Achieving Race-Based Equity Through Race-Blind Policies: Evidence from a Local Preference in College Admissions*

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November 14, 2023

Preliminary and frequently updated
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Abstract

We study the enrollment and equity effects of a unique college admissions policy: a preference in admissions for students applying from local high schools. In the mid-2000s, 18 California State University (CSU) campuses were mandated to prioritize applicants from local high schools; however, only nine campuses offered a meaningful local preference in practice, which we call "adherent" campuses. We estimate the effects of exposure to a local admissions preference using a difference-in-differences design that interacts an indicator for being local to an adherent as opposed to a non-adherent campus with an indicator for being pre or post policy implementation. Our results show that the policy induced students to enroll at their local campuses, without evidence of crowd-out from other public four-year colleges in California. Effects are only found for students from high schools with a high share of underrepresented minority (URM) students. As a result, the formally race-blind local preference policy nearly eliminates the pre-existing gap in enrollment at California public four-year colleges between students from high and low URM share high schools.

*We are grateful to Martha Bailey, Natalie Bau, Zachary Bleemer, George Bulman, David Card, Kitt Carpenter, Kévin Dano, Felipe Goncalves, Patrick Kline, Adriana Lleras-Muney, Kathleen McGarry, Maurizio Mazzocco, Jesse Rothstein, Christopher Walters, Seth D. Zimmerman, and participants from various seminars. Huynh gratefully acknowledges support from the National Science Foundation (DGE 1650604) and the Robert Wood Johnson Foundation (No. 77833).

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1 Introduction

Expanding college access is a major goal of education policy, as the economic returns to college are at their highest level in decades (Oreopoulos and Petronijevic 2013; Autor et al. 2020). At the same time, two recent landmark rulings by the U.S. Supreme Court – *SFFA v. Harvard* and *SFFA v. UNC*, both in June 2023 – have effectively eliminated the explicit use of affirmative action in college admissions, severely constraining the ability of colleges to diversify future cohorts through admissions. Going forward, there is likely to be a revived interest among policymakers in the use of formally race-blind policies to promote race-based equity. The effective application of such measures rests on an understanding of the underlying channels through which a given race-blind policy has an impact on race-based equity.

This paper studies the effects on equity in college access due to a unique college admissions policy that is formally race-neutral: a preference in admissions for students applying from local high schools. Our results highlight this policy as one that is equity-neutral on its face, but equity-enhancing in practice. We investigate why this might be.

We analyze the application and enrollment choices of seven million high school students before and after the largest four-year university system in the U.S. began to prioritize local applicants. The setting of this study is the California State University (CSU), whose 23 colleges educate half a million students each year. In the mid 2000s, 18 of the colleges, confronted with soaring applications for limited spots, could no longer meet existing admissions guarantees. As a result, a mandate was implemented for these campuses to prioritize local applicants. Under the new admission policy, graduates of high schools from within each college's catchment area faced lower admission criteria, all else equal. However, not all campuses offered a local admissions advantage in practice. Thus, the policy created two dimensions of variation, which this paper uses to identify the effect of the local preference admissions policy on college choice: variation in the local admissions preference offered to high school students based on the identity of their local CSU campus, and temporal variation from before to after the policy was enacted. We study the effect of the local preference policy on enrollment using a difference-in-differences design that compares pre- and post-treatment periods among students who are local to a CSU campus that offers a local preference against those who are not local to a CSU with a local preference.

Our analysis yields several key findings. We find that enrollment at one's local CSU campus increases by 0.8pp relative to a baseline of 5.1pp due to the local preference policy. This increase in local CSU enrollment does not crowd out enrollment at other CSU campuses or at the more selective University of California (UC) campuses, so that total enrollment at any public four-year college in California increases by 0.8pp relative to a baseline of 18.8pp. Importantly, all of this increased enrollment comes from students at high schools with a high share of students who are underrepresented minorities (URM). Among these students, the increase in local CSU enrollment is 1.4pp, relative to a baseline of 5.5pp. Again, local CSU enrollment does not crowd out other CSU or UC enrollment, so that total enrollment at any public four-year college in California for these students increases by 1.5pp relative to a baseline of 16.4pp.

The remainder of this paper proceeds as follows. Section 2 describes the local preference admissions policy. Section 3 describes the data. Section 4 estimates the degree of local preference offered at each CSU campus in application and admissions data. Section 5 reviews our difference-in-differences empirical approach and our main results. Section 6 concludes.

2 Background

2.1 Affirmative Action in California

Before 1996 in California, race-based affirmative action played a significant role in the state's public university admission process. Affirmative action aimed to rectify systemic barriers faced by certain racial and ethnic groups by promoting diversity and equal opportunities in higher education. Under these programs, race and ethnicity were taken into account during the selection process to ensure equitable representation and access.

However, with the passage of Proposition 209 in 1996, affirmative action practices in California were barred. The law prohibited the state government from granting preferential treatment based on race, sex, color, ethnicity, or national origin in public employment or education. The aftermath of Prop 209 saw a decline in the use of race-conscious admissions and hiring practices in California. Critics of the law contended that it led to a decrease in diversity in educational institutions and public employment. Studies showed that underrepresented groups, particularly Black and Hispanic students, faced decreased admission rates at public universities following the implementation of Prop 209. In response to these concerns, there have been ongoing debates and efforts to reinstate affirmative action in California, with the aim of addressing persistent disparities and promoting diversity in various sectors.

2.2 California's Public Universities

Half of all California public high school graduates enroll in the state's three-tier public university system: University of California (UC; 6%), California State University (CSU;

11%), and Community Colleges (CC; 36%).[1] The setting of our study is CSU, the largest four-year public university system in the US. Since its inception in 1960, CSU has been tasked with educating the top third of California public high school graduates.[2] In 2018, CSU's 23 campuses enrolled 430,000 undergraduate students. CSU campuses differ greatly in selectivity, ranging from CSU San Luis Obispo (30% admission rate) to CSU Sonoma (89%). Correspondingly, each campus uses its own set of admission criteria, though every campus in our study period (2000–2018) factored in students' grade point average, SAT/ACT scores, and performance in college preparatory courses. Since the passage of Prop 209 in 1996, CSU campuses have been prohibited from considering race or ethnicity in their admission decisions.

Access and later-life outcomes also vary across California's colleges and universities. Using IRS data from Chetty et al. (2017), Figure 1 plots median incomes for college-goers at age 34 and for their parents. Like many public universities, CSU serves students from diverse racial and socioeconomic backgrounds. As a result, CSU campuses are considered important engines of upward mobility in the state, as they educate many more students from low-income families compared to selective private universities.

2.3 CSU Local Preference Policy

Historically, CSU admitted the top third of public high school graduates to any of its 23 campuses. In recent decades, due to excess demand, many CSU campuses have rejected qualified applicants, mirroring many of the standards for admission to UC. CSU campuses that cannot accomodate all qualified applicants are deemed "impacted". Students

[1] One in ten high school graduates attends a private and/or out-of-state university. One in three does not enroll in college (Kurlaender et al. 2018).

[2] According to the Master Plan for Higher Education, CSU selects from the top third of the state's high school graduates, and UC selects from among the top eighth. The CC system admits any student capable of benefiting from its instruction.

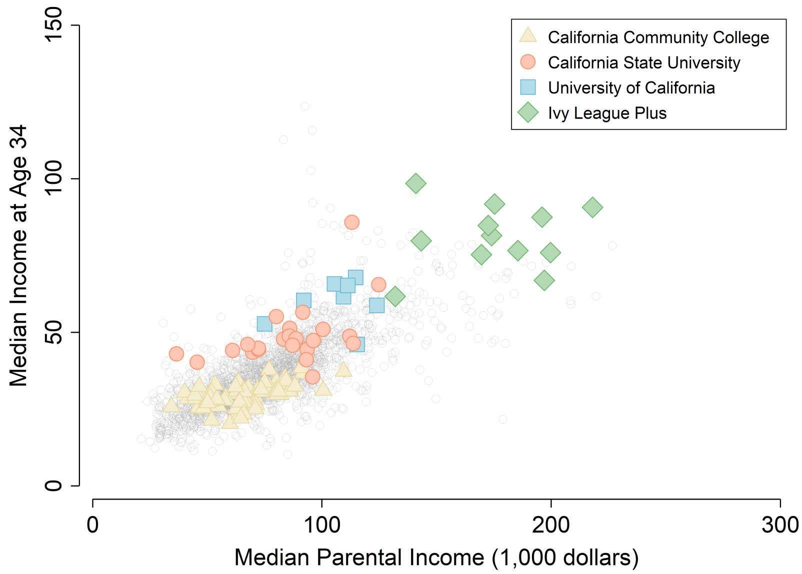


Figure 1: Parental and Student Income by College

Notes: Association between children's income at age 34 and parents' income among children who attended college in the early 2000s. Income is adjusted for inflation to 2015 dollars. The underlying data come from the Mobility Report Cards (Chetty et al. 2017).

applying for admission to an impacted campus must possess grades and test scores above the systemwide requirements for entry to CSU. In 2016, 31,000 students who met the systemwide requirements were turned away from every impacted college to which they applied (Koseff 2017).

Beginning in the mid 2000s, the CSU Board of Trustees mandated that impacted campuses prioritize applicants graduating from "local" high schools. The mandate was created to ensure that qualified students could attend a four-year college to which they could commute. Each impacted campus was required to designate a catchment area such that admissions advantages were given to graduates of high schools located within the catchment area.

By 2018, 18 CSU campuses were deemed impacted and defined catchment areas to determine which applicants qualify for CSU's local admission policy. Catchment areas are well-defined, static, and known to the public. In some cases, they overlap with highways, arterial roads, or borders that delineate school districts or counties. Figure 2 illustrates the catchment area for CSU Los Angeles: west of I-605, south of the Los Angeles County line, east of I-405, north of Highway 42, and dissected by a series of arterial roads. Similar figures and descriptions for the other 17 colleges are in Appendix A.

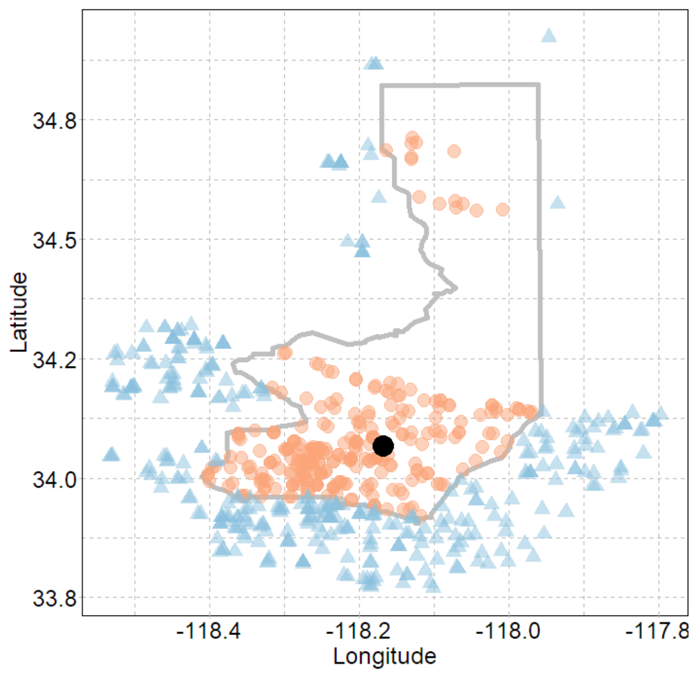


Figure 2: Catchment Area for CSU Los Angeles

Notes: Map of CSU Los Angeles (black circle), its catchment area (gray lines), and the spatial distribution of high schools within ten miles of the boundary. Orange circles denote high schools that qualify for CSU's admission policy; blue triangles denote otherwise.

The local preference mandate did not specify how much advantage impacted campuses must offer to local applicants, and in practice impacted campuses varied substantially in the degree of their local preferences. For instance, CSU Long Beach admits local applicants with GPA and SAT scores that are 0.4 points and 10 percentiles lower, respectively, than non-local applicants. By contrast, the president of CSU San Diego was an outspoken opponent of the local preference mandate, and CSU San Diego effectively skirted the mandate as a result.

In this study, we exploit variation in admission rates over time for students who are or are not local to a CSU campus that offered a local admissions advantage in practice.

3 Data and Sample Construction

This study combines data from four sources, allowing us to observe admission outcomes before and after CSU's local preference policy. First, high school data come from California's Student and School File, an annual census of K-12 schools in the state. These data sets measure student enrollment by grade level, demographic information, dates of operations, and school type. Second, we obtain college admission data from CSU's First-Time Freshman File. This data set contains year-to-year application, admission, and enrollment counts for each CSU campus and high school pair.[3] Third, we obtain similar college admission data for UC campuses from their Admissions by Source School File. Finally, we geocode spatial data based on descriptions and maps of catchment areas provided by the CSU Chancellor's Office. Distances between high schools, colleges, and catchment boundaries are measured in great-circle miles.

Key variables for this study include high schools' twelfth-grade enrollment; application, admission, and enrollment rates to CSU and UC; the college preparatory rate;[4] distance to catchment boundaries; distance to university campuses; and an array of student demographics, including race and ethnicity. We define underrepresented minority (URM) share as the proportion of Black or Hispanic students enrolled in the high school.

[3]Due to data privacy reasons, high schools with fewer than 11 applicants to the CSU system between 2000 and 2018 were censored.

[4]The college preparatory rate is the fraction of twelfth-grade students who passed the 15-course requirement for admission to CSU and UC, which includes two years of history, four years of English, three years of mathematics, two years of laboratory science, two years of a foreign language, one year of visual or performing arts, and one year of an elective.

We form our sample by selecting California public high schools with ≥ 11 twelfth-grade students each year between 2000 and 2018. We then link high schools from this balanced panel to the CSU and UC admission files. One in three high schools could not be linked to the college admission files, meaning that none of their graduates enrolled in CSU or UC in our study period. These selection criteria yield a panel of 762 high schools, which comprise the analytical sample for our study.

Table 1 reports summary statistics, averaged over the period 2000 to 2018, for our sample compared to all public high schools. While our sample includes 762 out of 3,418 public high schools in the state, because most excluded schools have low twelfth-grade enrollment, our sample captures 5.9 million out of the 8.3 million twelfth-grade students over this period. Relative to all high schools, those in our sample are less likely to be charter schools and more likely to be traditional schools. Student demographics are roughly balanced along the lines of college preparatory rate, proportion receiving free or reduced-price lunch, and race and ethnicity.

Students represented by high schools in our sample have slightly higher enrollment rates for CSU (12% versus 9.9%) and UC (6.8% versus 5.5%) campuses. The average student attends a high school 19 miles from their nearest local CSU campus. Around 60% of high schools in our sample are local to one CSU campus. Because catchment areas are allowed to overlap, 25% of high schools are local to two CSU campuses, 5% are local to three campuses, and 1% are local to four campuses. One in ten high schools are not local to any CSU campus.

Table 1: Descriptive Statistics for Twelfth-Grade Students in the Sample

	Sample	**All CA**
High schools	762	3,418
Twelfth-grade students	5,943,483	8,382,732
Charter	2.6%	7.5%
Traditional school	99%	87%
College preparatory rate (A-F)	38%	34%
Free and reduced-price lunch	43%	46%
Race and ethnicity		
Hispanic	41%	44%
White	35%	33%
Asian	14%	12%
Black	6.4%	7.4%
CSU enrollment rate	12%	9.9%
UC enrollment rate	6.7%	5.5%
High schools local to		
1 CSU campus	59%	
2 CSU campuses	25%	
3 CSU campuses	5%	
4 CSU campuses	1%	
Miles to nearest local CSU campus	19	

Notes: Mean of demographic and college choice variables for sampled high schools and all California high schools, averaged over years 2000 to 2018. Estimates are weighted by twelfth-grade enrollment. UC and CSU enrollment rates are denominated by twelfth-grade enrollment.

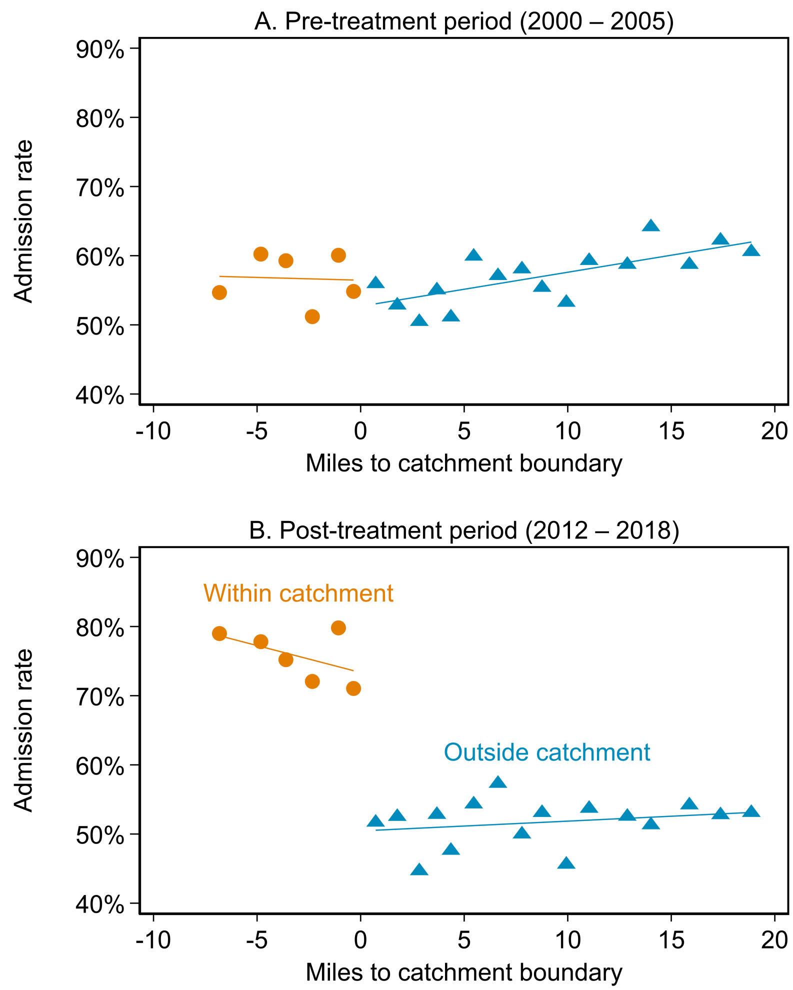
4 Estimating Local Admissions Preferences and Identifying "Adherent" Campuses

We begin by identifying which of the 23 CSU campuses offered a local admissions preference in practice. In our sample period, only 18 campuses were deemed "impacted" and therefore required by the CSU mandate to offer a local admissions preference. Additionally, of the impacted campuses, several appear not to have offered a local preference in practice, as exemplified by vocal resistance to the local preference mandate from the president of CSU San Diego. Therefore, we use data on empirical admission rates for local and non-local students over time at each CSU campus to identify which campuses implemented a local preference in practice.

To identify which CSU campuses implemented a local preference, we estimate the effect of the local preference mandate on each campus's admission rate for local applicants using a difference-in-discontinuity framework. Our difference-in-discontinuity approach leverages two forms of variation in admission rates. The first form of variation is the sharp spatial variation in admissions that occurs exactly at a campus's catchment boundary. Under the local preference mandate, the admissions benefit is activated precisely at the catchment boundary, so that a student from a high school just inside a CSU's boundary is subject to the local preference for that campus, while a student from a high school just outside a CSU's boundary is not. The second form of variation is the temporal variation in admissions that occurs from before to after the local preference mandate. Our difference-in-discontinuity approach compares students graduating from high schools just inside vs. just outside a CSU campus's catchment boundary before vs. after the local preference mandate was issued.

Figure 3 helps visualize the difference-in-discontunity approach using CSU Los Angeles as an example. Panel A plots the average admission probability (i.e. the total admissions divided by total number of applications) to CSU Los Angeles by number of miles to the catchment boundary during the pre-treatment period from 2000 to 2005. Students applying from high schools within the catchment boundary are in orange, and those outside the boundary are in blue. Panel A shows that there is little difference in admission probability for students from high schools just inside vs. just outside the catchment boundary in the pre-treatment period. Panel B shows the same information in the post-treatment period from 2012 to 2018. A large gap in admission probability of approximately 20pp occuring precisely at the catchment boundary is now evident in the post-treatment period. The difference-in-discontinuity approach compares the gap in admission probability occurring at the catchment boundary in the post-treatment period against the gap in the pre-treatment period.

Figure 3: Local Admissions Preference at CSU Los Angeles



We formalize this difference-in-discontinuity approach in the following regression equation, similar to Grembi et al. (2016):

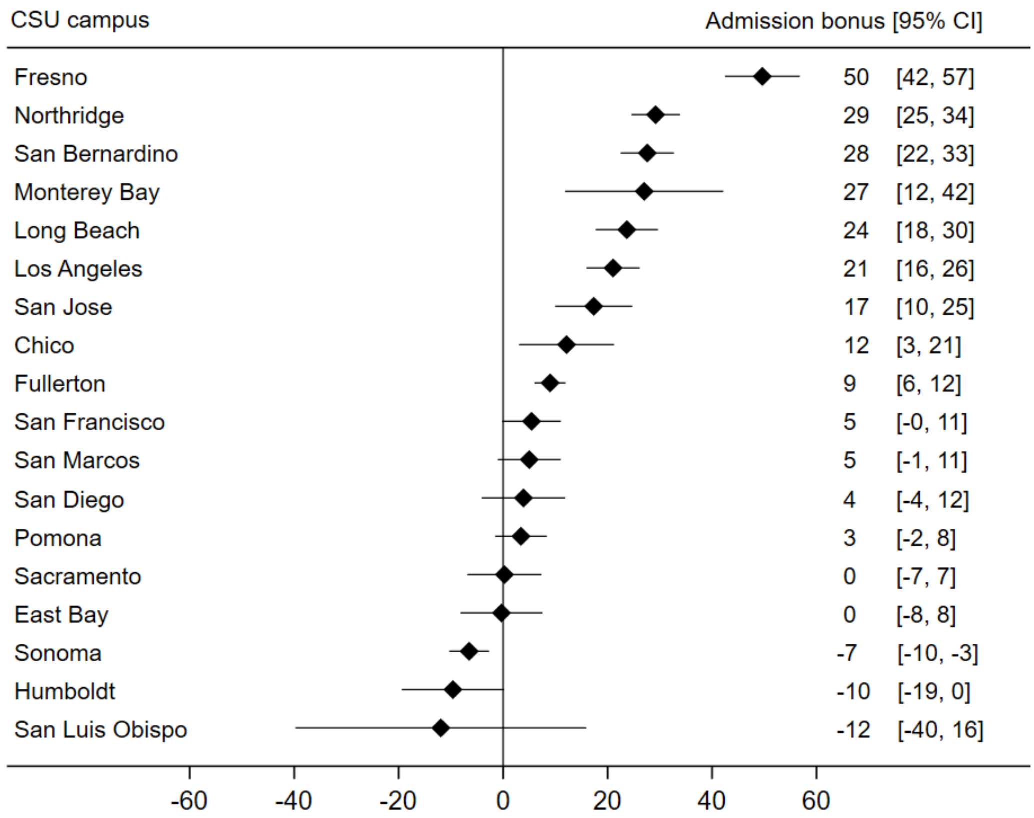
$$AdmitProb^j_{k,t} = \alpha_1 + \alpha_2 d^j_k + Local^j_k \cdot (\beta_1 + \beta_2 d^j_k) + Post_t \cdot \left[\gamma_1 + \gamma_2 d^j_k + Local^j_k \cdot (\theta^j + \gamma_3 d^j_k)\right] + \epsilon_{k,t} \tag{1}$$

where $AdmitProb^j_{k,t}$ is the admissions probability (i.e. total acceptances divided by total applications) among applications from high school k to CSU campus j in time t; d_k^j is the distance of high school k from the catchment boundary for CSU campus j in miles, where d_k^j is negative for high schools inside the catchment boundary and positive for high schools outside the boundary; $Post_t$ is an indicator for observations in the post-treatment period; $Local_k^j$ is an indicator that equals one whan high school k is within the catchment boundary for CSU campus j, or equivalently when $d_k^j < 0$; and $\epsilon_{k,t}$ is an error term. Because our data is at the high school level, we estimate Equation (1) at the high school level and weight observations by the number of 12th grade students in each high school in the post period. We estimate the regression using observations from the pre-treatment period 2000 to 2005 and the post-treatment period 2012 to 2018. We estimate Equation (1) among high schools whose distance from the catchment boundary for CSU campus j is within a pre-specified bandwidth distance, where for each CSU campus we use the optimal bandwidth size via Calonico et al. (2020) that minimizes MSE.

The coefficient of interest in Equation (1) is θ^j, which we use as our measure of the local admissions preference offered by CSU campus j. The parameter θ^j maps to the intuitive comparison described above using Figure 3, as it measures the change in admission probability gap precisely at the catchment boundary in the post-treatment period relative to the pre-treatment period. The is equivalent to estimating two separate regression discontunity designs (RDD), one in the pre-treatment period and one in the post-treatment period, and then subtracting the pre-treatment period RDD coefficient from the post-treatment period RDD coefficient. We estimate the regression in Equation (1) separately for each of the 18 impacted CSU campuses to produce an estimate of the local preference θ^j at each impacted campus. We impute $\theta^j = 0$ for the five CSU campuses that are not impacted during our sample period, as they were not required to implement a local preference.

Figure 4 lists the 18 impacted CSU campuses along with the resulting estimate of the

Figure 4: Local Admissions Preference by Campus



local preference θ^j for each campus and bars denoting 95% confidence intervals. There is wide variation in the local preference offered at each campus, and not all of the impacted campuses offer a positive and statistically significant local preference. Our estimates of the local preference are positive and statistically significant for nine out of the 18 impacted CSU campuses, which include Fresno, Northridge, San Bernardino, Monterey Bay, Long Beach, Los Angeles, San Jose, Chico, and Fullerton. We call these campuses "adherent" to the local preference policy. Within adherent campuses, there is substantial variation in estimated local preferences. The median estimated local preference is quite large at 24pp. Meanwhile, our estimates of the local preference are either not positive or not statistically significant for the remaining nine impacted campuses, which include San Francisco, San Marcos, San Diego, Pomona, Sacramento, East Bay, Sonoma, Humboldt, and San Luis Obispo. These campuses appear to offer no local admissions advantage in practice. We refer to these campuses as "non-adherent".

5 Effects of the Local Preference Policy on Enrollment

5.1 Enrollment Trends by Exposure to a Local Preference

To estimate the effect of the local preference policy on college enrollment, we use a difference-in-differences specification that compares students from high schools near an adherent CSU campus (whom we call "treated" students) against students from high schools not near an adherent CSU campus (whom we call "untreated" students), before and after the local mandate was implemented. We begin here with trends in enrollment for treated and untreated students over time.

Figure 5 shows aggregate trends in enrollment for treated and untreated students from 2000 to 2018. In each panel, the gold line shows enrollment trends for untreated students, who graduate from high schools that are not near an adherent CSU campus, and therefore are never subject to a local preference; the blue line shows enrollment trends for treated students, who gradute from high schools that are near an adherent CSU campus, and therefore are subject to a local preference in the post-treatment period. Panel A shows the probability that a student enrolls at their local CSU.[5] From 2000 to 2009, local CSU enrollment rates are similar for treated and untreated students. Beginning in 2010, treated students enroll in their local CSU at higher rates than untreated students, which persists through 2018. Assuming that local CSU enrollment would have trended similarly for treated and untreated students in the absence of the local preference mandate, Panel A makes evident that the local preference increased local CSU enrollment for treated students by between 2pp and

[5] Some students in the untreated group do not have a local CSU. For these students, the enrollment rate is mechanically zero for the entire sample period.

3pp relative to a baseline enrollment rate of 5pp.

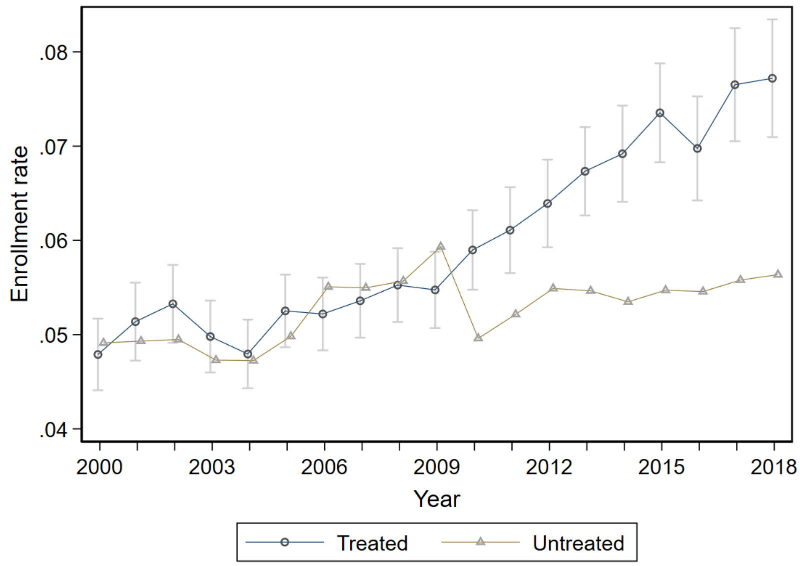
Panel B of Figure 5 shows that the increase in enrollment at one's local CSU did not come at the expense of enrollment at other public four-year colleges in California, which comprise all 23 CSU campuses and the nine University of California (UC) campuses that offer undergraduate degrees. From 2000 to 2009, there is a steady gap of approximately 2pp in enrollment rates at public four-year colleges in California between untreated and treated students. Beginning around 2010, this gap closes entirely, and even slightly reverses by 2018. Notably, this evidence signifies that the local preference policy is not simply reallocating enrollment among CSU campuses, and it also is not inducing students to enroll at their local CSU at the expense of enrolling at a more selective UC. Instead, the local preference policy is increasing net enrollment rates at any public four-year college in California.

The apparent enrollment effects of the CSU local preference mandate are almost entirely concentrated among students graduating from high schools with a high share of URM students. Figure 6 shows the same enrollment trends as in Figure 5, now separated for students graduating from high schools with a high or low share of URM students. Panel A shows trends in enrollment at one's local CSU campus. From 2000 to 2009, treated and untreated students from high or low URM share high schools all enroll at their local CSU at rates of approximately 5% to 6%. Beginning around 2010, local CSU enrollment rates for treated students from high URM share high schools diverge and increase to 9% by 2018, while enrollment rates for other students remain relatively constant.

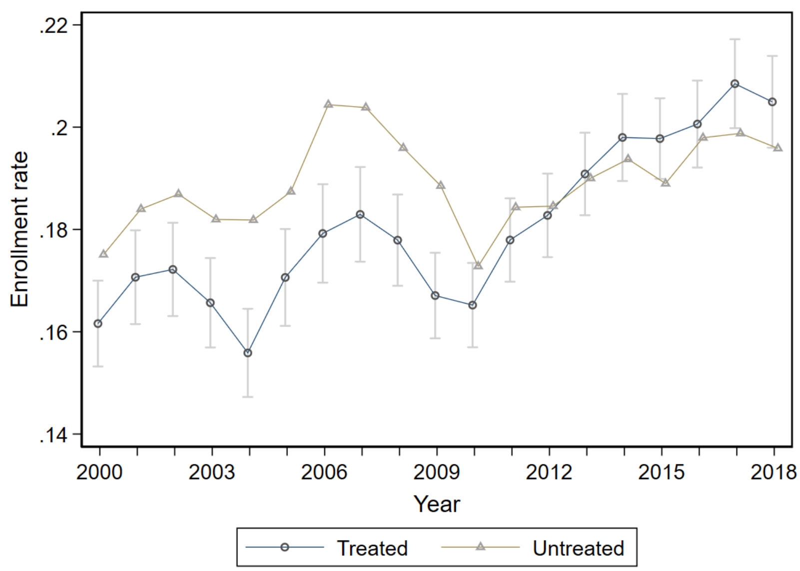
Panel B shows trends in enrollment at any public four-year college in California by high school URM student share. Within students from either high or low URM share high schools, enrollment rates are nearly identical between treated and untreated students from 2000 to 2009. In this period, students from low URM share high schools enroll at a baseline

Figure 5: Trends in Enrollment, Aggregate

A. Enrollment in Local CSU



B. Enrollment in Any CSU or UC



rate between 5pp and 6pp higher than students from high URM share high schools, whose baseline enrollment rate is approximately 15%. Among students from low URM share high schools, enrollment rates remain identical for treated and untreated students over the entire sample period, indicating no effect of the local preference mandate. Beginning around 2010, enrollment rates diverge between treated and untreated students at high URM share high schools, with a relative increase among treated students of approximately 3pp by 2018. By 2018, the baseline gap in enrollment between treated students from high URM share high schools and students from low URM share high schools is nearly eliminated, with the apparent treatment effect among students at high URM share high schools closing more than half of the gap.

The descriptive evidence displayed in Figures 5 and 6 foreshadows our main results on the reduced form effects of the local preference mandate on enrollment outcomes: the mandate increased enrollment at students' local CSU campuses without crowdout from other public four-year college in California, and this effect is almost entirely driven by students from high URM share high schools. We we describe these results formally in the following section.

5.2 Reduced Form Effects of the Local Preference Mandate on Enrollment Outcomes

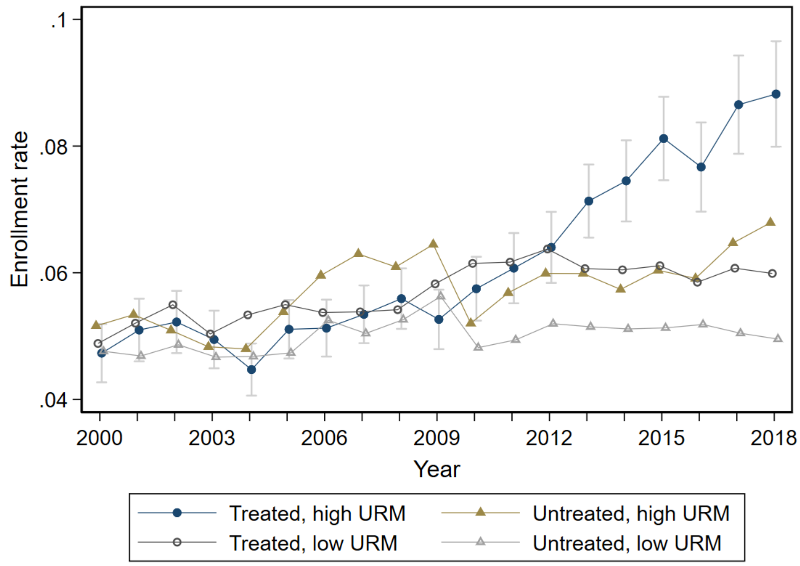
We estimate the reduced form effect of the local preference mandate on enrollment in a difference-in-differences design that compares enrollment outcomes between treated (i.e. local to an adherent CSU campus) high school graduates against untreated (i.e. not local to an adherent CSU campus) high school graduates, before and after the local preference mandate.

We are interested in estimating the effects of the local preference policy *as implemented*, and in our subsequent decomposition we assess the role of various aspects of the policy's implementation in shaping its overall effects.[6] To this end, we consider the following counterfactual: In the post mandate period, what would enrollment have been if local applicants to adherent CSU campuses were subject to the same admissions criteria as non-

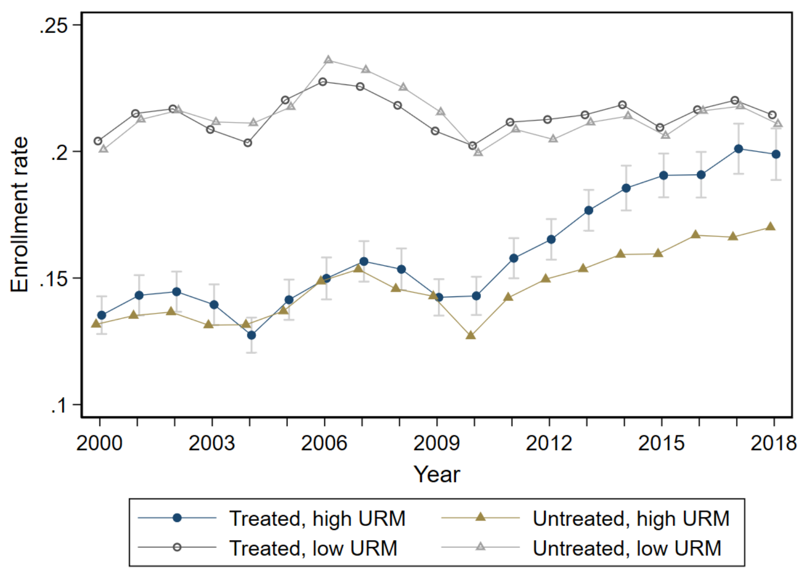
[6] For example, we do not focus on measuring the effect of a uniform local preference imposed at all campuses.

Figure 6: Trends in Enrollment, by Race

A. Enrollment in Local CSU



B. Enrollment in Any CSU or UC



local applicants? Our treatment effects measure actual enrollment against this counterfactual benchmark.

We formalize this notion in the following conditional average treatment effect (CATE) estimand:

$$\rho_G^Y \equiv E[w_{|G}(Y_2(c_2) - Y_2(\tilde{c}_2)) \mid G] \tag{2}$$

where Y is some enrollment outcome; $G \in \{low, high\}$ denotes whether a high school has a low or high share of URM students; subscripts of 2 indicate the post period; c_t is the random vector of admissions thresholds across all CSU campuses in period t, which lists the local admissions thresholds for any student local to a given CSU, and the non-local thresholds otherwise; $\tilde{c}_t$ is the vector of only non-local admissions thresholds; and w is a weight to convert from high-school level to student level, equal to the number of 12th graders in the high school over the post period divided by the total number of 12th graders in the post period conditional on what is indicated in the subscript, e.g. $w_{|G} \equiv \frac{n_2}{E[n_2 \mid G]}$, with n_2 being a count of 12th graders in a given high school in the post period.

To identify ρ_G^Y, we make use of the following conditional parallel trends assumption:

$$E[w_{|G,M}(Y_2(c_b) - Y_1(c_a)) \mid G, M] = E[w_{|G}(Y_2(c_b) - Y_1(c_a)) \mid G] \qquad \forall\ G \in \{low, high\};\ c_a, c_b \in \mathbb{R}^{23}$$

where $M \in \{0, 1\}$ indicates whether a high school is local to any adherent CSU campus or not. This assumption states the following: within low or high URM share high schools, for any vector of pre period admissions thresholds c_a and for any (potentially different) vector of post period admissions thresholds c_b, the (student-weighted) average change in an enrollment outcome Y is the same for high schools that are local to an adherent CSU campus as for those that are not local to an adherent CSU campus.

This conditional parallel trends assumption produces the result that $\rho_G^Y = \rho_G^{Y,obs}$, where

$$\rho_G^{Y,obs} \equiv \Big\{ E[w_{|G,M=1}(Y_2 - Y_1) \mid G, M = 1] - E[w_{|G,M=0}(Y_2 - Y_1) \mid G, M = 0] \Big\} \cdot \left\{ P(M = 1 \mid G) \frac{E[n \mid G, M = 1]}{E[n \mid G]} \right\}$$

$\rho_G^{Y,obs}$ is simply the conditional weighted average change in an enrollment outcome among treated high schools minus the conditional weighted average change in an enrollment outcome among untreated high schools, all multiplied by the conditional share of students in the post period who are treated. We can observe all components of $\rho_G^{Y,obs}$ in the data, so this is the parameter we estimate.

We are also interested in the unconditional average treatment effect (ATE):

$$\rho^Y \equiv E[w(Y_2(c_2) - Y_2(\tilde{c}_2))] \tag{3}$$

Using the same conditional parallel trends assumption defined above, we can write:

$$\rho^Y = \rho_{low}^{Y,obs} \cdot \left\{ P(G = low) \frac{E(n_2 \,|\, G = low)}{E(n_2)} \right\} \; + \; \rho_{high}^{Y,obs} \cdot \left\{ P(G = high) \frac{E(n_2 \,|\, G = high)}{E(n_2)} \right\}$$

which follows from the Law of Iterated Expectations along with some algebra. Note that the end result is a proper weighted average of $\rho_{low}^{Y,obs}$ and $\rho_{high}^{Y,obs}$. We estimate ρ^Y using the plug-in weighted average of our estimates $\hat{\rho}_{low}^{Y,obs}$ and $\hat{\rho}_{high}^{Y,obs}$.

Table 2 shows the main reduced form effect estimates. Each row represents a different enrollment measure. The top row measures enrollment at any CSU or UC campus, which cover all public four-year colleges in California. This can be separated into enrollment at any CSU and enrollment at any UC. Enrollment at any CSU is further disaggregated into enrollment at one's local CSU and enrollment at a non-local CSU. Across the columns of Table 2, the relevant population is varied from all high schools in our sample, to only high URM share high schools, and finally only low URM share high schools. Within each group, the table shows the estimate of the reduced form effect defined in Equation (3) (for all high schools) or Equation (2) (for high or low URM share high schools only) next to the counterfactual mean enrollment, all in percentage points. Counterfactual means are computed as the observed (student-weighted) post period mean minus the estimated reduced form effect.

Table 2: Effects of CSU Local Admissions Preference on Enrollment

	All		High URM		Low URM		
	Counterfactual mean	RF Effect	Counterfactual mean	RF Effect	Counterfactual mean	RF Effect	p-value on RF diff
Any CSU or UC	18.8	0.8 (0.3)	16.4	1.5 (0.4)	21.3	0.0 (0.3)	0.01
Any CSU	12.2	0.8 (0.2)	11.7	1.2 (0.3)	12.7	0.2 (0.2)	0.02
Local CSU	5.1	0.8 (0.1)	5.5	1.4 (0.2)	4.7	0.2 (0.1)	0.00
Non-local CSU	7.1	-0.1 (0.1)	6.2	-0.1 (0.2)	8.0	0.0 (0.1)	0.49
Any UC	6.6	0.0 (0.1)	4.7	0.2 (0.2)	8.6	-0.2 (0.2)	0.10

The reduced form effect estimates displayed in Table 2 match the patterns described in the preceding section. In aggregate, the local preference mandate increased enrollment at a student's local CSU campus by 0.8pp. The increase in local CSU enrollment does not come at the cost of any effect on enrollment at a non-local CSU or at any UC, so that total enrollment at any CSU and at any CSU or UC both increase equally by 0.8pp. Enrollment effects are almost entirely driven by students from high schools with a high share of URM students. Among students from high URM share high schools, local CSU enrollment increases by 1.4pp. Measured effects on enrollment at a non-local CSU or any UC for this group are small and statistically insignificant. Net enrollment at any CSU or UC increases by 1.5pp for students from high URM share high schools, representing a nearly 10% increase over the counterfactual enrollment rate of 16.4%. Enrollment among students from low URN share high schools is unaffected by the local preference mandate on all enrollment margins we measure. The final column of Table 2 shows the p-value testing the null hypothesis that the corredponding reduced form effect is equal for students from high and low URM share high schools. We can reject that the increase in enrollment at one's local CSU, at any CSU, and at any CSU or UC among students from high URM share high schools is equal to the effect for students from low URM share high schools. We see little evidence of any effect on enrollment at a non-local CSU or at any UC for students from high or low URM share high schools and we cannot reject differences in these effects across the two groups, which is consistent with the local preference policy having no important crowd out effect on enrollment at a non-local CSU or at any UC regardless of student demographics.[7]

6 Conclusion

We study the effects of a local preference admissions policy at the largest four-year university system in the US, the California State University system. Our analysis highlights a few key aspects of the local preference admissions policy implemented by the California State University system. First, it boosts the odds that a given student enrolls at a local CSU campus. Second, increases enrollment at a local CSU does not appear to be met with crowd-out from enrollment at non-local CSU's or UC's. And third, enrollment effects of the policy are entirely concentrated among students from high schools with a high share of underrepresented minority (URM) students.

Our results hold implications for policymakers looking to improve equity in college access. In particular, a local preference admissions policy can boost equity in college access, even though it is formally race-neutral. Further analysis will estimate a decomposition to assess how much of this equity impact is due to differences across high schools in treatment intensity (exposure to CSU's offering a local preference) versus treatment sensitivity (larger enrollment response to the same local preference, perhaps due to differences in the share of students whose admission is marginal to the local preference cutoff).

[7] We cannot reject equality of the reduced form effect on non-local CSU enrollment. The difference in effects on enrollment at any UC is marginally insignificant at the 10% level, suggesting there might be a relative increase in UC enrollment among students from high relative to low URM share high schools; however, point estimates are small and neither is statistically significant.

References

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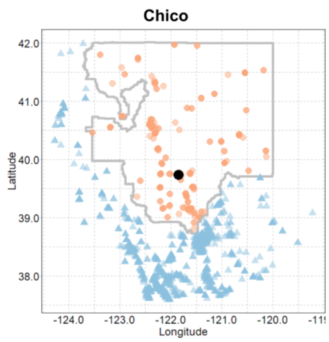
Koseff, Alexei (2017) "If You're Eligible for CSU, You'll be Guaranteed a Slot under California Budget Deal," *The Sacramento Bee*.

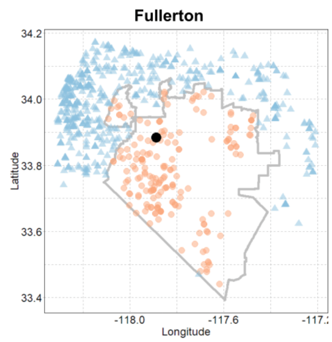
Kurlaender, Michal, Sherrie Reed, Kramer Cohen, Matt Naven, Paco Martorell, and Scott Carrell (2018) "Where California High School Students Attend College," *Policy Analysis for California Education*.

Oreopoulos, Philip and Uros Petronijevic (2013) "Making College Worth It: A Review of Research on the Returns to Higher Education," *National Bureau of Economic Research*, No. W19053.

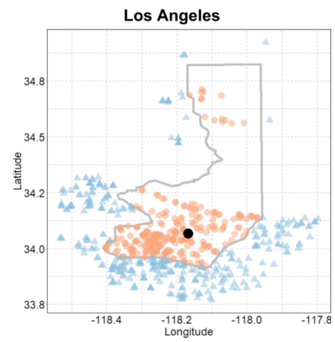
A Catchment Areas for CSU Colleges



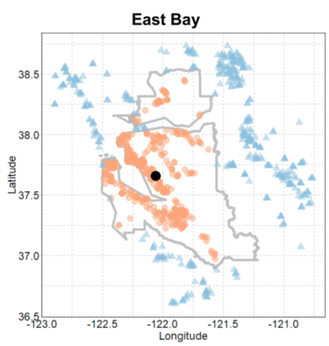
Catchment Area: Butte, Colusa, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Sutter, Tehama, and Yuba Counties; and four school districts in Trinity County: Mountain Valley, Southern Trinity, Trinity Alps, and Trinity High School.



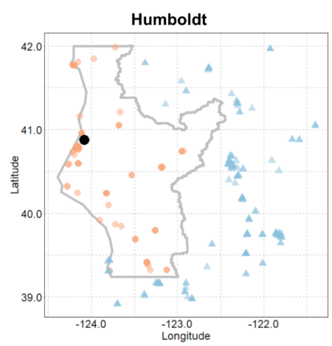
Catchment Area: Orange County; and Chino, Corona/Norco, Walnut, Whittier, and Alvord School Districts.



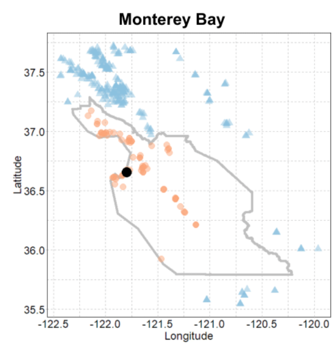
Catchment Area: East to I-605 and the L.A County Line, north to the L.A. County Line, south to Highway 42, west to the intersection of I-405 and Culver, north on Culver to La Cienega, north on La Cienega to Sunset-Hollywood Blvd, east of Hollywood Blvd to Los Feliz, east on Los Feliz to I-5 to Sunland Blvd, east on Sunland Blvd to Highway 14.



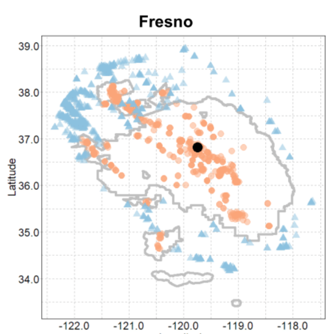
Catchment Area: Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara, and Solano Counties.



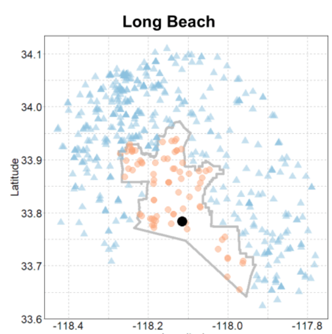
Catchment Area: Del Norte, Humboldt, Northern Mendocino, and Western Trinity Counties.



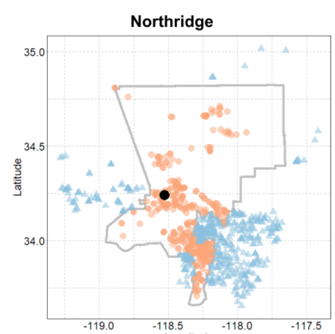
Catchment Area: Monterey, San Benito, and Santa Cruz Counties.



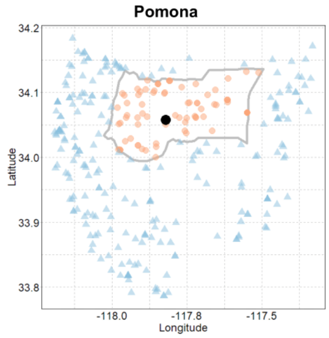
Catchment Area: Fresno, Kings Madera, and Tulare Counties; and high schools with a historic relation with Fresno State in other counties.



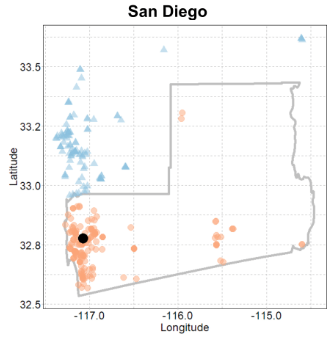
Catchment Area: ABC, Anaheim (Cypress and Oxford only), Bellflower, Compton, Downey, Huntington Beach, Long Beach, Los Alamitos, Norwalk-La Mirada, and Paramount School Districts.



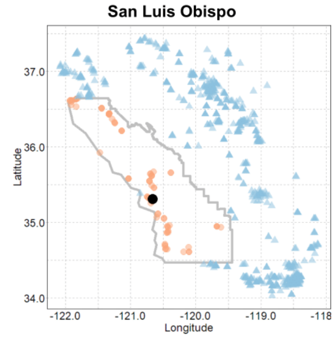
Catchment Area: Los Angeles Unified School District (excluding the East Educational Service Center); and Acton-Agua Dulce, Antelope Valley, Beverly Hills, Burbank, Compton, Culver City, Glendale, Gorman Elementary, Inglewood, La Canada, Las Virgenes, Lennox Elementary, Lynwood, Pasadena, San Gabriel, San Marino, Santa Monica-Malibu, and William S. Hart Union High Unified School Districts.



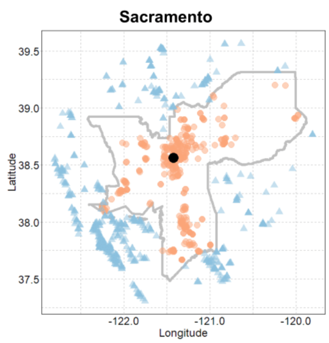
Catchment Area: West of I-15, north of I-60, east of I-605, and south of I-210.



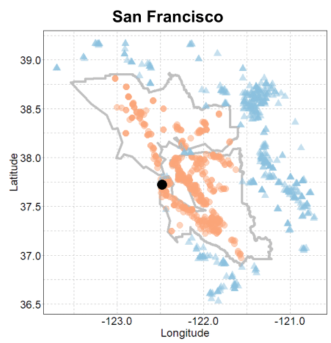
Catchment Area: San Diego County south of Highway 56 and Imperial County.



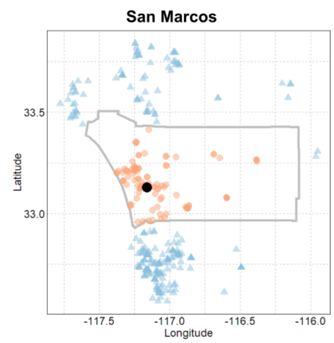
Catchment Area: San Luis Obispo, southern Monterey, and northern Santa Barbara Counties.



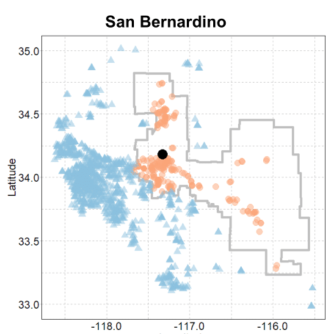
Catchment Area: El Dorado, Nevada, Placer, Sacramento, San Joaquin, Solano, and Yolo Counties.



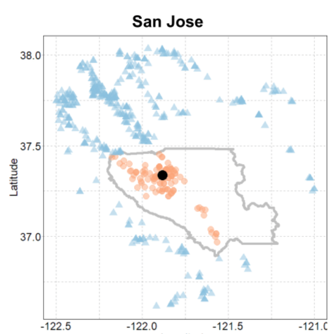
Catchment Area: San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, and Marin Counties.



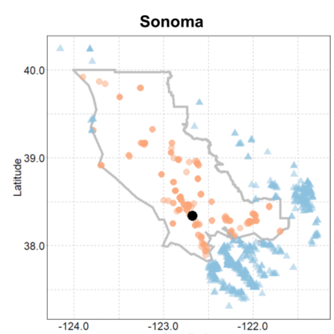
Catchment Area: North of Highway 56 in San Diego County; and Capistrano and Saddleback Valley, Hemet, Lake Elsinore, Murrieta Valley, San Jacinto, Temecula, and Val Verde School Districts.



Catchment Area: Apple Valley, Chaffey, Colton, Fontana, Hesperia, Morongo, Redlands, Rialto, Rim of the World, San Bernardino City, Victor Valley, and Yucaipa. Riverside Counties; and Banning, Beaumont, Coachella Valley, Desert Sands, Jurupa Valley, Moreno Valley, Palm Springs, and Riverside School Districts.



Catchment Area: Santa Clara County.



Catchment Area: Sonoma, Napa, Marin, Lake, Solano, and Mendocino Counties.