The Demography of Higher Education in the Wake of Affirmative Action

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ABSTRACT:

We analyze how Proposition 209 changed the percentage of matriculating students who are African American or Latino at each public, private non-profit and proprietary four-year and two-year college in the state of California. We find that Proposition 209 led to a decline in African American enrollment at public four-year colleges and an increase in African American enrollment at private non-profit and proprietary four-year colleges. Hispanic enrollment at public four-year colleges was essentially unchanged, but growth in Hispanic enrollments after 209 was accommodate by private non-profit and proprietary four-year colleges as well as public community colleges. These marginal shifts mask substantial churning in the individual colleges under-represented minority students attend over time, as both groups experienced a decline in the quality of the four-year public colleges they attend.

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In 1996 California passed Proposition 209, which ended race-conscious affirmative action in public education, contracting, and employment. Nearly ten years after the end of affirmative action in California, we know there has been a decline in enrollment of underrepresented minority students at the most selective UC campuses. What we don't know is how the impacts have been felt in California's less selective four-year institutions, community colleges, or at private institutions in the state.

In this paper we evaluate changes in minority matriculation at California public and private institutions in the wake of affirmative action. We focus on how minority enrollments across institutions shift as a consequence of Proposition 209. Specifically, we investigate the impact of the end of race-based affirmative action in California higher education on minority representation at the state's public four-your institutions. We also examine the degree to which California's community colleges and private colleges and universities may have compensated for the losses in minority enrollment at some of the more selective institutions. For African Americans, we find that minority enrollment in public four-year colleges declined by about one percent, while African American enrollment at private not-for-profit and proprietary institutions increased by 1.2% and 3.5% respectively. For Hispanic students, we find a modest and non-significant decline in enrollment at public four-year colleges accompanied by a 4.7% increase in community college matriculation. The shares of incoming Hispanic students at private not-for-profit and proprietary schools increase by 2.5% and 5.9% respectively. These mean shifts mask changes in minority enrollment patterns across institutions of each type as well as shifts in the average quality of the institution under represented minority students attend.

The paper is organized as follows: Section I provides background on affirmative action in higher education, reviews existing evidence on the impact of affirmative action, and describes the California context in greater detail; in Section II we describe our data and explain our analytic strategy; in Section III we report and discuss our results; Section IV concludes.

I. BACKGROUND AND CONTEXT

1.1 Affirmative Action in Higher Education

Affirmative action as a tool to increase the representation of minorities in higher education came about in the 1960s with the civil rights movement and increased focus on racial inequities in U.S. society (Bowen and Bok 1998; Orfield 2005). In the early days of affirmative action there was an explicit societal goal (similar to that of school desegregation) to remedy past discrimination and expand opportunities to groups that had historically been underrepresented in higher education. However, when past discrimination was not overtly present, colleges and universities applying race in admissions decisions at their own discretion faced increasing resistance from individuals and groups calling for higher admissions standards that are race-blind (Douglass 1999; Orfield 1998).

Legal questions surrounding affirmative action in higher education were temporarily put to rest with Justice Powell's opinion in the 1978 Supreme Court decision, *Regents of the University of California v. Bakke*.[1] The *Bakke* ruling stated that a higher education institution (using their own judgment) could take race into account in admissions for the purpose of achieving a diverse student body, provided it is one among a variety of factors considered. The decision was significant because it effectively legalized a non-remedial goal of affirmative action

[1] *Regents of the University of California v. Bakke*, 438 U.S. 265 (1978).

policies—promoting diversity in higher education, a goal the Supreme Court identified as serving a compelling state interest. The *Bakke* ruling also established that such policies must be "narrowly tailored" to achieve the state's compelling interest in diversity.[2]

How much affirmative action did colleges and universities engage in? Bowen and Bok (1998) contend that only the most competitive colleges and universities exercise affirmative action, however, other findings suggest that a much broader range of schools engage in this practice (Grodsky 2005; Kane 1998; Lerner and Nagai 2001), or at least claimed to do so (Grodsky and Kalogrides 2005). Kane (1998), for example, estimates that 20% of four-year colleges and universities engaged in race-based affirmative action in the 1980s, while Grodsky (2005) and Grodsky and Kalogrides (2005) find that almost half of all baccalaureate granting institutions engaged in race-based affirmative action or reported to do so between the 1970s and the end of the 1990s.

Despite broad acceptance that access to the university should be afforded to underrepresented groups and that diversity is a good thing for society, affirmative action policies were met with increasing doubt, and came under fierce legal attack in the early 1990s. Individuals and several organized groups[3] that viewed any use of race in admissions or employment decisions as reverse discrimination, started taking their complaints to the lower courts, and the diversity rationale under *Bakke* was put to the test. In spite of conflicting lower court decisions[4], the Supreme Court refused to review these cases, the most famous one being

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[2] When race is part of the equation, the court applies a "strict scrutiny" framework under the equal protection clause of the Fourteenth Amendment (Ancheta 2005).

[3] Such groups include the Center for Equal Opportunity and the Center for Individual Rights

[4] See, for example: *Smith v. University of Washington Law School, 392 F3d 367* (9th Cir 2004) *cert. denied,* 126 U.S. 334 (2005) where the Court upheld the Law School's use of race as one of several factors in the admissions process, and *Piscataway v. Taxman,* 91 F.3d 1547 (3d Cir. 1996), *cert. granted,* 117 S. Ct. 2506, *cert. dismissed,* 118 S. Ct. 595 (1997) where the Court held that diversity could not serve to justify a race-based decision in the context of teacher layoffs.

the *Hopwood* decision in the 5th Circuit, which effectively ended affirmative action in Texas, Louisiana, and Mississippi.[5]

During the 1990s, race-conscious policies were fiercely challenged in the political arena as well, and ultimately abandoned in several states. In 1996, California voters passed Proposition 209, which terminated consideration of race in public education, employment and contracting. In 1998, Washington passed a similar state referendum. Initiatives with the same goal have been attempted in several other states, including Michigan, Colorado and Florida (Chávez, 1998). Amidst substantial legal and political uncertainty, selective colleges and universities were rethinking the role of race in admissions decisions (Breland et al. 2002; Grodsky and Kalogrides 2005; Orfield and Miller 2000).

In 2000, the U.S. Supreme Court finally agreed to hear an affirmative action case, granting cert to the companion cases at the University of Michigan (*Gratz v. Bollinger*[6] and *Grutter v. Bollinger*[7]), which challenged race-conscious admissions policies at the undergraduate college and law school respectively. These cases once again tested the diversity rationale established in *Bakke*. In a 5-4 majority opinion, the Supreme Court upheld the basic rational for race-conscious admissions (promoting diversity in higher education), and established that institutions of higher education are entitled to a high degree of deference on academic decisions, including admissions, thereby reaffirming the *Bakke* ruling 25 years earlier (Ancheta 2004).

The Supreme Court rulings in the University of Michigan cases notwithstanding, the legally mandated rollbacks in affirmative action had already occurred in two of the nation's

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[5] In *Hopwood v. Texas*, 78 F.3d 932 (5th Cir.), *cert. denied*, 116 S. Ct. 2580 (1996) the Court asserted that, contrary to Justice Powell's opinion in *Bakke*, diversity does not provide a compelling interest for race-conscious decisions in student admissions.
[6] *Gratz v. Bollinger*, 539 U.S. 244 (2003).
[7] *Grutter v. Bollinger*, 539 U.S. 306 (2003).

largest states—Texas and California. The impact of the *Hopwood* decision in Texas had contributed to alternative race-neutral admissions policies, in particular Texas's Top 10% Plan, which were unlikely to be replaced in favor of race-conscious policies. Moreover, the state of California had already outlawed the use of race in public education several years earlier, the consequences of which was being felt most heavily at the University of California.

1.2 Affirmative Action and the University of California

The University of California is made up of ten campuses that offer undergraduate and graduate education. It is a selective system, targeting admission to only the top 12.5% of the state's high school graduates under California's Master Plan for Higher Education.[8] Students become eligible for the University of California based on a minimum grade-point average on a specified set of high school courses (known as a-g courses) and defined scores on standardized admissions tests (SAT or ACT). Students who meet basic eligibility are guaranteed access to a UC campus, although not necessarily one of the applicant's choice. In fact, a "one university" model dictates enrollment management and admission to UC schools; as campuses reach capacity and become increasingly selective various strategies are employed to redirect UC eligible students to particular campuses with room for growth (Douglass 1999).

The University of California defines eligibility as a "floor of preparation" needed to pursue study at UC (UCOP Report 2003). However, capacity at many campuses is far below the number of UC-eligible applicants, resulting in much more selective criteria by which eligible

[8] The 1960 Master Plan outlines California's higher education structure and defines the specific role of the University of California campuses, the California State University system, and the community colleges in the state. The plan articulates the University of California (UC) as the premiere research center offering graduate training through the PhD and providing undergraduate education for the top 12.5% of the state's graduating high school class; the California State University (CSU) system is to provide graduate education through the masters degree, largely in "applied" fields, such as education, and the community college system as a place for open enrollment in sub-baccalaureate education and training.

students are admitted. Unlike the system-wide eligibility requirements, individual campuses define a set of selection criteria, which vary from campus to campus, to determine which UC-eligible students to accept. This has led to an increase in the selectivity of some of the more competitive campuses within the UC, in particular Berkeley, Los Angeles and San Diego. For example, Douglass (1999) notes that in 1975, 7.7 out of 10 UC eligible students were accepted to Berkeley as freshmen, by 1990 the ratio was 3.8 out of 10, and in 1999 the ratio was 2.7 out of 10.

The University of California has engaged in affirmative action in order to enroll a student body that reflects the demographic composition of California. California is one of the most diverse states in the nation, where the demographics are rapidly changing as the growth in the Latino population increases, and whites no longer represent the majority of the state's school-age population (Census Bureau 2000). Historically, the University has worked to attain a diverse student body through targeted outreach programs in K-12, and through the use of race/ethnicity as a factor in admissions. The use of race in admissions was implemented differently across campuses, each of which defined selection criteria above and beyond eligibility differently. Despite system-wide guidelines favoring admission based on academic *and* "supplemental" criteria, such as curricular achievements, leadership, low-income status, and racial/ethnic identity, the sheer volume of applicants led most campuses to institute a mechanical selection process based almost exclusively on SAT scores and GPA (UCOP Report 2003). Given significant racial disparities in the eligibility pool and on grades and test scores, the most selective UC campuses resorted to a dual admissions process to ensure diverse enrollment, one for whites and Asians, and another for underrepresented minority groups (Douglass 1999). Some campuses did develop more comprehensive sets of criteria to determine supplemental

contribution of applicants, and the variety of approaches adopted yielded increasingly diverse freshmen classes despite the fact that URM students did not receive special consideration under comprehensive review (Hout 2005). The percentage of underrepresented minorities in the UC freshmen class overall grew from 9.9% in 1980 to 21.0% by 1995 (UCOP Report 2003).

In 1995, as affirmative action continued to be disputed in the lower courts and in the court of public opinion, the Regents of the University of California passed Resolution SP-1 banning any consideration of race or ethnicity in university admissions. About a year and a half later, California voters passed Proposition 209.

1.3 The Impact of the end of Affirmative Action

Changes in race-conscious policies, as a result of court decisions or public referenda, have dramatically altered admissions policies in several large public higher education systems. The effects abandoning affirmative action programs have been investigated by some researchers capitalizing on policy changes restricting affirmative action (in California and Texas in particular), or on simulations based on small sets of elite institutions. Results from these studies suggest declines in overall enrollments of underrepresented groups at the most selective colleges and universities.

For elite institutions, the consensus is that eliminating affirmative action would produce dramatic declines in the percentage of matriculants who were African American or Hispanic. For example, at five elite colleges for which they were able to obtain application and admissions data, Bowen and Bok (1998) find that 42% of black applicants were accepted; in the absence of affirmative action, they predict that only 13% would be accepted. This change in acceptance rate, assuming a constant yield, would reduce the percentage of African Americans in incoming

classes from 7.1% to 3.6% (1998: 32-34). Likewise, in their simulations of the effect of affirmative action on minority representation at three "highly selective private research universities," Espenshade and Chung (2005) estimate that removing race preferences alone would reduce the percentage of matriculants who were African American from 9.0% to 3.3%. The percentage of first-time first-year students who were Hispanic would decline from 7.9% to 3.8%. These results rely on simulations from observational data; Texas and California offer natural experiments by which to assess the effects of affirmative action.

Looking at enrollments at selective flagship public institutions in Texas, Tienda et al. (2003) find that the percentage of admitted students who were African American at UT Austin, the state's most selective public four-year institution, declined from 4.4% before the *Hopwood* decision to 4.0% after the decision. The proportion of admitted students who were Latino dropped from 17.8% to 14.6%. At Texas A&M University (the second most selective public institution in Texas) Finell (1998) finds that African American and Hispanic enrollments dropped by 19% and 20% respectively following *Hopwood*. After Proposition 209, the University of California system also saw overall declines in the proportion of underrepresented minority students, with declines of over a third at UCLA and almost half at UC Berkeley. The percentage of matriculants who were members of underrepresented minority students has since increased at all campuses, but not to their pre-Proposition 209 levels (University of California 2003).

The effect of ending affirmative action is not confined to admissions decisions. Analyses of application patterns tell the same story: the proportion of African American and Hispanic students applying to top-tier institutions decline in the absence of affirmative action (Card and Krueger 2004; Long 2004; cf. Barreto and Pachon, 2003). More troubling, there is some

evidence that suggests that the proportion of minority students that even take a college entrance exam (required for admission to most four-year colleges) declines in the absence of affirmative action (Dickson 2006). If this is so, it should lead to a decline in the proportion of minority students attending baccalaureate-granting institutions overall, not just those attending more competitive colleges and universities.

It is also difficult to estimate the direct effect of the termination of affirmative action because most state systems that ended race-conscious admissions replaced them with race-neutral policies to attempt to address inequities in K-12 schooling that result in racial disparities in higher education admission. The most commonly utilized approach is a percent plan, which guarantees admission for a fixed percentage of students who rank at the top of their high school class in the state. The specifics of the plans vary substantially across the states that utilize them—California, Texas and Florida (Horn and Flores 2003). These plans' success in diversifying admission to selective public universities rests on the assumption that secondary schools are in large part highly segregated by race, and thus, top students in a high-minority school will have a relative advantage in gaining admission to the state's flagship universities. A more detailed discussion of California's percent plan follows, but the Texas 10% Plan was widely recognized as an effective policy to recover minority representation at the state's flagship institutions (Horn and Flores 2003). However, a closer analysis of the impact of the Texas percent plan suggests that minority students admitted under the plan at the most selective campuses would likely have been admitted anyway (Tienda et al 2003), and that the recovery in minority representation at UT Austin was largely a result of rigorous race-attentive recruitment efforts (Horn and Flores 2003). Furthermore, even in majority-minority schools, white students

are more likely than URM students to graduate in the top 10% of their high school class and more likely to be aware of the top 10% law (Niu, Sullivan, and Tienda 2006).

1.4 The University of California in the post-affirmative action era

Richard Atkinson (President Emeritus of the University of California) writes, "[the Regents decision (SP-1) and the passage of Proposition 209] transformed California into a battleground where opposing views of individual merit, fairness, and educational opportunity struggled to prevail (and still do). They also made the University of California a case study in how an elite public university, required to employ admissions policies that are demonstrably inclusive and fair, responded to the end of nearly 30 years of affirmative action" (Atkinson and Pelfrey 2004).

Although the Board of Regents decision in 1995 and the passage of Proposition 209 in the fall of 1996 did not go into effect until the entering class of 1998, the University of California witnessed immediate drops in applications from underrepresented groups (Karabel 1998). These declines were thought to be the result of what some deemed the "chilling effect" of the end of race-conscious practices on minority applicants to the University (Orfield and Miller 1998). In 1995, 21.5% of UC applicants were from an underrepresented minority group, by 1998, 17.5% of UC applicants were from an underrepresented minority group. Minority applicant rates stabilized at about 17% following Prop 209 implementation, and then actually increased in subsequent years, albeit not to the pre-209 levels.

Admission and enrollment rates of underrepresented groups declined in 1998 with the implementation of Proposition 209. Enrollment levels of underrepresented minority applicants at the University of California before SP-1 or Prop 209 were about 21% system-wide; immediately

after 209 went into effect, enrollments of underrepresented minority applicants dropped to about 15% (UCOP Report 2003). By 2002 underrepresented groups represented about 17% of UC freshmen matriculants (UCOP Report 2003). Moreover, given the growth in the percentage of California high school graduates who are minority, the gap in UC enrollment of underrepresented groups widened considerably. In 1995, 38.3% of California high school graduates were from an underrepresented minority group and only 21% of new UC freshmen were from an underrepresented minority group (a difference of 17.3%). In 1998 following the implementation of 209, the gap had widened to nearly 24%, as underrepresented groups constituted 41.6% of California high school graduates, but only 17.8% of new UC freshmen (UCOP 2003).

Effort to investigate the impact of the end of affirmative action at the University of California must take note of the variety of interventions introduced by UC to offset the resulting declines (both real and anticipated) in underrepresented minority groups post-209. Such programs include a comprehensive review admission policy, greater outreach to K-12 schools, Eligibility in the Local Context—a California specific top 4% plan; a Dual Admission Program targeting community college transfers, and other campus-specific specific efforts. None of these programs utilized race, banned under Proposition 209 even for recruitment efforts. All, however, provided alternatives to identifying academic merit outside the strict GPA and standardized test scores that drive admissions and give way to racial/ethnic disparities in eligibility and acceptance rates at the most selective institutions (Atkinson and Pelfrey 2004).

New Race-Neutral Strategies

In 2001, the University of California instituted a program, Eligibility in the Local Context (ELC), with the intent of diversifying the eligibility pool with students from high schools that historically have sent few students to the UCs. Modeled after the 10% percent plan in Texas, the program identifies students who rank in the top four percent of their high school (as opposed to the standard UC eligibility of the top 12.5% statewide). With successful completion of UC a-g course requirements, students under ELC are offered automatic admission to a UC campus, but (unlike Texas), not necessarily the campus of the applicant's choice. Given substantial overlap between ELC eligibility (top 4% of individual high schools) and standard UC eligibility (top 12.5% statewide), the ELC program has met limited success in increasing access to the UCs for underrepresented high schools and their top students. However, introduction of the ELC program also led to some unintended outcomes. Specifically, ELC implementation spawned greater a-g course offerings in many of California's high schools that lacked them, and provided greater exposure of UC eligibility and admission policies in many of California's under resourced high schools (UCOP Report 2003).

Comprehensive review is another method that the University of California adopted to mediate the effects of the end of affirmative action on underrepresented groups. Specifically, comprehensive review (adopted in 2002) enabled campus admissions offices to evaluate applicants' files in a more individual and "holistic" way, weighing unique challenges, economic disadvantages, being the first in your family to attend college and other personal circumstances that demonstrate exceptional motivation or determination to succeed (Atkinson and Pelfrey 2004; UCOP Report 2003). In a review of the implementation of comprehensive review at UC-Berkeley, Hout found that race/ethnicity played a statistically significant but substantively trivial

role in decisions made by comprehensive review (the equivalent of earning an A rather than a B in a single course in high school). Academic achievement drove most of the variation in reader scores assigned under comprehensive review (Hout 2005).

Additional efforts to offset the declines in underrepresented groups at the UCs include expansion of transfer enrollment from California community colleges to the UC by 50% (UCOP Report 2003) and the Dual Admissions Program, which identifies high school students in the top 4 to 12.5% of their class who may not be UC-eligible and guarantees them admission to a UC upon successful completion of their freshmen and sophomore requirements at the community college (UCOP Report 2003). Despite these programs, Roksa and her colleagues find no evidence of an increase in transfers of URM students relative to white students from community colleges into the UC system. If anything, they report a modest decline in the rate of transfer for African American students following the implementation of Proposition 209 (Roksa, Grodsky, and Hom 2006).

In this paper we evaluate changes in enrollment at the University of California as a result of the end of affirmative action. We extend earlier work that documents the declines in minority representation at flagship institutions by documenting the increases in minority representation at less competitive colleges and universities in the public sector. Specifically, we ask the following questions:

- Did the implementation of Proposition 209 contribute to a net loss of minority students in public four-year institutions?
- How did Proposition 209 affect the postsecondary destinations of minority students' distributions? More specifically, to what extent are African American and Latino students

more likely to enroll in private institutions and sub-baccalaureate degree programs in the absence of affirmative action?

- How did Proposition 209 affect the average quality of the public and private colleges attended by URM students?

II. METHODOLOGY

2.1 Data

We utilize data from the Integrated Postsecondary Education Data System (IPEDS) and the March Current Population Surveys. IPEDS surveys are sent annually to all baccalaureate-granting institutions of higher education in the United Sates as well as all community colleges. Prior to 1993 private less-than-two-year institutions were sampled, but starting in 1993 IPEDS attempted to include a census of these institutions as well (Institute of Education Sciences 2006). We confine our analysis to California higher education institutions (four-year public, four-year private, two-year public, two-year private and proprietary schools). Enrollment data cover the matriculating classes of 1990 through 2004 with the exceptions of 1999, when IPEDS failed to collect racial/ethnic enrollment information. The dependent variables for our analyses are the percentages of first-time, degree seeking freshmen who are African American and Hispanic. We weight all models based on the number of first-time first-year students in each institution-year, taken from the IPEDS enrollments survey.

To capture the spatial and temporal variation in the percentage of potential college attendees who are African American or Hispanic, we control for three-year moving averages of the percentage of Hispanic and African American 18-25 year olds who completed high school (GED or Diploma) in California. These estimates are based on the March Current Population

Surveys. Although the percentage of 18-25 year-old African American high school graduates remains fairly stable over the period we investigate, the percentage of Hispanic graduates grew from 23% to over 30%. We also adjust for changes in the costs of attending different institutions over time by entering the tuition and mandatory fees charged by each school in each year.

We distinguish among postsecondary institutions based on whether or not they grant a baccalaureate and whether they are public, private non-profit or proprietary colleges. In some models, we distinguish further between California State University and University of California campuses. Finally, we include an indicatory for whether or not the enrollment data pertain to year prior to Proposition 209 (before 1998) or after proposition 209 (1998 and beyond), omitting enrollment data in 1997 for identification.[9]

2.2 Analytic Strategy

We treat the formal end of affirmative action in California as a natural experiment to assess how affirmative action affects the college going behavior of minority students in the state. We estimate school random effects OLS models of the percentage of first-time first-year students who are African American and Hispanic (respectively) as a function of institution type, period (before or after proposition 209) and the percentage of high school graduates who are of each racial/ethnic group. Let Y_{1it} be the percentage of first-time first-year students at institution *i* at time *t* who are African American and let Y_{2ist} be the percentage of first-time first-year students at institution *i* at time *t* who are Hispanic:

[9] We also estimate year fixed effects models and in fact base our graph on these more detailed results. The decisions of how to code year does not substantively alter our results.

$$Y_{1it} = \beta_{0i} + \beta_{1i}(pre - 1997) + \beta_{2i}(post - 1997) + \beta_{3i}(\text{percent HS grads African American})_{it} + \beta_{4i}(\text{real tuition and mandatory fees}) + e_{1i}$$

The omitted year is 1997, which corresponds to the year before formal affirmative action restrictions were implemented. Models are weighted by freshmen enrollment and we report robust standards.

We free the intercept and both time coefficients at the school level, predicting each of those terms as a function of school type:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(community\,college) + \gamma_{02}(pvt\ jr\,college) + \gamma_{03}(< 2\ year\ proprietary) + \gamma_{04}(pvt\,4yr) + \gamma_{05}(proprietary\,4yr) + \mu_{0i}$$

Only the intercept is free to vary randomly across institutions. Both temporal indicators are assumed to vary only as a function of institution type. Thus schools can have a randomly varying propensity to attract minority students, expressed as μ_{0i}, but are assumed to follow identical patterns of growth or decline in their propensity to attract minority students over time conditional on institution type.

These models form the basis for our graphs of changes in minority enrollment over time and our analysis of changes in the quality of the four-year colleges attended by URM students. To determine the magnitude of the change in minority student enrollment for each school *i* we observe the mean residual, e_{it}, for each school before and after Proposition 209 went into effect. We then subtract the mean residual after Proposition 209 from the mean residual before Proposition 209. Positive differences correspond to schools that had lower-than-expected minority enrollments before 209 and higher-than-expected enrollments afterwards, while negative differences correspond to schools that had higher-than expected minority enrollments before 209 and lower-than-expected enrollments thereafter. We divide schools into thirds based

on the differences in their residuals, labeling the positive group 'receivers' and the negative group 'senders' relative to the middle group, which we label as neutral.

Before reviewing the results, it is worth considering how to interpret the standard errors for our estimates. Since the IPEDS data on which these analyses are based are a census of postsecondary institutions, rather than a sample, standard errors do not reflect random variation introduced by sampling. Instead, estimation errors must be interpreted as reflecting observationally random variation induced by other causal mechanisms, measurement error, or a combination of the two. For these reasons we interpret nonsignificant results, but note that they are nonsignificant when discussing them.

III. FINDINGS

Results from our analysis of the impact of the end of affirmative action in California reveal a complex picture of resorting among African American and Latino students in California's higher education institutions. We begin with the story most frequently told, that of overall declines in Black and Latino enrollments at the state's most selective institutions. Yet, even here we find some surprising results of unexpected losses in African American and Latino enrollments at less selective CSU institutions. Next, we present some of the biggest receivers of African Americans and Latinos post-209, including less selective UCs, CSUs, community colleges and several private institutions.

Table 1 presents our parameter estimates from fixed effects models; our outcome is the percent of matriculants at institution *i* in year *t* who are Hispanic and Black respectively. We present separate models for Blacks and Hispanics, and in columns B separate out CSUs from UCs. The intercept reflects expected enrollments in 1997, the last year in which affirmative

action in public higher education was legal. The remaining coefficients represent average changes in Black and Hispanic enrollments (respectively) before and after Proposition 209, at four-year California public institutions (CSU and UC), public community colleges, private sub-baccalaureate, private four-year, proprietary sub-baccalaureate, and proprietary four-year colleges and universities.

Insert Table 1

3.1 African Americans

Looking first at changes in African American matriculation, (Model 1, Column A), in 1997, the weighted average percentage of matriculants at public four-year institutions that were African American is 6.5% (± 1.8%), and adjusting for the percentage of 18-25 year olds in 1997 with a high school diploma or GED who were African American and for the real cost of tuition and mandatory fees. Looking at other institutions in 1997, the only significant differences (from the four-year public institutions) were among public community colleges, which had higher Black enrollments (2.8 percentage points, ± 2.2), and among private non-for-profit four-year institutions, which had lower Black enrollments (-3.7 percentage points, ± 3) than public four-year colleges and universities. Following the implementation of Proposition 209, public colleges and universities experienced a .one percentage point decline in the average percentage of Black matriculants. Private baccalaureate and proprietary sub-baccalaureate institutions in the state experience a net increase in the percentage of black matriculants of 1.15 and 3.5 percentage points respectively. Column B, which separates University of California from California State University enrollments indicates that in 1997, shows that the weighted average percentage of

matriculants at UC schools that were African American is 3.91% (± 1.6%), CSUs had higher Black enrollments (by 4.7 percentage points), and public community colleges higher still (by 5.4 percentage points). Following the implementation of Proposition 209, UCs and CSUs experienced non-significant declines in their average percentage of Black matriculants (.78 and .36 respectively). In sum, on average, African American representation in freshmen classes at California four-year public colleges and universities appears to have declined over time, while private four-year and proprietary sub-baccalaureate schools have, on average, experienced increases in the share of Black matriculants among their incoming students.

These mean shifts in racial/ethnic representation mask substantial movement at the institution level. Not surprisingly, the most selective public four-year institutions in the state—UC Berkeley and UCLA-- experienced the largest declines in African American matriculation post-209. Interestingly, two other big "senders" of African American students were Cal State Hayward and Cal State Long Beach, which also witnessed big declines African American students post-affirmative action. Figures 1-4 present the predicted and observed percentages of African American freshmen several years before and after implementation of Proposition 209, alongside the percentage of the state's high school completers that are African American. Looking at Figure 1, we see that Berkeley came pretty close to enrolling a freshmen class that mirrored the state's population of 18-25 year old high school graduates in the proportion of African Americans prior to Proposition 209. This clearly changed in 1998, where after the passage of Proposition 209, Berkeley witnessed dramatic declines in its share of Black matriculants. A similar, albeit slightly less dramatic picture exists for UCLA (Figure 2). Figure 3 presents the trend in Black matriculants at CSU Long Beach where post-affirmative action freshmen Black enrollment rates are far below the rates of the early 1990, and, in some years,

even dip below representing the state's population of Black high school graduates. CSU Hayward, which had very high rates of Black enrollment—relative to the population of Black high school graduates—faced similar declines around the end of affirmative action (Figure 4).

Insert Figures 1-4

Where did African American students go? The biggest gains in African American matriculation post-209 were felt at a variety of institutions. The least selective UC campus (Riverside) was a big receiver of African American enrollment post-209 (Figure 5). Cal State San Bernadino saw increases in Black enrollments post-209 (Figure 6) There is some evidence that private institutions picked up some of the losses in black enrollment, Pepperdine University being one of them (Figure 7), as well as two-year colleges, such as Compton Community College (Figure 8).

Insert Figures 5-8

3.2 Hispanics

Turning to changes in Hispanic matriculation, (Model 2, column A), in 1997, the weighted average percentage of matriculants at public four-year institutions that were Hispanic is 16.9% (± 3.6%), and adjusting for the percentage of 18-25 year olds with a high school diploma or GED who were Hispanic and real tuition and mandatory fees. Looking at other institutions in 1997, the only significant differences (from public four-year institutions) were among proprietary sub-baccalaureate colleges, which had Latino enrollments 8.7 percentage points

higher than those of public colleges and universities (± 7.7). Following the implementation of Proposition 209, public colleges and universities experienced a (non-significant) average .29 percentage point decline in the percentage of Latino matriculants. Public community colleges, private baccalaureate and proprietary sub-baccalaureate institutions in California experienced a net increase (relative to public four-year institutions) in the percentage of Latino matriculants (4.7, 2.5 and 5.9 percentage points respectively). Column B, which separates University of California and California State University enrollments indicates that in 1997, the weighted average percentage of matriculants at UC schools that were Latino is 10.7% (± 2.1%) and at CSUs 11.4% (± 5.%). Following the implementation of Proposition 209, neither UCs nor CSUs experienced a significant change in Latino matriculation. On average, however, public community colleges saw a 3.9 percentage point increase in their average percentage of Hispanic matriculants (relative to UC schools).

Similar to the results for African Americans, the most selective public four-year institutions in the state—UC Berkeley and UCLA-- faced the largest declines in Latino matriculation post-209. In addition, Cal Poly San Louis Obispo (the most selective of the CSUs) also had significant declines in Latino enrollment post-209. Figures 9-11 present the predicted and observed percentages of UC Berkeley, UCLA, and Cal Poly freshmen that are Hispanic before and after implementation of Proposition 209, alongside the percentage of the state's high school completers that are Hispanic. Together these figures paint a familiar story of substantial declines in the representation of Latinos in some of California's most selective schools with the passage of Proposition 209.

Insert Figures 9-11

As was the case for African Americans, UC Riverside, the least selective UC, ranks among the institutions with the biggest gains in Latino matriculation following Proposition 209. (Figure 12). Cal State San Bernadino, which saw increases in Black enrollments post-209, also experienced increases in Hispanic enrollment (Figure 13). Two-year colleges were also big receivers of Latino enrollment post-209, in particular, Canada Community College (Figure 14) and Santa Ana Community College (Figure 15).

Insert Figures 12-15

3.3 Changes in the quality of four-year colleges attended by URM students

Table 2 distinguishes among three types of colleges in California: those that had higher than predicted minority populations during affirmative action and lower than predicted minority populations after its elimination (senders), those whose observed and predicted minority populations were fairly similar in both periods (neutral), and those with lower than predicted minority population before the end of affirmative action and higher than predicted minority populations thereafter (receivers). As discussed above, we classify schools based on the average residual for each institution year before and after affirmative action. We then divided schools into thirds by sector based on the magnitude of the change in average residuals. Each cell in Table 2 shows the combined average verbal and math SAT scores of students who matriculated

in 2003, weighted by total first-time first-year enrollment.[10] Beneath each point estimate we report the percentage of schools in our sample for which we have valid test score data.

Public institutions that reduced the share of African American students in their matriculating classes following Proposition 209 had average SAT scores of 1110 in 2003, while those that increased their share of African American students had average SAT scores of 999. The average standing of public institutions attended by African Americans declined by over 100 points in the wake of affirmative action. However, the average standing of private institutions attended by African American students increased by just over 130 points during the same period, from 1098 points to 1229 points. Prestigious private institutions may have increased their recruitment of African American students after Proposition 209, leading to a partial offset in the reduction of quality of the public institutions attended by African Americans. This was not the case for Hispanic students; the average SAT scores of the public institutions they attended declined almost 130 points (from 1128 to 998) while the average SAT scores of private schools they attended declined by 55 points (from 1127 to 1072).

IV. DISCUSSION/CONCLUSION

The results from our analyses corroborate earlier findings that the elimination of affirmative action led to declines in minority enrollment at selective public comprehensive colleges in California. Yet, our investigation of the impact of the end of affirmative action on the enrollment of African American and Hispanic students in California higher education institutions reveals a more complicated picture of resorting. In addition to the much publicized declines in minority enrollments at the state's most selective public institutions, several other considerably

[10] SAT data are taken from the College Board's Annual Survey of Colleges and supplemented with data from the College Coard's online college search engine.

less selective public four-year institutions also witnessed big losses in Black and Latino enrollments post-209. In fact, Proposition 209 contributed to a reshuffling of historically under-represented minority youth across all types of baccalaureate-granting institutions in the state of California. Beneath changes in average matriculation rates by institution type lie changes in attendance patterns at schools of the sane type.

How might we characterize this reshuffling? In the absence of affirmative action, Black and Latino students clearly turned to the least selective UC campus—UC Riverside-- and to some of the state's less selective four-year public institutions. The average SAT scores of schools attended by African American and Hispanic students declined by over 100 points (a half a standard deviation) as a result of Proposition 209. Private institutions compensate for this decline in part in the case of African American students, but not in the case of Hispanic students. Overall, however, our models suggest that both Black and Latino students increased their reliance on private four-year and proprietary sub-baccalaureate institutions post-209. In addition, Latino students also saw large increases in enrollment at community colleges post-affirmative action.

Affirmative action was a widespread practice over the 1970s, 1980s and early 1990s, though it is less so today for a variety of reasons. In the absence of affirmative action, our results suggest that fewer African American and Hispanic students will attend comprehensive four-year colleges and universities. Moreover, Hispanic and African American students who do go to college following restrictions on affirmative action go to colleges of lower average quality than the ones they attended under affirmative action.

REFERENCES

Ancheta, Angelo N. 2004 "After *Grutter* and *Gratz*: Higher Education, Race, and the Law." Pp. 175-196 in *Higher Education and the Color Line: College Access, Racial Equity, and Social Change*, edited by G. Orfield, Patricia Marin and Catherine L. Horn. Cambridge, MA: Harvard Education Press.

Atkinson, Richard C. and Patricia A. Pelfrey. 2004. “Rethinking Admissions: US Public Universities in the Post-Affirmative Action Age.” Center for Studies in Higher Education.

Barreto, Matt A. and Harry P. Pachon. 2003. "The Reality of Race Neutral Admissions for Minority Students at the University of California: Turning the Tide or Turning them Away?" in *The Tomas Rivera Policy Institute*.

Bowen, William G. and Derek Bok. 1998. *The Shape of the River: Long-term Consequences of Considering Race in College and University Admissions*. Princeton, NJ: Princeton University Press.

Breland, Hunter, James Maxey, Renee Gernand, Tammie Cumming, and Catherine Trapani. 2002. "Trends in College Admissions 2000: A Report of a Survey of Undergraduate Admissions Policies, Practices, and Procedures." College Board.

Card, David and Alan B. Krueger. 2004. "Would the Elimination of Affirmative Action Affect Highly Qualified Minority applicants? Evidence from California and Texas." *Industrial and Labor Relations Review* 58:416-434.

Chavez, Lydia. 1998. The Color Bind: California’s Battle to End Affirmative Action. Berkeley, CA: The University of California Press.

Dickson, Lisa M. 2006. "Does Ending Affirmative Action in College Admissions Lower the Percent of Minority Students Applying to College?" *Economics of Education Review* 25:109-119.

Douglass, John Aubrey. 1999. “The Evolution of a Social Contract: The University of California before and in the Aftermath of Affirmative Action.” Center for Studies in Higher Education.

Espenshade, Thomas J. and Chang Y. Chung. 2005. "The Opportunity Cost of Admission Preferences at Elite Universities." *Social Science Quarterly* 86:293-305.

Finell (1998)

Grodsky, Eric. 2005. "Sponsored Mobility in Higher Education." Department of Sociology, UCD.

Grodsky, Eric and Demetra Kalogrides. 2005. "The Declining Significance of Race: Race-Based Affirmative Action in College Admissions between 1986 and 2003." Department of Sociology, UCD.

Horn, Catherine L. and Stella M. Flores. 2003. “Percent Plans in College Admissions: A Comparative Analysis of Three States’ Experiences.” Cambridge, MA: The Civil Rights Project.

Hout, Michael. 2005. "Berkeley's Comprehensive Review Method for Making Freshman Admissions Decisions: An Assessment." University of California, Berkeley.

Institute of Education Sciences, U.S. Department of Education. 2006. "About IPEDS." vol. 2006: Institute of Education Sciences, U.S. Department of Education,

Kane, Thomas J. 1998. "Racial and Ethnic Preferences in College Admissions." Pp. 431-456 in *The Black-White Test Score Gap*, edited by C. Jencks and M. Phillips. Washington, D.C.: Brookings Institution Press.

Karabel, Jerome. 1998. "No Alternative: The Effects of Color-Blind Admissions in California." Pp. 33-50 in *Chilling Admissions: The Affirmative Action Crisis and the Search for Alternatives*, edited by G. Orfield and E. Miller. Cambridge, MA: Harvard Education Press.

Lerner, Robert and Althea K. Nagai. 2001. "Pervasive Preferences: Racial and Ethnic Discrimination in Undergraduate Admissions Across the Nation." Center for Equal Opportunity, Washington, D.C.

Long, Bridget Terry. 2004. "How Have College Decisions Changed over Time? An Application of the Conditional Logistic Choice Model." *Journal of Econometrics* 121:271-296.

Niu, Sunny Xinchun, Teresa Sullivan, and Marta Tienda. 2006. "Diversity by Design or Default? Minority Students and the Texas Top 10% Law."

Orfield, Gary 2005. "Introduction." Pp. 1-10 in *Higher Education and the Color Line: College Access, Racial Equity, and Social Change*, edited by G. Orfield, Patricia Marin and Catherine L. Horn. Cambridge, MA: Harvard Education Press.

Orfield, Gary 1998. "Campus Resegregation and Its Alternatives." Pp. 1-16 in *Chilling Admissions: The Affirmative Action Crisis and the Search for Alternatives*, edited by G. Orfield and E. Miller. Cambridge, MA: Harvard Education Press.

Orfield, Gary and Edward Miller. 2000. *Chilling Admissions: The Affirmative Action Crisis and the Search for Alternatives*. Cambridge, MA: Harvard Education Press.

Roksa, Josipa, Eric Grodsky, and Willard Hom. 2006. "The Role of Community Colleges in Promoting Student Diversity in California." in *Equal Opportunity in Higher Education: The Past and Future of Proposition 209*. Berkeley, CA.

Tienda, Marta, Kevin T. Leicht, Teresa Sullivan, Michael Maltese, and Kim Lloyd. 2003. "Closing the Gap? Admissions and Enrollments at the Texas Public Flagships Before and After Affirmative Action." in *Office of Population Research Princeton University*.

University of California. 2003. "Undergraduate Access to the University of California: After the Elimination of Race-Conscious Policies.

Table 1: Changes in minority representation in California colleges and universities

	black				Hispanic			
	b/se		b/se		b/se		b/se	
Intercept (1997)	6.52	***	3.91	***	16.93	***	10.69	***
	(0.91)		(0.81)		(1.79)		(1.07)	
csu			4.65	***			11.44	***
			(1.33)				(2.49)	
pub cc	2.77	*	5.43	***	1.61		8.26	***
	(1.12)		(1.11)		(2.52)		(2.03)	
pvt <4yr	-1.92		0.67		5.16		11.32	*
	(1.56)		(1.49)		(5.23)		(5.02)	
pvt nfp 4yr	-3.71	*	-1.20		-2.23		3.32	
	(1.52)		(1.35)		(2.78)		(2.32)	
proprietary <4yr	1.94		4.52	**	8.69	*	14.79	***
	(1.80)		(1.73)		(3.84)		(3.55)	
prop4yr	0.01		2.58		6.55		12.55	*
	(1.62)		(1.52)		(5.16)		(4.95)	
year<1997	0.61	***	0.66	*	2.70	***	4.11	***
	(0.17)		(0.26)		(0.44)		(0.62)	
csu pre-1997			-0.07				-2.53	**
			(0.33)				(0.77)	
pub cc	-0.67	*	-0.72	*	-0.87		-2.30	
	(0.27)		(0.34)		(1.24)		(1.31)	
pvt <4yr	1.93		1.88		-1.32		-2.72	
	(1.47)		(1.49)		(2.40)		(2.44)	
pvt nfp 4yr	0.14		0.11		-0.43		-1.75	*
	(0.29)		(0.36)		(0.74)		(0.86)	
proprietary <4yr	0.81		0.76		0.20		-1.22	
	(1.59)		(1.60)		(3.85)		(3.87)	
proprietary 4yr	0.41		0.37		3.99		2.65	
	(0.99)		(1.01)		(3.35)		(3.34)	
year>1997	-0.98	**	-0.78		-0.29		0.48	
	(0.36)		(0.58)		(0.60)		(0.90)	
csu post-1997			-0.36				-1.39	
			(0.71)				(1.19)	
pub cc	0.57		0.36		4.67	***	3.90	*
	(0.43)		(0.62)		(1.37)		(1.52)	
pvt <4yr	2.46		2.24		2.77		1.93	
	(1.27)		(1.35)		(1.80)		(1.91)	
pvt nfp 4yr	1.15	**	0.92		2.49	**	1.55	
	(0.44)		(0.64)		(0.96)		(1.15)	
proprietary <4yr	3.50	**	3.28	**	5.87	*	5.02	
	(1.14)		(1.23)		(2.73)		(2.80)	
proprietary 4yr	-0.25		-0.46		4.19		3.32	
	(0.80)		(0.93)		(3.89)		(3.93)	
% HS grads black	0.29		0.28					
	(0.19)		(0.19)					

Table 1 continued.

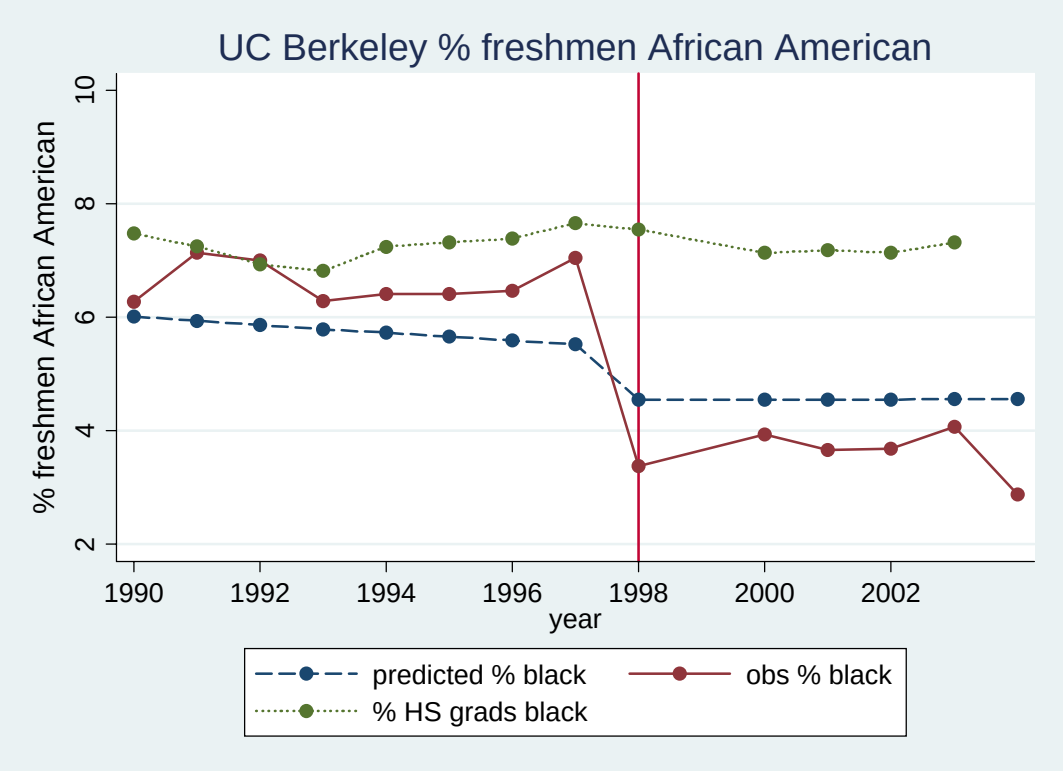
% HS grads Hispanic					0.74	***	0.73	***
					(0.07)		(0.07)	
Fees (100s)	0.02	**	0.02	**	-0.03	*	-0.02	
	(0.01)		(0.01)		(0.01)		(0.01)	
within school	4058		4058		4058		4058	
schools	369		369		369		369	
deviance	16795		16772		21486		21449	

Table 2: Average 2003 SAT scores of students at California schools sending and receiving students post affirmative action, by sector and student race/ethnicity (% observed in parentheses)

	African American		Hispanic	
	Public	Private	Public	Private
Receiving	999	1229	998	1072
	(100)	(60)	(100)	(69)
No Change	1052	1197	1047	1215
	(100)	(68)	(100)	(70)
Sending	1110	1098	1128	1127
	(100)	(77)	(100)	(68)

Note: Estimates weighted by total first-time first-year enrollment

Figure 1.



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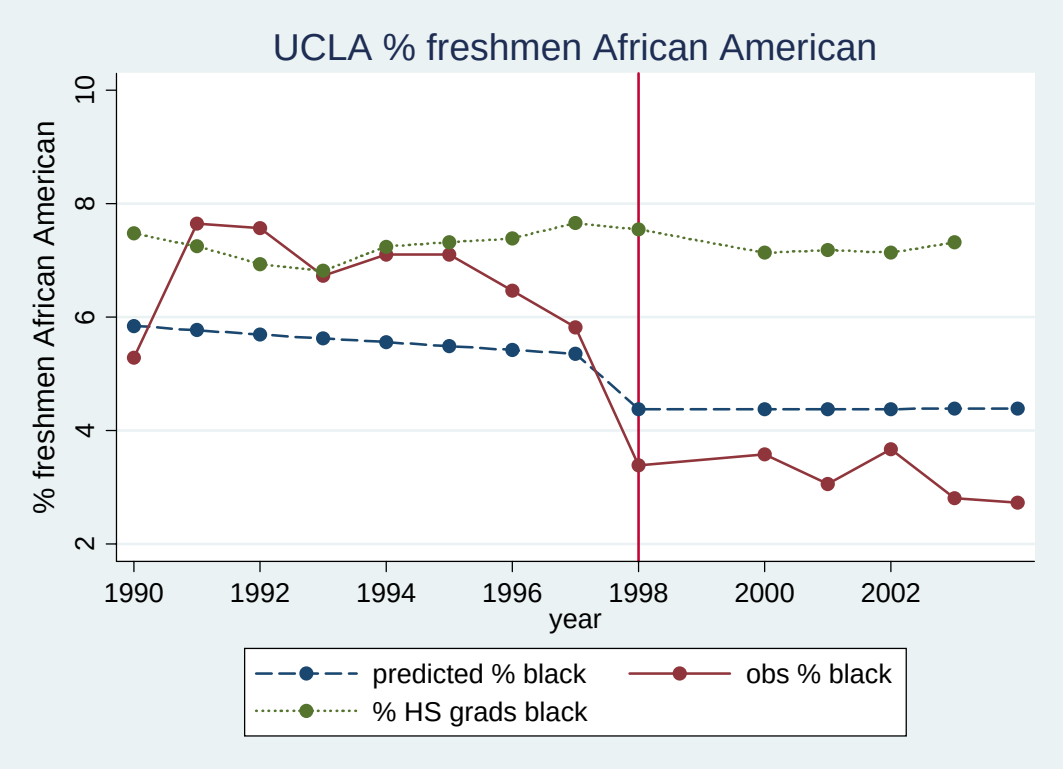

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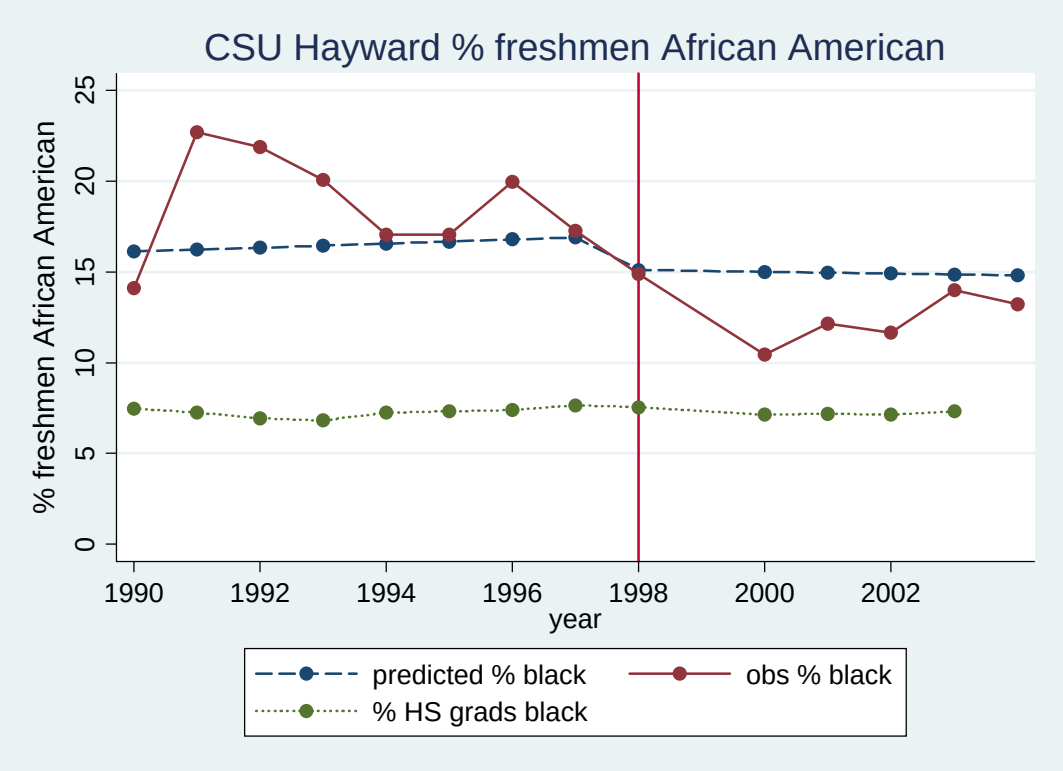

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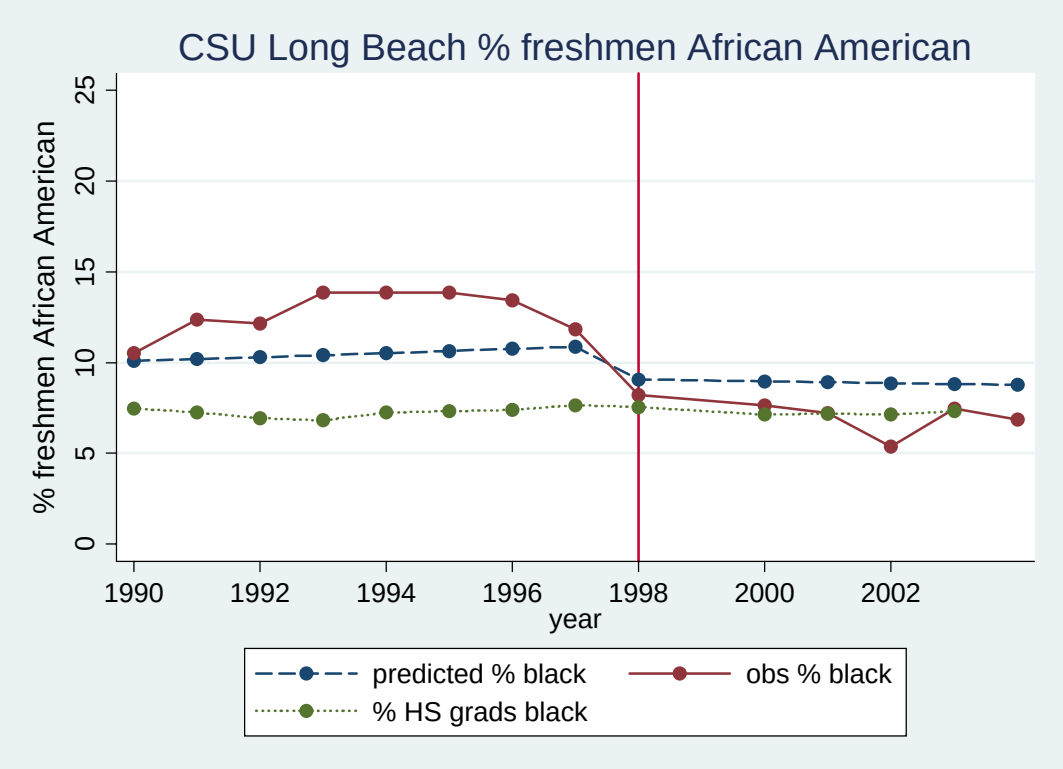

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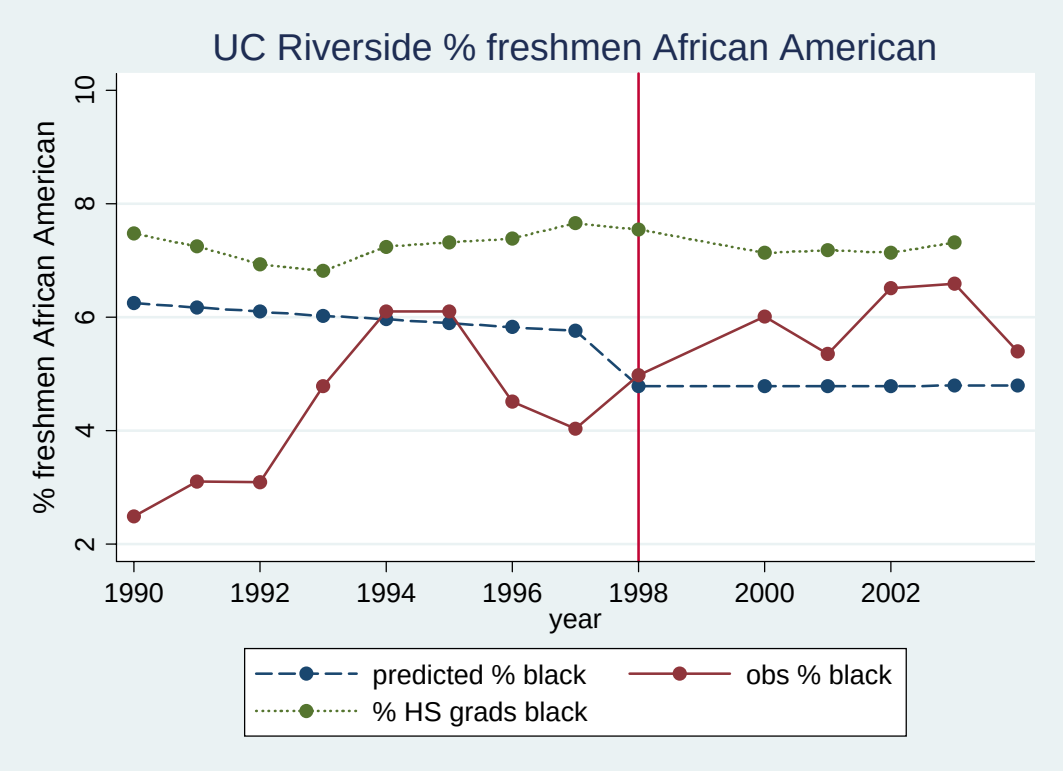

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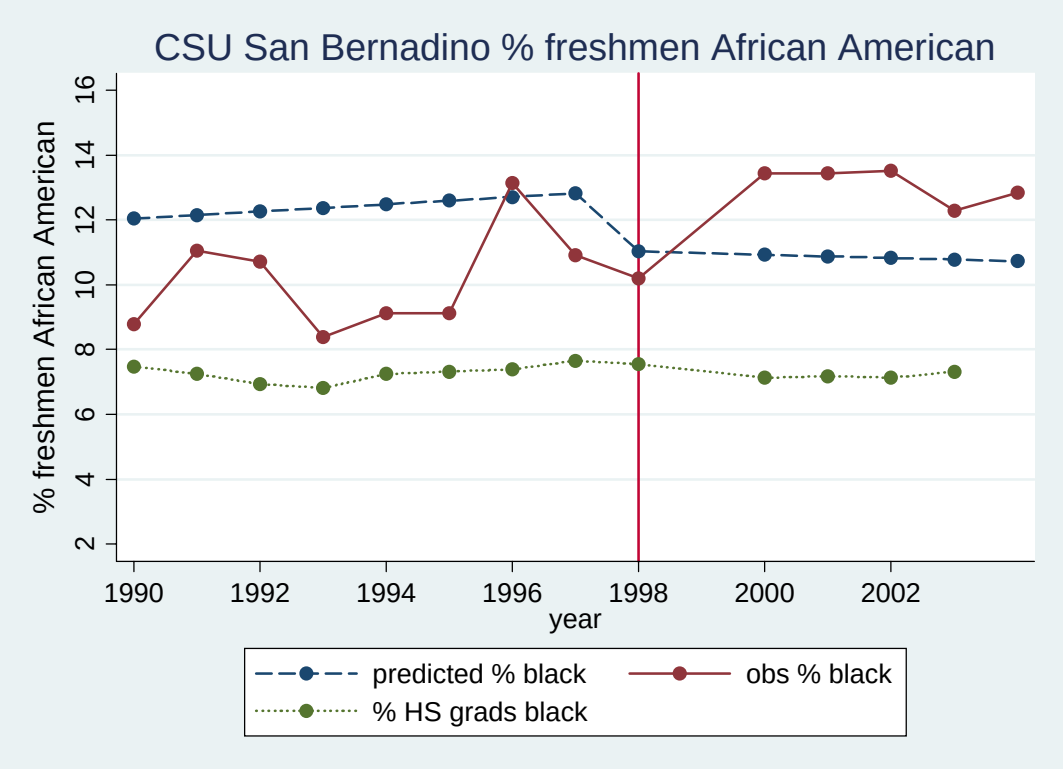

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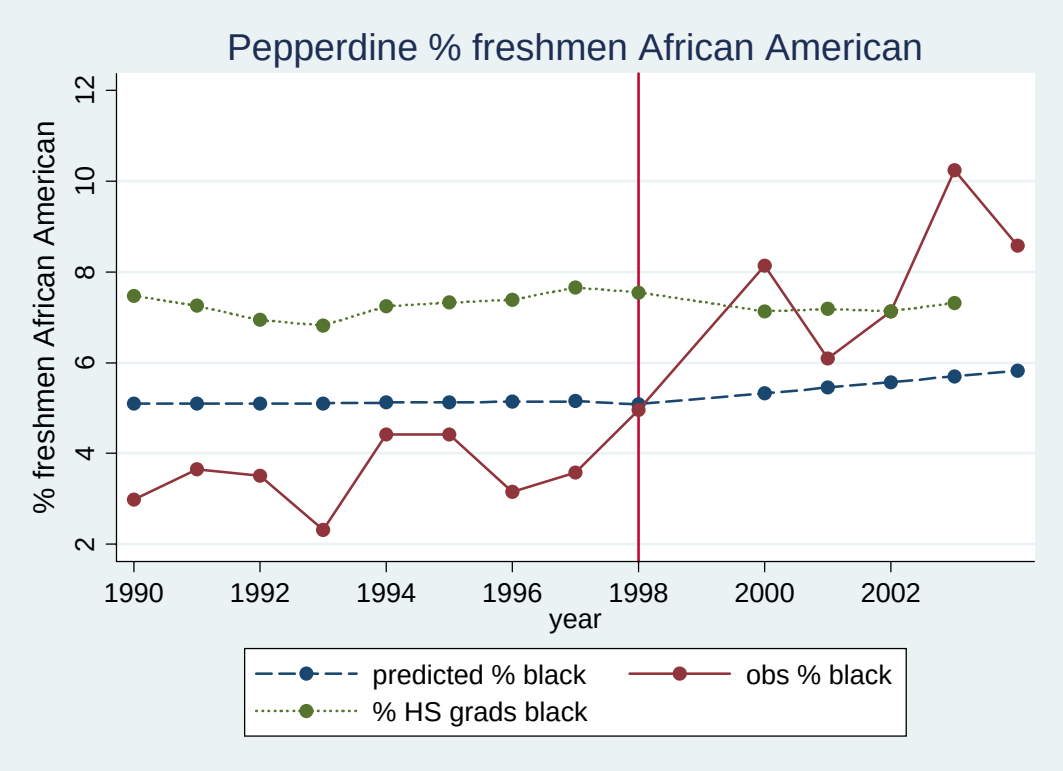

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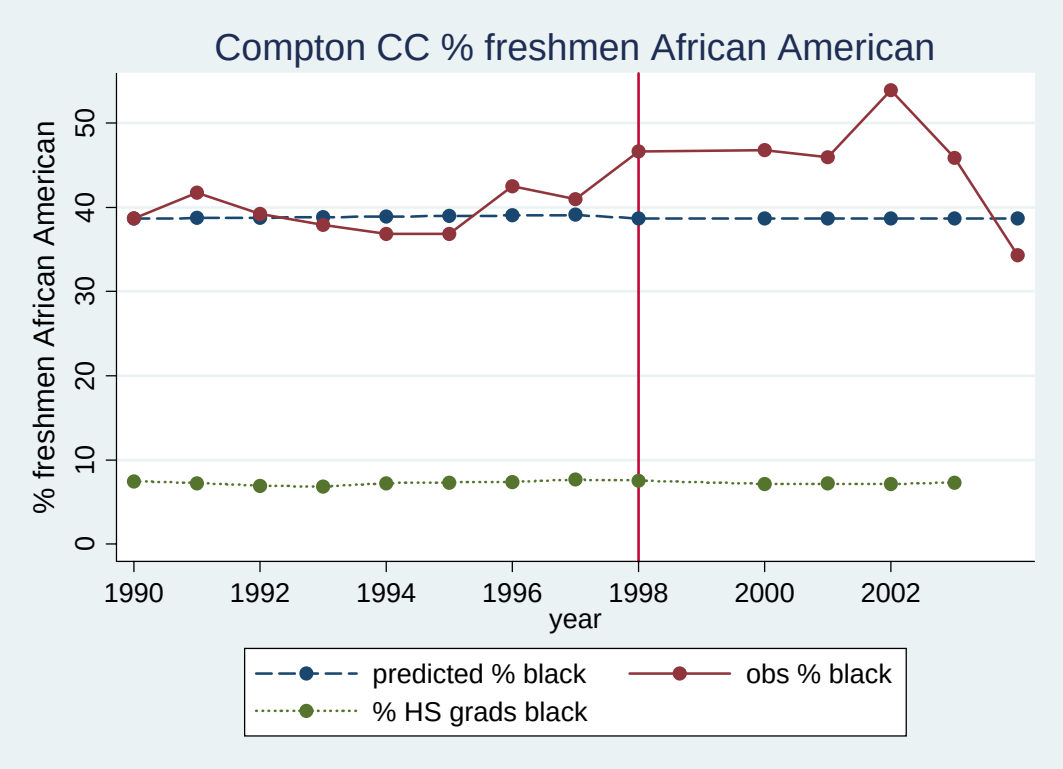

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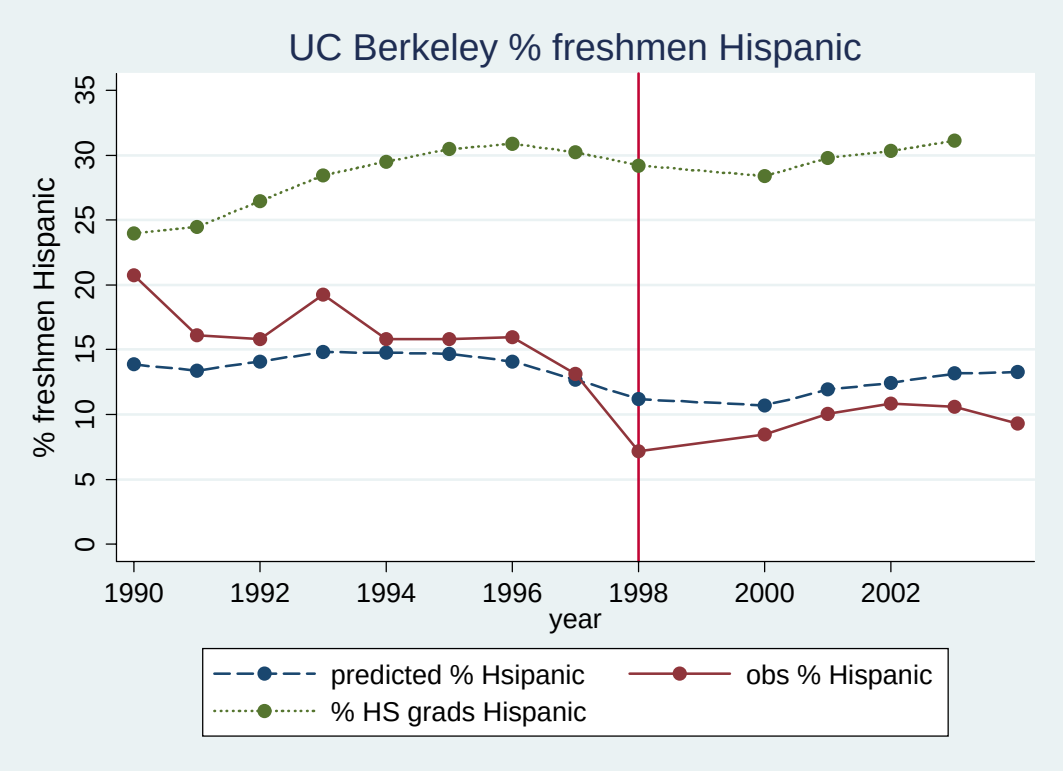

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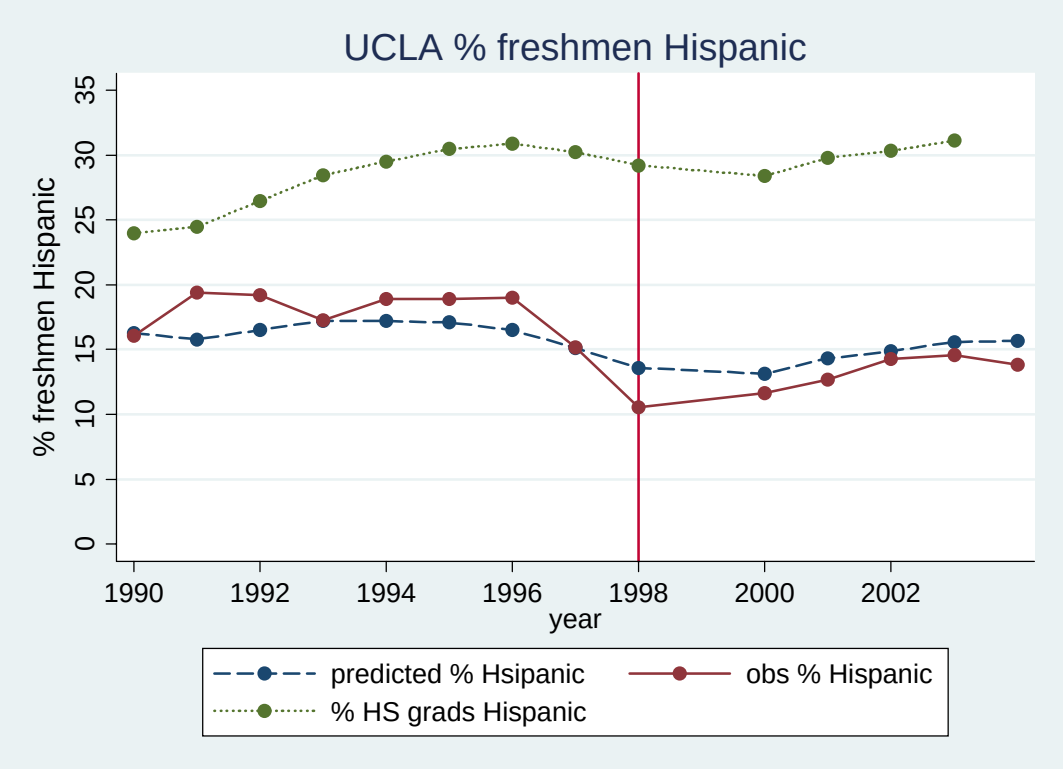

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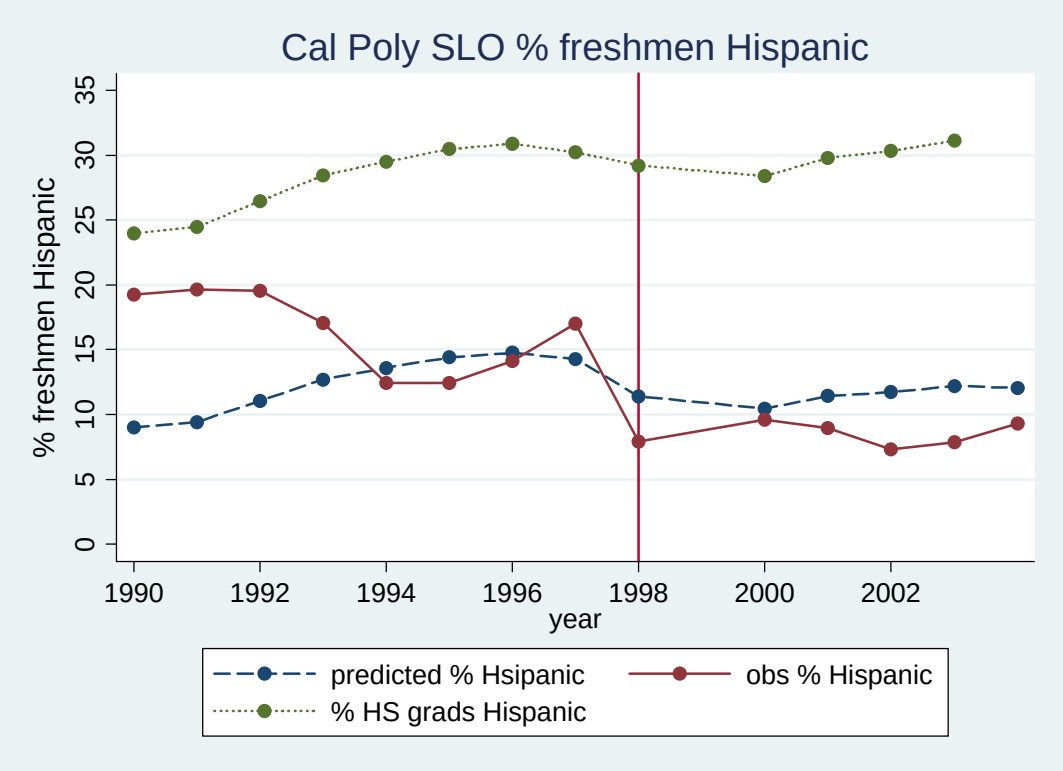

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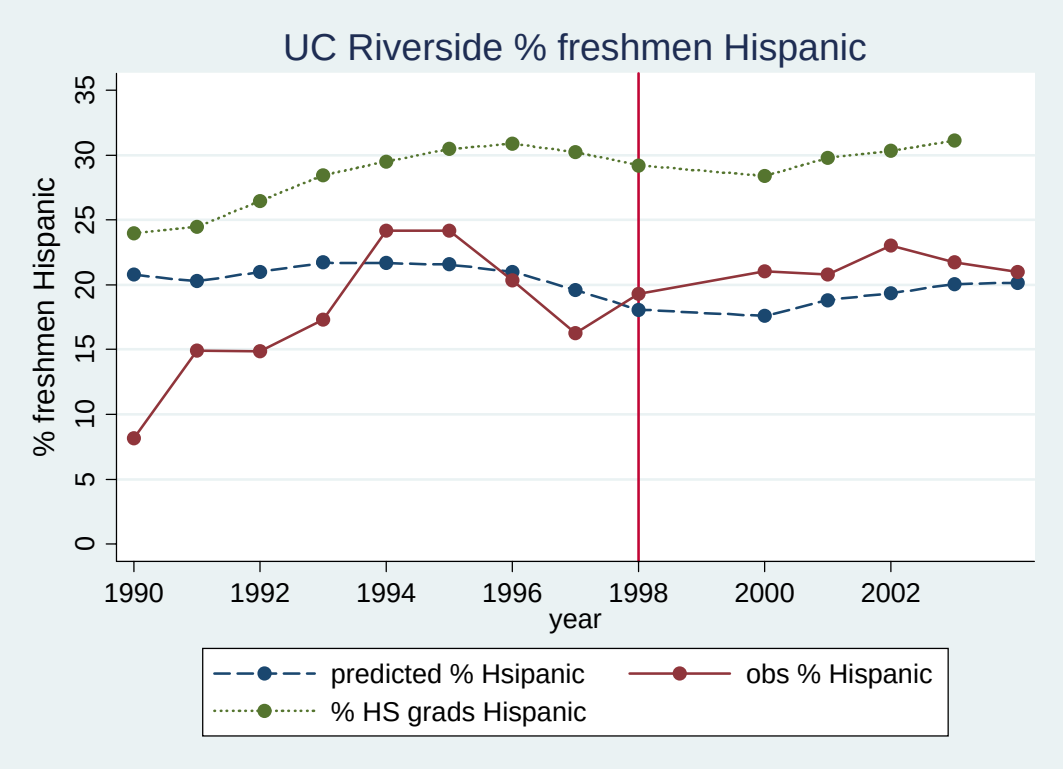

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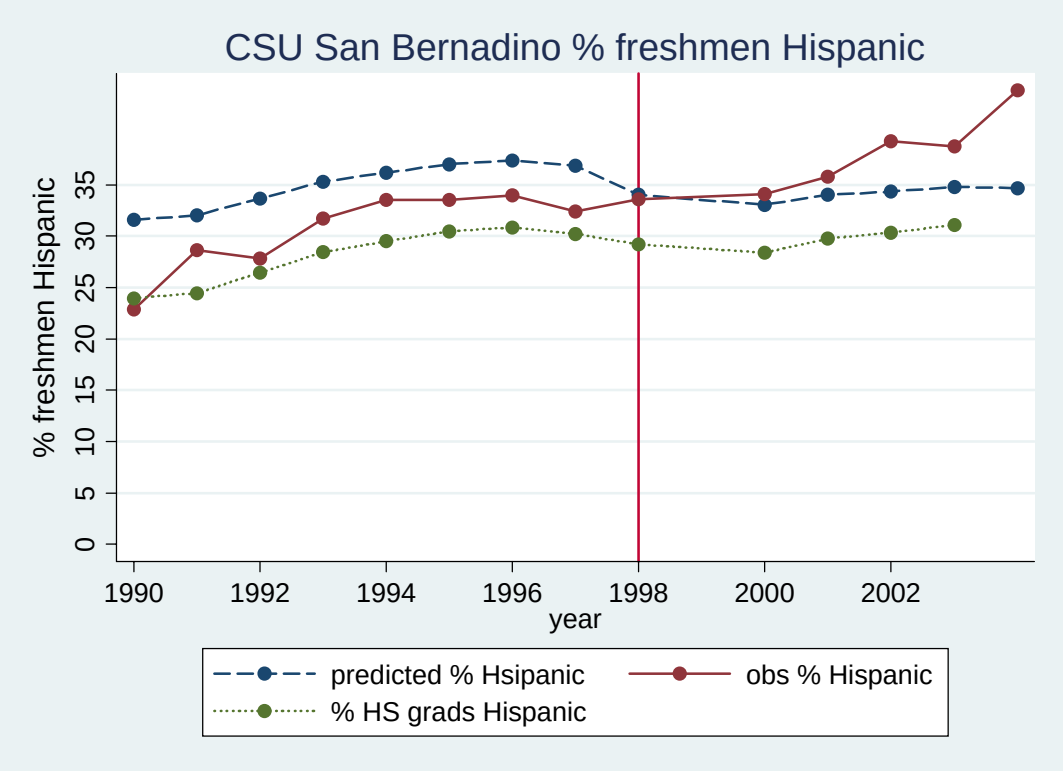

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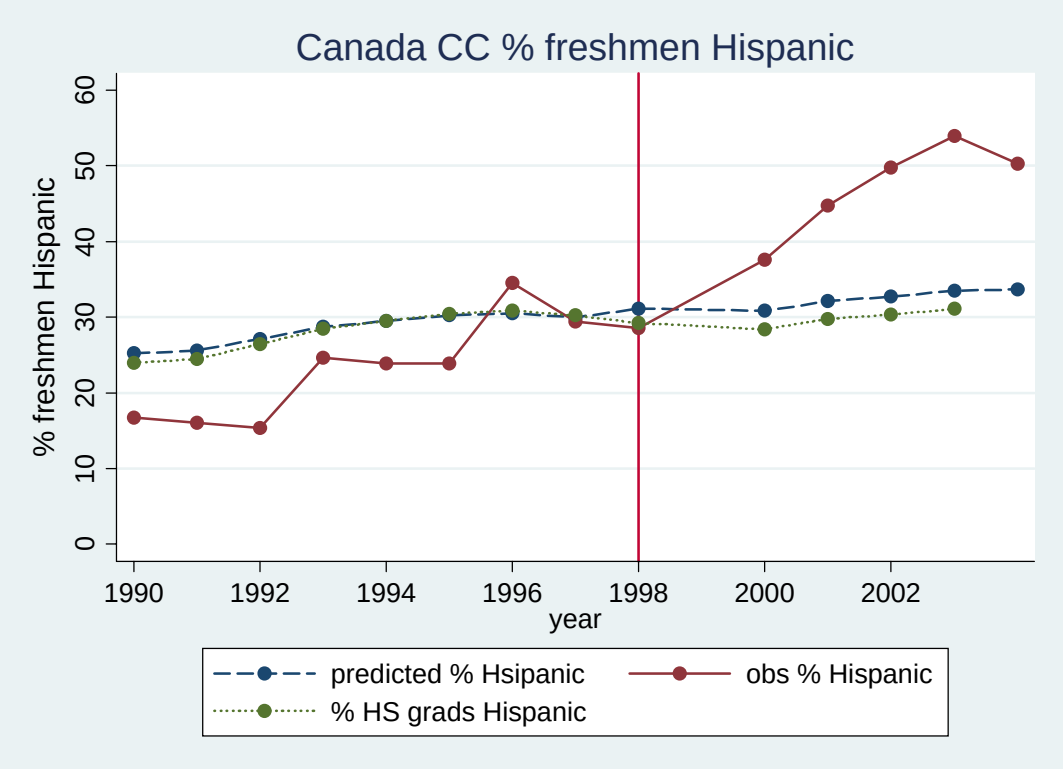

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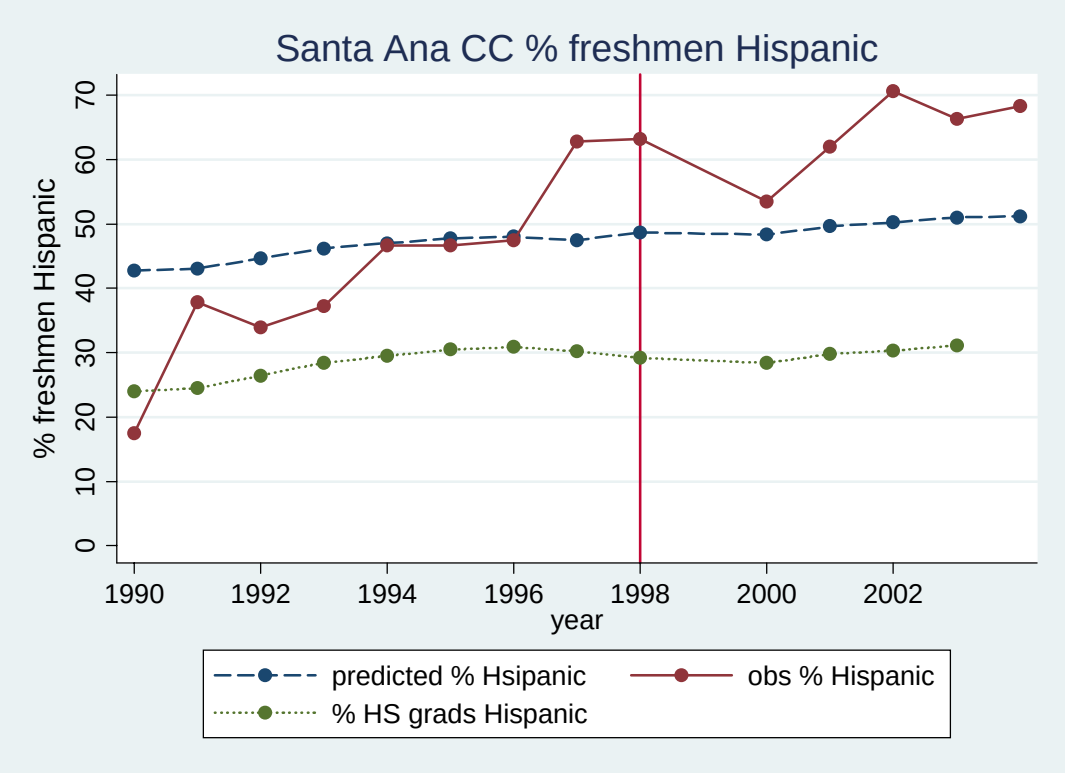
Santa Ana CC % freshmen Hispanic
% freshmen Hispanic
0
10
20
30
40
50
60
70
1990
1992
1994
1996
1998
2000
2002
year
predicted % Hsipanic
obs % Hispanic
% HS grads Hispanic