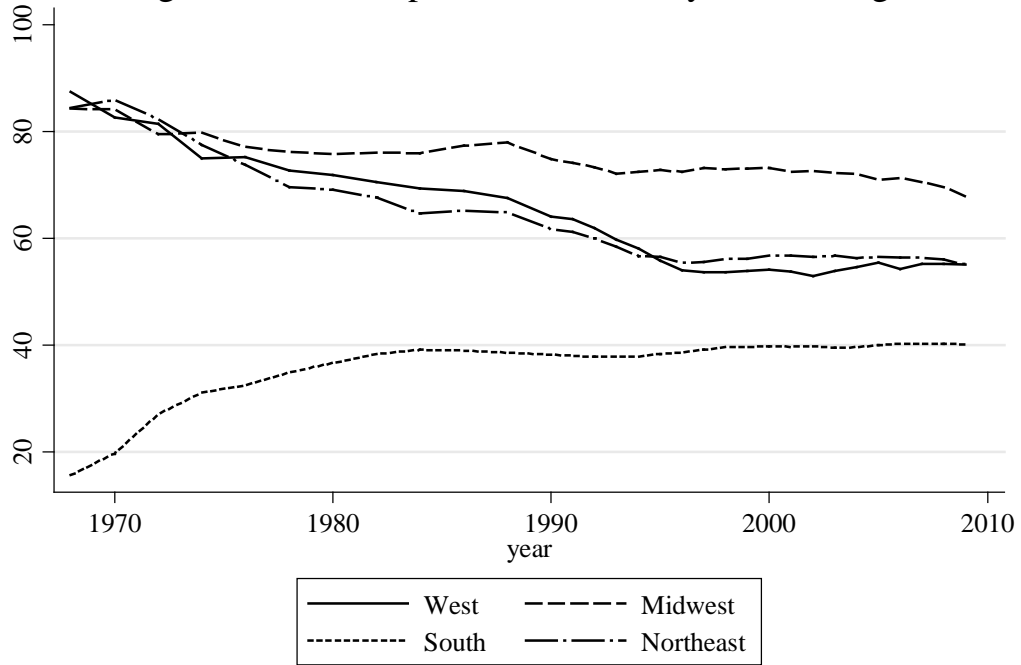


Figure 6: Black-White Dissimilarity

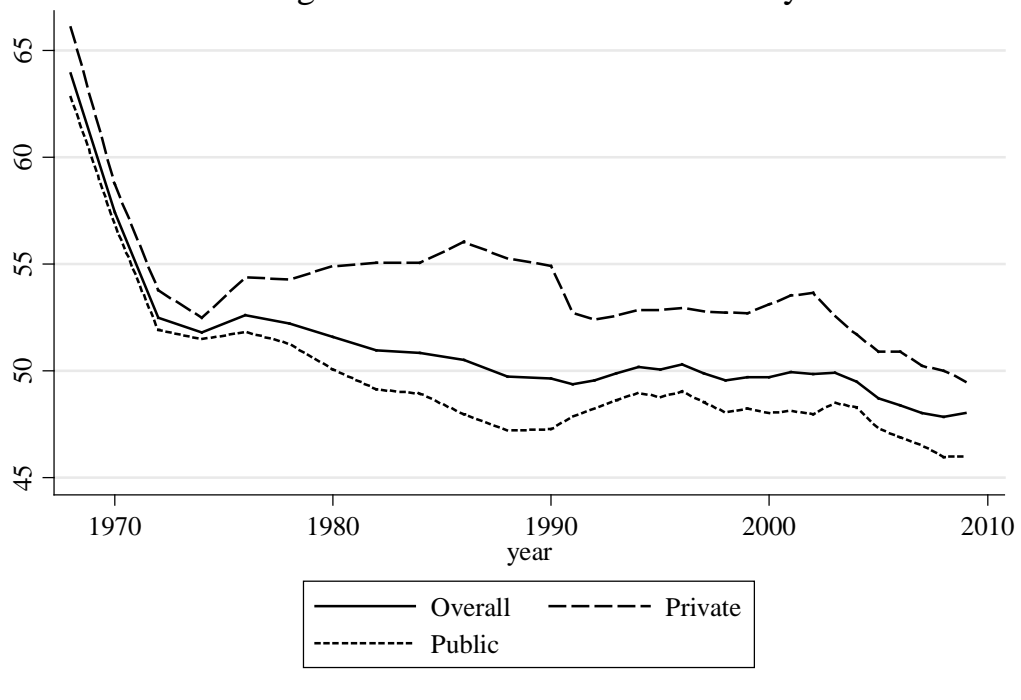


Figure 7: Black-White Dissimilarity by Census Region

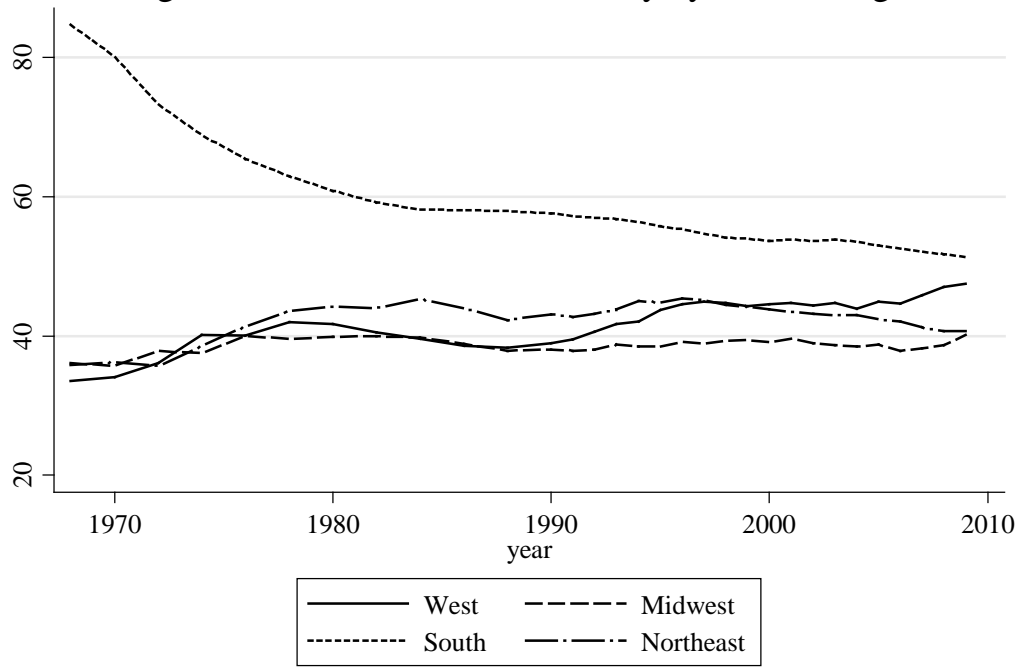
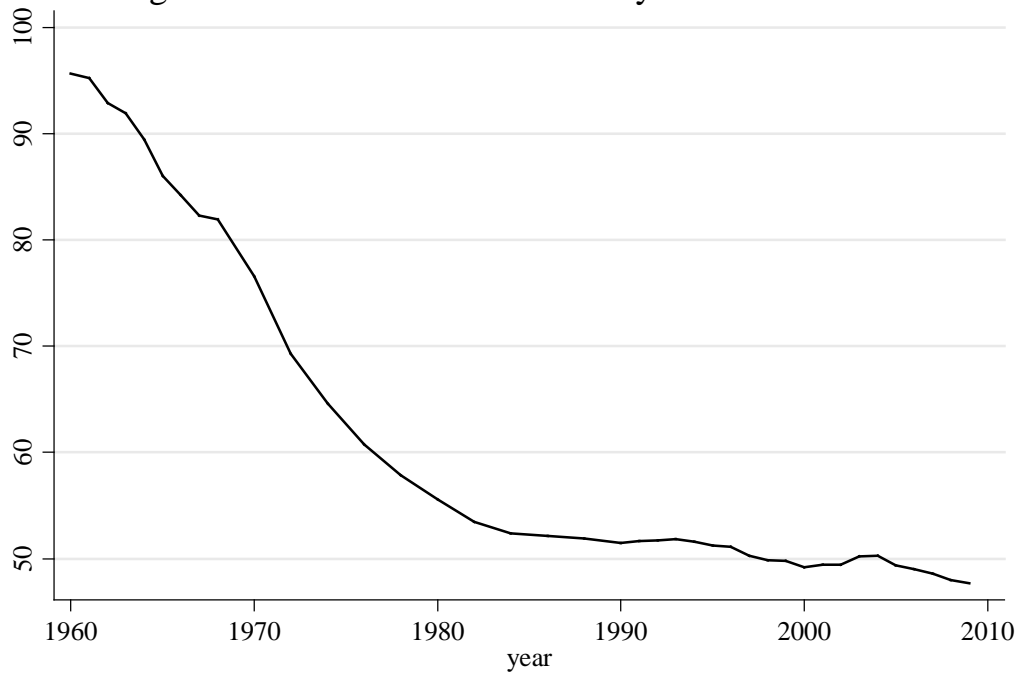


Figure 8: Black-White Dissimilarity in Southern Publics



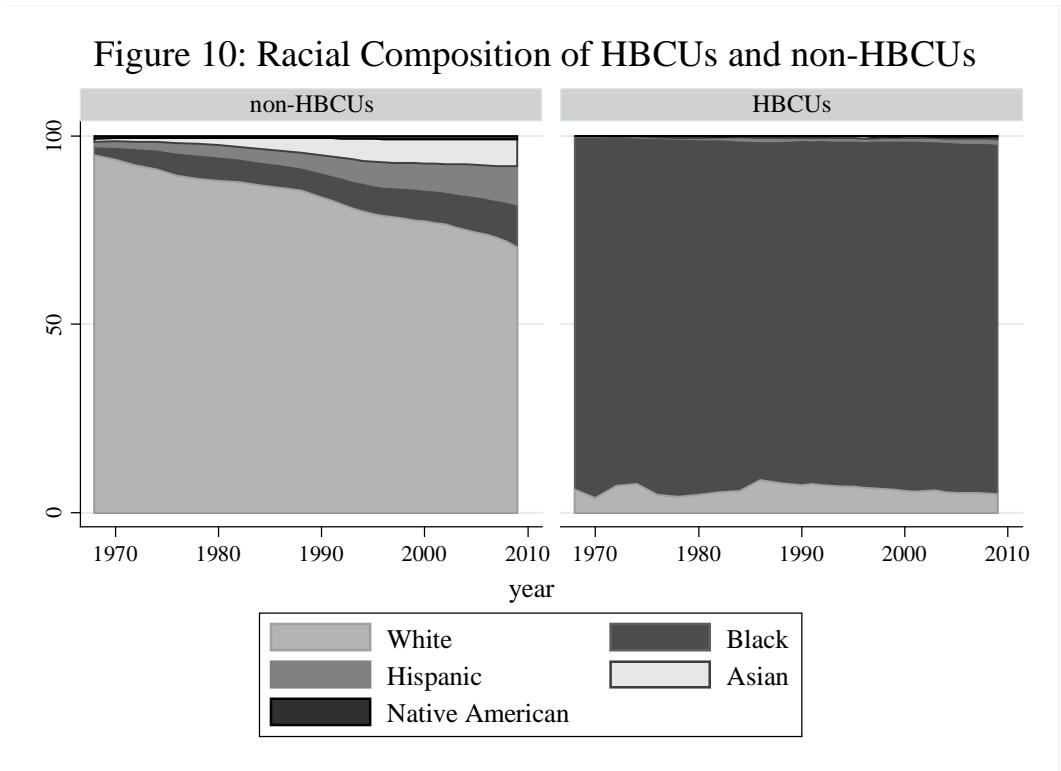
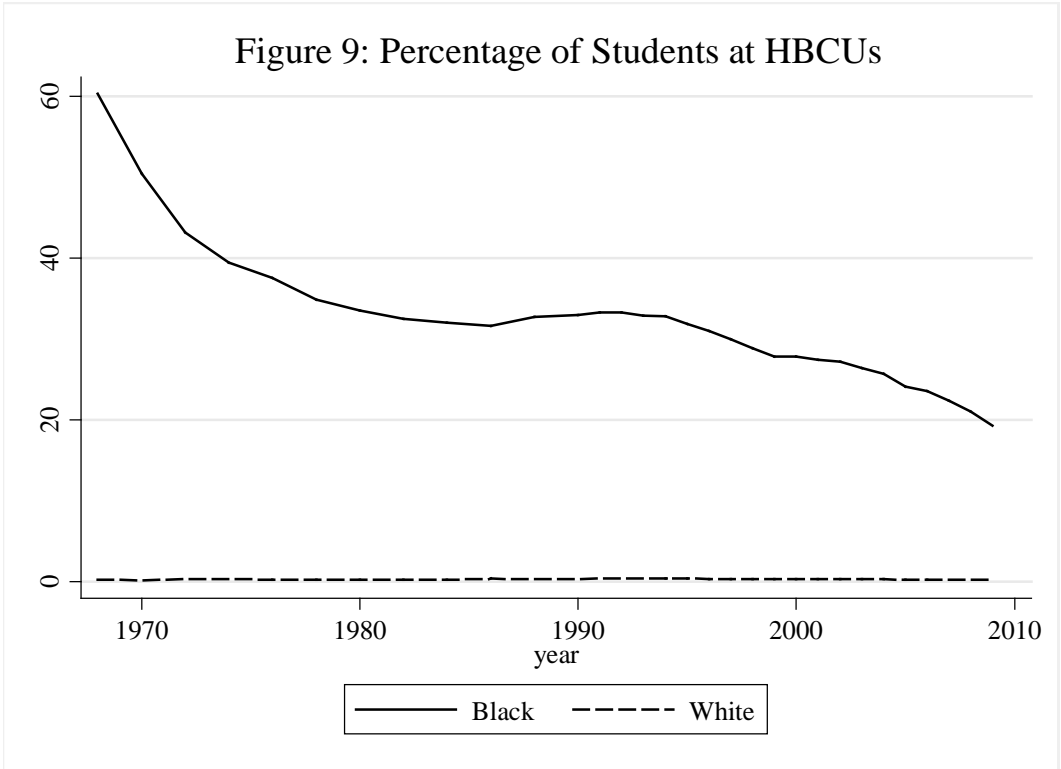


Figure 11: Black-White Dissimilarity in non-HBCUs

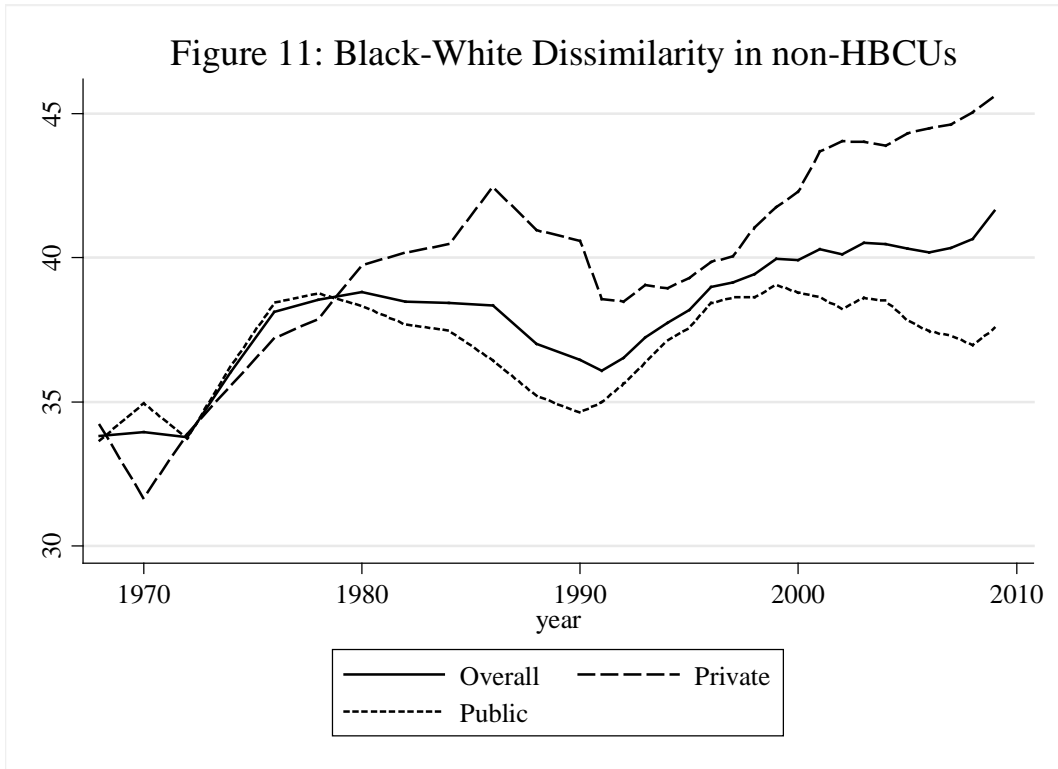


Table 1: Highest and Lowest White Exposure to Blacks in 1968 and 2009

1968		2009	
1 DC	6.0	1 Mississippi	24.6
2 Illinois	4.3	2 Georgia	19.5
3 Michigan	4.1	3 Alabama	19.3
4 Louisiana	3.8	4 Arizona	18.7
5 Missouri	3.2	5 Louisiana	17.3
45 Idaho	0.5	45 Utah	2.0
46 Montana	0.4	46 South Dakota	1.5
47 South Dakota	0.4	47 Wyoming	1.4
48 Utah	0.4	48 Idaho	1.3
49 North Dakota	0.3	49 Montana	0.8

Table 2: Highest and Lowest Black Exposure to Whites in 1968 and 2009

1968		2009	
1 Wyoming	98.0	1 South Dakota	92.0
2 Idaho	97.6	2 North Dakota	91.5
3 North Dakota	97.5	3 Vermont	89.6
4 Maine	97.1	4 Montana	88.3
5 New Hampshire	97.0	5 Wyoming	87.9
45 Georgia	8.3	45 California	37.1
46 North Carolina	7.6	46 Mississippi	35.7
47 Alabama	7.4	47 North Carolina	34.9
48 Mississippi	3.9	48 Maryland	30.9
49 Virginia	3.9	49 DC	22.0

Table 3: Lowest and Highest Black-White Dissimilarity in 1968 and 2009

1968		2009	
1 Wyoming	0.0	1 Wyoming	15.8
2 Arizona	7.9	2 New Mexico	16.3
3 Kansas	17.9	3 North Dakota	19.5
4 Connecticut	21.2	4 Oregon	19.7
5 Indiana	22.3	5 Montana	20.7
45 Georgia	91.7	45 Iowa	55.8
46 North Carolina	92.4	46 North Carolina	58.4
47 Alabama	92.7	47 Maryland	58.9
48 Mississippi	95.9	48 Delaware	60.6
49 Virginia	96.9	49 DC	74.4

Table 4: The Effects of Affirmative Action Bans on Racial Segregation

	W exposure to B		B exposure to W		Dissimilarity	
	Overall	Public	Overall	Public	Overall	Public
Coefficient	0.06	-0.29	1.61	1.45	-1.31	-1.66
(Standard Error)	(0.10)	(0.23)	(0.77)**	(0.79)*	(0.72)*	(0.77)**
N	396	396	396	396	396	396

Notes: The table shows coefficients on the affirmative action ban dummy in regressions of segregation indexes on the affirmative action ban dummy, year fixed effects, and state-specific linear time trends. The data are from 1995-2003. The unit of observation is a state \times year. In addition to Alaska and Hawaii, several states that had important affirmative action litigation but no actual ban (Alabama, Georgia, Louisiana, Michigan, and Mississippi) are dropped. Each column corresponds to a separate regression. Standard errors that are robust to clustering at the state level are in parentheses. A single asterisk denotes statistical significance at the 10% level, and a double asterisk denotes statistical significance at the 5% level.

Table 5: Segregation Across Universities and Majors for 2010 Graduates

<i>Segregation Measure</i>	<i>Level of Observation</i>			
	University	Major × University		
		Two-Digit	Four-Digit	Six-Digit
White Exposure to Blacks	7.7	7.3	7.1	7.0
Black Exposure to Whites	54.5	51.9	50.3	49.9
Black-White Dissimilarity	45.3	51.3	54.6	55.3
N	2,536	28,821	56,437	69,815